



Analysis

What are shared and social values of ecosystems?



Jasper O. Kenter^{a,b,*}, Liz O'Brien^c, Neal Hockley^d, Neil Ravenscroft^e, Ioan Fazey^f, Katherine N. Irvine^g, Mark S. Reed^h, Michael Christieⁱ, Emily Brady^j, Rosalind Bryce^{b,k}, Andrew Church^e, Nigel Cooper^{l,m}, Althea Davies^{b,n}, Anna Evely^o, Mark Everard^p, Robert Fish^q, Janet A. Fisher^j, Niels Jobstovgt^b, Claire Molloy^r, Johanne Orchard-Webb^e, Susan Ranger^s, Mandy Ryan^t, Verity Watson^t, Susan Williams^u

^a Laurence Mee Centre for Society and the Sea, Scottish Association for Marine Science, Oban, Scotland, United Kingdom

^b Aberdeen Centre for Environmental Sustainability, University of Aberdeen, Scotland, United Kingdom

^c Forest Research, Farnham, England, United Kingdom

^d School of Geosciences, Environment, Natural Resources and Geography, Bangor University, Wales, United Kingdom

^e School of Environment and Technology, University of Brighton, England, United Kingdom

^f School of Environment and Centre for Environmental Change and Human Resilience, University of Dundee, Scotland, United Kingdom

^g Social, Economic and Geographical Sciences Research Group, James Hutton Institute, Aberdeen, Scotland, United Kingdom

^h Centre for Environment & Society Research, Birmingham City University, England, United Kingdom

ⁱ School of Management and Business, Aberystwyth University, Wales, United Kingdom

^j School of Geography and Geosciences, University of Edinburgh, Scotland, United Kingdom

^k Centre for Mountain Studies, Perth College, University of the Highlands and Islands, Scotland, United Kingdom

^l Anglia Ruskin University, Cambridge, England, United Kingdom

^m Diocese of Ely, Church of England, United Kingdom

ⁿ School of Geography and Geosciences, University of St Andrews, Scotland, United Kingdom

^o Project Maya, London, England, United Kingdom

^p Pundamilia Ltd, Great Somerford, England, United Kingdom

^q Centre for Rural Policy Research, College of Social Sciences & International Studies, University of Exeter, England, United Kingdom

^r Department of Media, Edge Hill University, England, United Kingdom

^s Marine Conservation Society, Ross-on-Wye, England, United Kingdom

^t Health Economics Research Unit, University of Aberdeen, Scotland, United Kingdom

^u Natural Resources Wales, Cardiff, Wales, United Kingdom

ARTICLE INFO

Article history:

Received 1 January 2014

Received in revised form 12 January 2015

Accepted 22 January 2015

Available online 6 February 2015

Keywords:

Shared values

Social values

Ecosystem services

Environmental valuation

Total Economic Value

Deliberation

Deliberative monetary valuation

Non-monetary valuation

Interpretive methods

Psychological methods

Decision-making

ABSTRACT

Social valuation of ecosystem services and public policy alternatives is one of the greatest challenges facing ecological economists today. Frameworks for valuing nature increasingly include shared/social values as a distinct category of values. However, the nature of shared/social values, as well as their relationship to other values, has not yet been clearly established and empirical evidence about the importance of shared/social values for valuation of ecosystem services is lacking. To help address these theoretical and empirical limitations, this paper outlines a framework of shared/social values across five dimensions: value concept, provider, intention, scale, and elicitation process. Along these dimensions we identify seven main, non-mutually exclusive types of shared values: transcendental, cultural/societal, communal, group, deliberated and other-regarding values, and value to society. Using a case study of a recent controversial policy on forest ownership in England, we conceptualise the dynamic interplay between shared/social and individual values. The way in which social value is assessed in neo-classical economics is discussed and critiqued, followed by consideration of the relation between shared/social values and Total Economic Value, and a review of deliberative and non-monetary methods for assessing shared/social values. We conclude with a discussion of the importance of shared/social values for decision-making.

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

* Corresponding author at: Scottish Association for Marine Science, Oban PA37 1QA, United Kingdom.

E-mail address: jasper.kenter@sams.ac.uk (J.O. Kenter).

1. Introduction

Social valuation of ecosystem services and public policy alternatives is one of the greatest challenges facing ecological and environmental economics today (Parks and Gowdy, 2013). If we are to achieve such valuation, theoretical and methodological plurality is needed to

understand and account for the full value of biodiversity and ecosystem services to human wellbeing (Bebbington et al., 2007; TEEB, 2010; Wegner and Pascual, 2011; UK National Ecosystem Assessment [UK NEA], 2011, 2014; Parks and Gowdy, 2013). Yet conventional economic approaches to valuation, including the valuation of non-market benefits of the environment, and the welfare economic theory on which these are based, tend to approach value as one-dimensional, and (ultimately) held by individuals alone. Value to society is thus typically considered through aggregation of individual valuations, with the assumption that these valuations reflect underlying preferences and values (Klamer, 2003). However, such an approach may not capture collective meanings and significance ascribed to natural environments, potentially missing important, shared dimensions of value. Choices about the environment are fundamentally ethical and social, because the preferences we hold as individuals are influenced by socialisation within a particular society, but also because of the environmental impacts that individual behaviour has on others. As Vatn (2009, p. 2210) states: “Through the physical linkages existing in nature, a social interconnectedness is forced upon us. In this context one may ask whether individual preferences are the best basis for social choice.”

Deliberative and participatory approaches to environmental valuation and appraisal are increasingly advocated as a way to include the multidimensionality of value within decision-making. While such approaches have considerable advantages, there remains debate about whether they should augment, complement, or replace cost–benefit as the principal tool for welfare assessment (O’Neill, 1996; Price, 2000; Holland, 2002b; Bebbington et al., 2007; Wegner and Pascual, 2011; Parks and Gowdy, 2013). In relation to resource management, notions of communal values and ‘collective intentionality’ also give rise to the need to fulfil communal obligations in parallel with strategies to maximise individual welfare (Ishihara and Pascual, 2012). Recent frameworks for ecosystem valuation, such as those developed by the UK NEA (2011, 2014), The Economics of the Environment and Biodiversity (TEEB, 2010) and the Common International Classification of Ecosystem Services (CICES; Haines-Young and Potschin, 2012), include ‘shared’, ‘social’ or ‘shared social’ values as a distinguishable value category. There is also governmental interest in analytical methods and quantitative measures for social and shared values for nature (Fish et al., 2011a, 2011b; Fujiwara and Campbell, 2011; Maxwell et al., 2011). However, in the literature these terms refer to a wide range of overlapping concepts and the theoretical basis for such concepts and their inter-relationships is weak. Gaining clarity about shared and social values is essential for decision-makers to better manage conflicts over natural resources, assess the social impacts of policy and develop effective environmental management strategies (White et al., 2009; Fish et al., 2011b; Kenter et al., 2014; UK NEA, 2011, 2014).

Contemplating shared and social values inevitably leads to questions about the relationship between broad, ethical values (in the sense of guiding principles), contextual or attitudinal values (in the sense of worth or importance), and value in the sense of a monetary measure. Further questions relate to how preferences are shaped, whether there is an identifiable category of values that are shared socially and not obtained by the aggregation of individual monetary valuations, whether or when such values should be elicited, and when it is sufficient to aggregate individual monetary valuations to obtain a collective sense of significance. This then leads to questions about whether or when shared values can be sufficiently accounted for by adapting and improving neoclassical economic valuation methods (such as contingent valuation and cost–benefit analysis) or whether new or additional approaches are needed to obtain the full contribution that ecosystems make to human wellbeing. This paper will explore these questions through a consideration of how shared and social values can be conceptualised. In so doing, the paper seeks to clarify the main terms associated with these values, provide definitions and examine how shared values might be assessed.

This paper focuses primarily on environmental valuation. *Valuation* is therefore distinguished from *valuing*. We consider the latter as an informal, largely implicit process not bound to any particular setting, while the former relates to formal research, analysis or decision-making processes where values (of various types) are explicitly expressed (e.g., in surveys or workshops) or deduced (e.g., through content analysis of media). The purpose of valuation, as discussed here, is to provide knowledge about the value of ecosystems and their services as a contribution to environmental decision-making, monitoring and management processes. While there have been decades of valuation evidence produced with the explicit aim of helping policy-makers take better account of environmental benefits and costs when making decisions, this evidence has largely failed to translate into tangible improvements in terms of environmental outcomes (Jordan and Russel, 2014; Turnpenny et al., 2014). The issue is therefore not just one of knowledge gaps, but also of knowledge acquisition and utilisation. Some consider that environmental valuation and appraisal on the basis of aggregated individual values has reached the limits of welfare economics, and that a more social approach to valuation has the potential to provide a more convincing and legitimate evidence base (Farber et al., 2002; Parks and Gowdy, 2013), or form a complementary assessment providing a more comprehensive suite of evidence overall (Sagoff, 1998; Bebbington et al., 2007; Fujiwara and Campbell, 2011). While we focus here on shared and social values in the context of the environment, concerns around the need for their inclusion, and the limits of conventional welfare economics in this respect, are also increasingly recognised in other fields, such as valuation of health services (e.g., Cleary et al., 2011; Mooney et al., 2002). Given the importance of shared and social values for making decisions, this paper will thus have wide relevance to academics and practitioners across different valuation fields.

The paper first discusses how the terms ‘shared’, ‘social’ and ‘shared social’ values have been used in the literature. It then establishes a theoretical framework that outlines five dimensions for distinguishing different interpretations of shared and social values: value type, provider, the process used to elicit values, the intention of value and the scale. Along these dimensions, seven main categories of shared and social values are identified (Table 1). How shared values relate to individual values is then considered using a case study on forest ownership in England. This is followed by a discussion and critique of neoclassical approaches to economic environmental valuation and the relation between shared and social values and Total Economic Value (TEV). A range of monetary and non-monetary methods for assessing such values are reviewed. Finally, we discuss the relevance of shared and social values for decision-making in different spheres, and future research avenues are identified.

2. Conceptions of shared and social values

Within the fields of ecosystem assessment and environmental valuation, ‘shared values’, ‘social values’, and ‘shared social values’ have encompassed a wide diversity of meaning. This section provides some examples of how these different terms have been conceptualised in the literature. The aim here is to highlight the breadth of interpretations rather than to provide a fully comprehensive review or conclusive definition.

2.1. Shared values

The term ‘shared values’ has often been used to refer to guiding principles and normative values that are shared by groups or communities or to refer to cultural values more generally. Daily et al. (2009) argued that the shared values of ecosystems refer to underlying cultural values that might help shape the institutions necessary to make the ecosystem services framework operational. In an examination of policy analysis and aggregation of values, Sagoff (1986) discussed shared values as synonymous with what he also called ‘public values’: “goals or intentions the

Table 1
Main types of shared and social values with definitions and dimensions along which they can be discriminated.

Type of shared/social values	Definition	Associated dimension
Transcendental values	Conceptions about desirable end states or behaviours that transcend specific situations and guide selection or evaluation of behaviour and events (Schwartz and Bilsky, 1987)	Concept
Cultural and societal values	Culturally shared principles and virtues as well as a shared sense of what is worthwhile and meaningful. Cultural values are grounded in the cultural heritage and practices of a society and pervasively reside within societal institutions (Frey, 1994). Societal values are the cultural values of a society; societies may be more or less homogenous, so there may be multiple sets of cultural values in one society that overlap to a greater or lesser degree with each other	Provider
Communal values	Values held in common by members of community (e.g., geographic, faith/belief-based, community of practice or interest), including shared principles and virtues as well as a shared sense of what is worthwhile and meaningful	Provider
Group values (within valuation)	Values expressed by a group as a whole (e.g., through consensus or majority vote, or more informally), in some kind of valuation setting	Provider
Deliberated values	Value outcomes of a deliberative process; typically, but not necessarily, a deliberative group process that involves discussion and learning	Process
Other-regarding values	As contextual values: the sense of importance attached to the well-being of others (human or non-human). As transcendental values: regard for the moral standing of others	Intention
Value to society	Benefit, worth or importance to society as a whole	Scale

individual ascribes to the group or community of which he is a member; they are his because he believes and argues they should be ours; he pursues them not as an individual but as one of us" (p. 302). For example, many people consider that wild places should be preserved even when it has no benefit to them, or to others; they believe in this goal because it aligns with their idea of the shared values of a good society. A further characteristic of the shared nature of values described by Sagoff is that they are 'impersonal', and hence deliberative and political processes are required to adequately identify them. Thus, the conception of shared values as implicit, communal or public values, and of shared values as values that are brought forward through deliberative social processes appear to be closely related.

Shared values may also refer to values held in common by groups in particular contexts. For example, Stein et al., (1999) investigated both contrasting and shared values around landscape management in the Upper Midwest of the United States that were held in common by urban and rural groups of stakeholders. By understanding what values were shared within groups and communities as well as what values were shared between groups, land managers were better able to identify mutual goals and improve cooperative planning processes and outcomes.

2.2. Social values

The term 'social values' has also been used in diverse ways. It can refer to the values of a particular community or the cultural values and norms of society at large, but can also be used to refer to the public interest, values for public goods, 'altruistic' values and feigned altruistic values, the values that people hold in social situations, contribution to welfare or well-being, the willingness-to-pay (WTP) of a group, the aggregated WTP of individuals, or values derived through a social process. For example, Kennedy et al. (1995) discussed social values about natural resources as, on the one hand, values deriving from the 'social system' and, on the other, as the wider norms expressed through laws, political action, media and other institutions. As such, the authors suggested two layers of social values: a cultural first layer that influences a second layer of contextual values in relation to natural resource management.

Sherrouse et al. (2011) and Brown (2013) discussed social values in a participatory GIS (Geographical Information Systems) context. In these papers social values were constructed as equivalent to 'landscape values', which were conceived as non-monetary place-based values categorised by type, e.g., spiritual, aesthetic and subsistence, and contrasted to (economic) monetary valuations. For Bryan et al. (2010) the social values terminology was used to refer to any kind of use or non-use benefits that people derive from ecosystems. This is in contrast

to 'ecological values', which these authors characterised as a score based on multiple ecological attributes regardless of human benefits. Aggregate 'social values' – again assessed using a GIS approach – were then constituted as a non-monetary rating of value to society.

2.3. Shared social values

The amalgam 'shared social values' has been used to refer to subsets or combinations of the various concepts described above. For example, Norton and Steinemann (2001) used the term 'social' to refer to a societal context while 'shared social' was used to indicate group deliberated values reflecting that societal context. In a discussion of community-based environmental management using multi-criteria approaches, social values were related to aspirations: values that reflected hopes and dreams of the public. Social values would drive individuals to pick criteria and indicators and, through a deliberative process sets of shared social values and appropriate indicators for these values were then identified. In a more theoretical discussion, Stagl (2004) also referred to shared social values in the context of multi-criteria evaluation, and its relation to deliberative decision-making, complexity and post-normality (see e.g., Funtowicz and Ravetz, 1993). Shared social values were regarded as the outcome of processes of effective social interaction, open dialogue and social learning. From this perspective, shared social values were closely allied to shared meanings, and effective policy for a society depends on the creation of these among cultural groups, as they do not exist a priori. Stagl regarded the formation of shared meaning and values as a social learning process, where, in the words of Webler et al. (1995), "...individuals [learn] how to solve their shared problems in a manner that is responsible to both factual correctness and normative consent" (p. 445). In contrast, Reed et al. (2010) considered social learning as "a change in understanding that goes beyond the individual to become situated within wider social units or communities of practice through social interactions between actors within social networks" (p. online). The relationship between individual values and values of wider social units will be discussed in Section 4.

This brief overview illustrates that while the terms shared and social are often used interchangeably, there is a different and distinct emphasis: 'shared' more generally refers to those holding or providing the value, whereas 'social' tends to qualify the type of value. 'Shared' suggests a type of cultural value, common principle, or, more generally, the values held in common by a group, community or society. The 'social' adjective often refers to a social scale, a social intention or a social process. Thus, the term 'shared social values' is not necessarily tautological, as social values in relation to others or society can be expressed either on an individual basis or through a shared social process.

3. Dimensions and types of shared and social values

As illustrated, usage of the terms ‘shared’ and ‘social’ is diverse and ambiguous. Rather than reducing this plurality to single definitions, we instead identify five dimensions to help bring clarity to the way in which the terms are described and may be used for the purpose of identification, elicitation and measurement. These dimensions are as follows: the concept of values, the value provider, the elicitation process, the intention of value, and its scale (Fig. 1). These dimensions allow differentiation between the ways in which the terms have been used (Table O1) and to evaluate social issues and processes in terms of clearly identified types of shared and social values. The following subsections explain each of these dimensions.

3.1. The concept of values (‘value concept’)

We make a distinction between three primary concepts of values: *transcendental values*, *contextual values*, and *value-indicators*. Transcendental values are guiding principles that transcend specific situations and can be seen as the “criteria that people use to select and justify actions and to evaluate people (including the self) and events” (Schwartz, 1992, p. 1). Contextual values are values in the sense of opinions about worth or importance, which are dependent on an object of value and hence contextual and attitudinal. Value-indicators are a measure of the importance of something, expressed in monetary terms (e.g., social willingness-to-pay) or non-monetary terms (e.g., the frequency of occurrence of a coded term in an interview transcript). Although some of these distinctions are commonly made (Dietz et al., 2005), they are not often clearly articulated or do not articulate all three concepts (e.g., Ives and Kendal, 2014). Differentiation of values on this axis bears resemblance to the differentiation of values into ‘held’ and

‘assigned’ by Rokeach (1973). Here, held things are the things that we hold as important while assigned values are the values that we assign to things. However, that distinction is problematic, because it is unclear into what category opinions about the worth of something fall.

Transcendental values are often associated with ethics and normative beliefs, which are shared culturally. Because of this, it is these values that are sometimes characterised as shared, social or cultural values. This stands in contrast to contextual values that are more allied with individual attitudes and preferences. In sociology, transcendental values are considered as learned, epistemologically grounded, relatively enduring, emotionally charged and representing moral conceptualizations that assist us in making judgements and in preparing us to act (Frey, 1994). As illustrated by (Table 2), in addition to these ethical principles, transcendental values include things that can be characterised as desirable end states, such as ‘a varied life’, ‘family security’, or ‘mature love’ (Schwartz and Jerusalem, 1994; Schwartz, 1992; Schwartz and Bilsky, 1987). Rokeach (1973) subdivided transcendental values into instrumental values, in the sense of principles/virtues, and terminal values, in the sense of end-states. However, this distinction is not particularly helpful, because if principles are seen as virtues, by definition they are in themselves also terminal. Finally, transcendental values are not necessarily made explicit (Frey, 1994) and in relation to the environment are often latent (Niemeyer, 2004).

Contextual values are considered to be closely associated with, but different from, preferences and attitudes (Table 3). While contextual values reflect an opinion of worth, preferences are a stated or revealed ranking or rating. The difference between a contextual value and an attitude is that a contextual value expresses an opinion of worth, while an attitude is an opinion of favour. For example, one may value the conservation of a certain bird species (a contextual value), favour policies that help to achieve conservation of the species (an attitude) and prefer

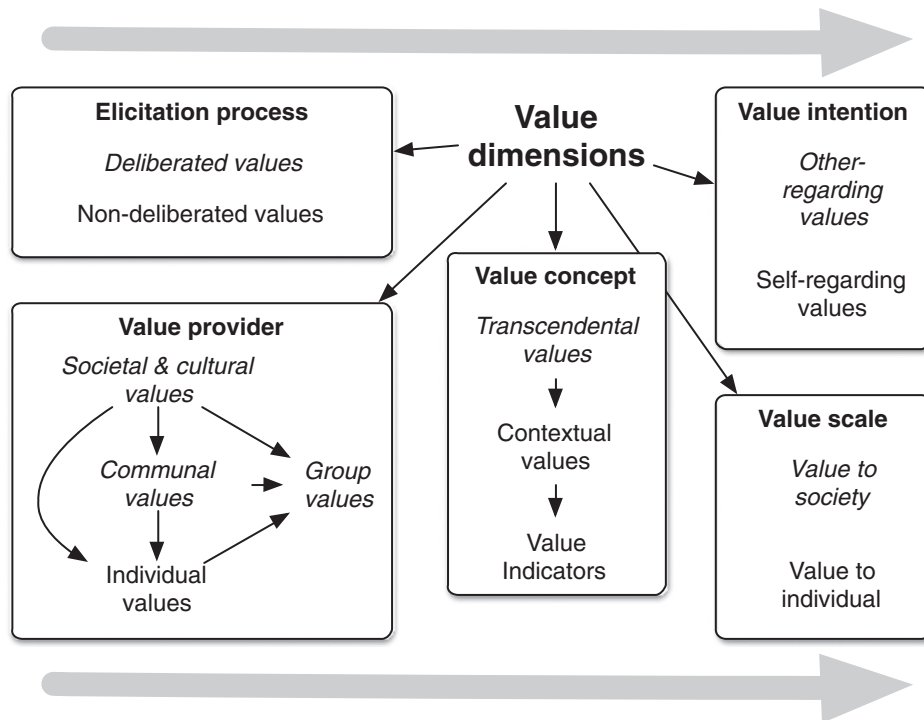


Fig. 1. Shared and social values framework: the five dimensions and seven main types of shared and social values. Bold titles indicate non-mutually exclusive dimensions of value. Emerging from the dimensions, we can differentiate between types of values that might be termed shared, social, or shared social values (italicised) and other types of values. For example, *provider* is a dimension that indicates who might provide values in a valuation setting; societies, cultures, communities and ad-hoc groups provide *societal, cultural, communal* and *group* values, which are all types of shared or social values. Individuals also provide values, but these are not termed shared or social, unless they can be classified as such on a dimension other than that of value-provider. Arrows within boxes indicate directions of influence between different types of values. Grey arrows signify that the type of elicitation process and value provider strongly influence what value types are articulated along the concept, intention and scale dimensions.

Table 2

Schwartz values. An overview of key transcendental values identified by Schwartz (Schwartz and Jerusalem, 1994; Schwartz, 1992; Schwartz and Bilsky, 1987). Schwartz argues for a 'universal' structure in values across cultures, which consists of a range of dimensions (*italics*) across four main axes.

Self-transcendence	Self-enhancement	Openness	Tradition
<i>Universalism</i>	<i>Power</i>	<i>Self-direction</i>	<i>Tradition</i>
Protecting the environment	Social power	Creativity	Devout
A world of beauty	Authority	Curious	Respect for tradition
Unity with nature	Wealth	Freedom	Humble
Broad-minded	Preserving my public image	Choosing own goals	Moderate
Social justice	Social recognition	Independent	Accepting portion in life
Wisdom			Detachment
Equality	<i>Achievement</i>	<i>Stimulation</i>	
A world at peace	Successful	Daring	<i>Conformity</i>
Inner harmony	Capable	A varied life	Politeness
	Ambitious	An exciting life	Honouring parents and elders
<i>Benevolence</i>	Influential		Obedient
Helpful	Intelligent	<i>Hedonism</i>	Self-discipline
Honest	Self-respect	Pleasure	
Forgiving		Enjoying life	<i>Security</i>
Loyal			Clean
Responsible			National security
True-friendship			Social order
A spiritual life			Family security
Mature love			Sense of belonging
Meaning in life			Reciprocation of favours
Healthy			

these policies to others that might endanger it (a preference). Contextual values may be influenced by information and beliefs, but also by norms, needs, traits and roles Table 3.

Value-indicators are expressions of value in commonly understood units. The most obvious examples are amounts of money, ratings, rankings and indices. Value-indicators can be used to assess the trade-offs that people are prepared to make. While ontologically value-indicators are not of themselves values, they are here included as a value concept, as in practice they are generally referred to as values.

As an example of the interrelations between these different concepts in the context of valuation of ecosystem services, consider a proposal to restore wetlands to improve water quality. Water purification can be viewed as a *service*, improved health as a *benefit* and one's perception of the importance of this as a *contextual value*. Contextual values will depend on *beliefs* such as those about the state of current water quality, but also beliefs about others' beliefs and norms. If one then considers something ought to happen (a *norm*), one might then have a favourable *attitude* towards restoration of wetlands. If one is then asked for a view on a proposal to raise taxes so that the wetland can be restored, one might then have a *preference* for this to happen over maintaining the status quo. The strength of this preference could be expressed as the amount one is willing to pay, a *value-indicator*. Overall, contextual values, attitudes and preferences could be positively influenced by health as an overarching *transcendental value*, but also by other transcendental values such as family security and harmony with nature.

3.2. Whose values are being considered ('value provider')

A second dimension found in the literature concerns who provides the values under consideration. Four types of providers of value can be distinguished: societies as whole, communities, ad-hoc groups, and individuals. Societies as a whole share *cultural* and *societal values*, which may be considered shared principles and virtues as well as a shared sense of what is worthwhile and meaningful. There may, of course, be multiple sets of cultural values within a society, but for simplicity here

we use the terms cultural and societal values interchangeably. Cultural values are grounded in the cultural heritage of a society and pervasively reside within societal institutions (Frey, 1994). These include both transcendental and contextual values. For example, it is said that British culture values politeness (transcendental), and has a culture of tea-drinking (contextual). Cultural values are expressed through arts, media, political processes, and institutions, and are also reflected in the values of individuals. More detail on the relation between societal and individual values is discussed in Section 4.

Of course, societies are not homogenous, and within them there is a wide range of social groups that express distinct *communal values*, including local communities, faith groups and communities of practice and interest (e.g., and groups of people that share a profession or an activity such as recreational users of the environment). In addition, there are ad-hoc groups associated with research, such as a discussion group of stakeholders or a focus group with members of the public, which can come to collectively value outcomes that we term *group values*; for example, in techniques such as citizens' juries, multi-criteria analysis or participatory mapping. The difference between communal and group value providers is relevant, because for communal values the focus of valuation will likely be on shared experiences, practice and institutions, while for group values the focus is on process (e.g., coming to consensus). Communal and group values can overlap, for example when communal values arise in a deliberative valuation workshop.

We purposively refer here to *value providers* rather than *value holders*, as the aim of our discussion is to develop a useful typology in relation to *valuation* of nature (as opposed to the broader and more informal valuing of nature). By focusing on provision of values, we also avoid the need to come to a final conclusion on whether, ultimately, values are individual or intersubjective and whether it is individuals or social entities that 'hold' shared values. In terms of the provider dimension, we thus conceive of shared values as values that are *expressed* collectively. In terms of non-market valuation of the environment, the usual value providers are individuals, but with increasing interest in deliberative approaches to valuation, group value expressions (through consensus or majority vote) are becoming more common (Fish et al., 2011a; Spash, 2008; Zografos and Howarth, 2010; Kenter et al., 2011, 2014).

3.3. How values are elicited ('elicitation process')

A third important dimension is the elicitation process, which seeks to distinguish between *deliberated* and *non-deliberated values*. The distinction between group and individual 'settings' is generally made in the deliberative valuation literature (Lo and Spash, 2012; Spash, 2007), but this does not discriminate between the provider and process dimensions, as valuation may take place in group settings where the group or workshop setting does not include significant deliberation. For example, Christie and Rayment (2012), in a large-scale study on the value of the UK Biodiversity Action Plan, used group settings as a means to inform participants and to ensure that they were familiar with complex concepts related to biodiversity. The valuations elicited from individuals in this type of group setting may be characterised as *informed individual values* (or in this case, more specifically, *informed individual WTP*), which is considered different from *deliberated individual values* (or *WTP*), because it is not just the group setting but also the process that determines whether a value can really be considered 'shared'. Recent research suggests that non-deliberated individual values, deliberated individual values and deliberated group values can all be significantly different both in monetary and non-monetary approaches, with deliberated individual values falling between non-deliberated individual values and deliberated group values (Kenter et al., 2014).

3.4. Scale of values ('value scale')

A further discrimination that needs to be made is between the individual scale, and the 'social' scale, which has bearing on *value to society*, or in

relation to society. An example is that one might highly value enjoyment and a varied life for oneself (e.g., reflected in consumer behaviour), but in relation to society other values such as fairness or responsibility might be more important (e.g., reflected in voting behaviour). In terms of monetary value-indicators, the social scale can refer to *aggregate WTP* or *social WTP*. For example, if a population of 100,000 people has a mean individual WTP of £10 to restore a wetland, one possible aggregate WTP would be £1 million. However, one might also ask how much the government should spend on this wetland instead of other social priorities; if an individual states an amount of £1 million, this would constitute a *social WTP*. To distinguish here from previous dimensions, if this £1 million were to be determined as a group decision, this could be termed *group social WTP*. If this group decision was determined through a deliberative process this would be termed *deliberated group social WTP*.

3.5. Intention of values ('value intention')

The dimension of *intention* relates to whether values are self-regarding or other-regarding, altruistic values. For example, one may value one's own life enjoyment (self-regarding), but also that of one's neighbour or that of future generations (other-regarding). *Intention* differs from the *scale* dimension, as values for others are not necessarily values in relation to society.

Neoclassical economics explicitly does not concern itself with other-regarding values, as it could be argued that in so doing, double counting would occur. Although valuation may consider such things as altruistic, existence and bequest values within a framework of Total Economic Value (TEV) (Pearce and Moran, 1994), ultimately it is conceived to be the personal satisfaction that one gains by being altruistic that is considered the source of value. The relation between shared and social values and TEV will be explored in more detail in Section 6.

Relevant to the dimensions of both intention and scale, it has been posited that people have multiple sets of values and preferences. These may include a self-regarding set at the individual scale, where people maximise their personal utility according to their consumer preferences ('I want'), and another set of other-regarding 'citizen' values ('society should') (Sagoff, 1998). These are underpinned by a broader set of transcendental values and include non-utilitarian deontological and virtuous motives. The implicit nature of these transcendental values may need to be brought out through a deliberative process (Kenter et al., 2014; Lo and Spash, 2012; Niemeyer, 2004; Sagoff, 1998). In the following section the dynamic relation between the values of individuals and shared and social values is considered.

4. Shared and social values and the individual

To more fully understand what shared and social values are, it is fruitful to clarify how different types of shared values relate to the individual. A considerable amount of academic literature has revealed how individuals adapt transcendental and cultural values through implicit and explicit socialisation processes (for example, special issue in *Current Sociology*, 2011). In sociology the formation of values at both the cultural and individual level is regarded as a socio-cultural phenomenon. This formation refers to "*emergent value articulations as they are being shaped, reproduced or changed by social action*" (Bachika and Schulz, 2011 p. 109). These *cultural and societal* values are acquired over time and become embedded within the culture of a particular society. There can be catalysts or conflict points (e.g., terror acts and disasters such as Bhopal and Fukushima, or highly-contested political issues such as fracking, or the debate on forest ownership in the UK – see below) where a society debates values; these are potential moments of re-valuation or recognition of values that were previously not outwardly or explicitly articulated.

Schwartz (1999) identified a universal set of values that operate at the cultural/societal level as well as at the individual level. At the societal level, values "*represent the implicitly or explicitly shared abstract ideas*

about what is good, right and desirable in a society" (Schwartz, 1999 p. 25). Societal values are promoted, imparted, transmitted, changed and maintained in a variety of ways such as through exposure to formal and informal customs, laws, norms, cultural traditions and societal institutions (Bourdieu, 1972; Markus and Kitayama, 1994). At the interface between the societal and individual levels, one may speak of the operation of values to refer to the role that value articulations play in life (Bachika and Schulz, 2011). Individual values are therefore a product of cultural values but are also interpreted through each person's own individual experience.

Schwartz (1999) posited that these collective values can be inferred by aggregating the values of individuals as they will point to underlying common values and are a product of shared culture. Others however argue that deliberation through the public sphere, public debate, and consultation are needed to articulate shared and social values (Dobson, 2012). From this perspective, citizen or stakeholder values should be articulated through constructive dialogue and communication if these values are to be accounted for as legitimate factors. Through such a process people listen to arguments and use reasoned judgement in deliberative fora to come to an agreement or decision, which could potentially bring about more democratic outcomes than analytical aggregation of individual preferences. Deliberation in the public sphere and public spaces can thus be considered a key part of political as well as social theory (Dobson, 2012).

The dynamics between shared and social values and the individual are highlighted in the example of the attempt to 'sell off' the public forests managed by Forestry Enterprise England (FEE). In 2011 the UK government launched a consultation to propose a mix of selling (to private companies and community groups) and handing over (to charities) England's public forest estate (PFE), rather than have a government body (FEE) manage the forests. Elicitation of values occurred through a number of routes, including formal public consultation, social and print media and an Independent Panel on Forestry (IPF). The initial public consultation, where individuals and organisations were asked to formally submit comments to the government on the proposal, was cancelled after three weeks due to intense public protest, particularly about ownership and access issues. A key concern about the consultation pertained to why the government was changing the ownership of the PFE without giving people the opportunity to state whether the existing ownership and management was acceptable (Lawrence and Jollands, 2011). After cancelling the consultation the Secretary of State for the Environment established the IPF chaired by the Bishop of Liverpool to advise the government on the future of England's forests and woods as a whole, rather than solely focus on the PFE. The ten visits of the IPF to local communities and stakeholders in England could be characterised as a deliberative approach to considering and appraising the future of forestry in England.

While research highlights that many people value trees and woodlands, the articulation of this value is not usually prominent in the public domain in everyday discourse. The most obvious indicator of value is the 358 million visits made to woodlands in England in 2011 (Natural England, 2012).¹ The protests around the proposed sell-off involved the articulation and operation of a plurality of values, with value providers at the individual, communal and societal level. At the individual provider level half a million people signed an online petition, 7007 commented on the first consultation prior to its cancellation and 42,000 made comments to the IPF consultation request for feedback. This latter process was based on five open questions about the future of forestry rather than relying primarily on closed-ended questions as had been used in initial public consultation (IPF, 2011; Lawrence and Jollands, 2011). At the communal provider level, direct collective action was undertaken through protests in local forests; new groups were formed such as 'hands off our forests' and 'keep our forests public', while larger NGOs supported local groups in their protests. At the

¹ The population of England in 2013 was approximately 53 million.

Table 3
Glossary of terms relating to values. Terms referring to types of shared and social values are given in Table 1.

Term	Definition
Values	1. Transcendental values: conceptions about desirable end states or behaviours that transcend specific situations and guide selection or evaluation of behaviour and events (Schwartz and Bilsky, 1987) 2. Contextual values: opinions about the importance or worth of something 3. Value-indicators: the importance or worth of something expressed in units of another (e.g., monetary values) or as a rank, rating, count or index
Concerns	Concerns include values, but also accounts for the perceived risk to what is valued. Consequently, one may value an element of the environment but not be concerned with it if one does not perceive it to be at risk (Schultz, 2001)
Attitudes	Favourable or unfavourable evaluations of an object, person or issue (Eagly and Chaiken, 1993). One may value wilderness and be opposed to constructing a dam in a natural area; the latter is an attitude. The difference between a contextual value and an attitude is that a contextual value expresses an opinion of worth, while an attitude is an opinion of favour.
Traits	An enduring disposition of personality (Hitlin and Pitliavin, 2004)
Norms	'Ought to' statements regarding specific situations (Hitlin and Pitliavin, 2004)
Needs	Biological demands on an individual (food, shelter, reproduction etc.) (Hitlin and Pitliavin, 2004)
Preferences	Rankings or ratings of possible outcomes (Dietz et al., 2005)
Beliefs	Any proposition that is accepted as true (Colman, 2001). Whereas an attitude must be evaluative, a belief does not imply value judgement
Worldviews	Generalised beliefs about the state of the world (Dietz et al., 2005)
Roles	Differing ways of behaviour and decision-making depending on the social situation. Weight of values may differ across roles (Dietz et al., 2005).

societal provider level national media (web-based, newspapers, trade journals, magazines) extensively reported on the issue, but also played a role in its social amplification by suggesting that access would no longer be allowed to some woodlands or that some woodlands might be felled to make way for housing or business. Value elicitation started at the individual scale via the consultation but once wider debate and protest started, particularly via the popular media, the issue became more articulated at the societal scale and many people felt the need to come together to discuss shared values for woodlands in relation to society. Individual contextual values were articulated with people often drawing on their own experiences of visiting specific woodlands as a child and as an adult that were important to them. Communal values were also articulated, with woodlands being seen as an important aspect of local communities particularly in areas with strong historical and cultural connections to woods such as the New Forest and the Forest of Dean (in the south of England). At the societal level the debate covered benefits at an individual scale, e.g., woodlands are good for children and families, but also how we should value not only woodland as a society but nature more broadly, and about justice and who should have access to land. There were major concerns that the public goods provided by the PFE such as open access, recreation, and biodiversity might be degraded or not be available under different ownership. The intention of these values was clearly other-regarding. The articulation of values at the communal and societal level was thus not just about the aggregation of individual values focused on what people wanted from woodlands themselves, but came about through debate and dialogue of transcendental values that covered ethical issues such as who should have access to and benefit from woodlands. Thus, deliberation activated these transcendental values that were previously implicit, which ultimately led to a re-evaluation of the policies that had been proposed on assumptions around benefits and cost based on aggregation of individual welfare measures.

This case study thus illustrates the complexity of value concepts, elicitation processes, providers, scale and intention of values. What started as a clear commitment and rationale for government of shifting the balance of power from 'big government' to 'big society' through reducing government ownership and management of public woodland became an arena of much public debate and disquiet around the proposed privatisation. The dimensions and types of shared and individual values outlined in Section 3 came into play throughout the consultations and IFP activity at multiple levels (individual, community, society), not in a linear trajectory but iteratively through local action, print and social media. While different types of shared and social values can be identified within this process, it is also apparent that these types were often co-emergent, with transcendental and other-regarding values and values in relation to society often emerging from deliberation at the communal and societal provider level.

5. Shared and social values and environmental valuation

It is thus an important question whether shared and social values can be elicited through eliciting the values of individuals, or whether other approaches are necessary. To further explore this we briefly examine how environmental economic valuation considers value to society. Fundamentally, most economic valuation uses social welfare functions to establish social welfare from a given set of individual preferences or welfare rankings. These values are assumed to be self-regarding only, excluding other-regarding values. Although environmental economic valuation may consider such things as altruistic, existence and bequest values within a framework of TEV, as will be discussed in the next Section, ultimately it is conceived to be the personal satisfaction that one gains by being altruistic that is considered the source of value. The assumption of the self-serving, utility-maximising individual is also a requirement of Bergson-Samuelson social welfare functions, which are conventionally used to establish social welfare in Cost-Benefit Analysis (CBA) and allied methods (Hausman, 1993). If the full value of ecosystems is not incorporated into economic accounting and decision-making, this is essentially considered a technical problem, rather than a philosophical one that requires changes in how value is conceived (Ravenscroft, 2010).

This individualistic, utilitarian way of establishing social value has seen considerable critique. Preferences can be uncertain and transient. Individuals exhibit preferences that, to the observer, do not appear increase these individuals' well-being (for example drug use or self-harming behaviour), and well-being may be derived as much from outgrowing many of our wants as from satisfying them (Sagoff, 1986). Individual preferences, behaviour and WTP are not just determined by individual utility but also by other-regarding values and moral norms (Peacock, 1997; Keat, 1997).

Additionally, when aggregating individual preferences, some kind of agreement is needed on how to aggregate both within dimensions (i.e., how much does each individual count?), and across dimensions of valuation (i.e., how much does each value criteria count?). If value is by its nature plural, then there are many possible ways of trading across dimensions of value. This plurality of value may not be able to be represented by a continuous utility function, in which case individuals cannot be compensated for decrements in one dimension by improvements in another (Holland, 2002a; D'Agostino, 2000; Sagoff, 1998; Beckerman and Pasek, 1997; O'Neill, 1996). Take, for example, appraisal of a hypothetical proposed mining project. Dimensions of value could be the usual costs and benefits (expected revenue, construction and operational costs, etc.), the livelihoods of people, the cultural impact of the project, and impacts on local biodiversity. In conventional economic analysis, if the benefits outweigh the costs after compensation, the project would be 'efficient' and deliver a net value to society (even if these compensations do not actually take place). However, CBA enforces a set

Table 4

Overview of deliberative and analytical-deliberative methods that can be used to assess shared values of ecosystems, their potential to address value commensurability and aggregation issues, their suitability for different spatial scales and their relative requirements in terms of resources and timescales. Note: this table spreads *horizontally* across two pages.

Technique	Description	Types of values that may be elicited	
Deliberative	In-depth discussion groups	Group (usually 4–8 people) discussions (often repeated), during which participants shape the terms of discussion, develop themes in ways relevant to their own needs and priorities ^a	<i>Process:</i> Cultural/societal, communal, transcendental, group, deliberated, other-regarding, values in relation to society <i>Outcome:</i> Deliberated group or individual, transcendental and/or contextual values
	Citizen's juries	A small cross section of the general public who come to a considered judgement about a stated policy issue/problem through detailed exposure to, and scrutiny of, the relevant evidence base. Group responds by providing a recommendation or 'verdict'. ^a	<i>Process:</i> Cultural/societal, communal, transcendental, deliberated, other-regarding, values in relation to society <i>Outcome:</i> Deliberated group contextual values (verdict)
	Deliberative opinion polls	Technique designed to observe the evolution of the views of a large citizen test group as they learn about a topic. Typically the group votes on the issues before and after an extended debate. ^a	<i>Process:</i> Cultural/societal, communal, transcendental, group, deliberated, other-regarding, values in relation to society <i>Outcome:</i> Deliberated individual indicators (vote counts)
Analytical-deliberative	Participatory modelling	The involvement of stakeholders in the design and content of analytical models that represent ES and their benefits under different spatial and temporal conditions ^a	<i>Process:</i> Cultural/societal and communal contextual values. Other-regarding and transcendental values only likely to be made explicit if prompted through reflection/deliberation process <i>Outcome:</i> Deliberated group contextual values and indicators (relative importance of different parameters and their relationships)
	Deliberative monetary valuation (DMV)	Techniques that use formal methods of group deliberation to come to a decision on monetary values for environmental change. ^a May be allied to survey-based techniques (e.g., contingent valuation, choice experiments) or use a non-econometric approach to establish values (e.g., incorporating citizen's juries)	<i>Process:</i> Cultural/societal and communal contextual values. Other-regarding and transcendental values only likely to be made explicit if prompted through reflection/deliberation process <i>Outcome:</i> Deliberated and/or group indicators (deliberated individual or group willingness-to-pay [WTP], deliberated individual or group fair price, deliberated individual or group social WTP)
	Deliberative multi-criteria analysis	Techniques that involve groups of stakeholders designing formal criteria against which to judge the non-monetary and (sometimes) monetary costs and benefits of different management options as the basis for making a decision ^a	<i>Process:</i> Cultural/societal and communal contextual values. Other-regarding and transcendental values only likely to be made explicit if prompted through reflection/deliberation process. <i>Outcome:</i> Deliberated contextual individual or group values and indicators (ratings/rankings/scores)

^a Description adapted from Fish et al. (2011a).

of assumptions that the ecological, social and cultural dimensions of value can be both compared and compensated fully and justly (Ravenscroft, 2010). Unless all parties completely agree about how different dimensions should be traded off against each other, it is not possible to draw out any single conclusion. The plurality of values is not just a theoretical issue, but is also reflected in the wide range of motivations that underlie willingness-to-pay in (contingent) valuation studies: moral and political stances as well as expressions of welfare gains or losses (e.g., Vадnjal and O'Connor, 1994; Clark et al., 2000; Desvousges et al., 1993; Kenter et al., 2011).

There is no logically infallible way to aggregate utility across individuals (Feldman, 1987). Arrow's (1950) impossibility theorem proved that for any method of deriving social choices by aggregating individual preference patterns, individual preference patterns can exist such that it is impossible to derive a social ranking that meets certain minimal conditions: consistency, non-dictatorship, universality, monotonicity, and independence. As a consequence, social choice theory calls into question whether aggregation of preferences across individuals in valuation and CBA² can lead to a single consistent ranking of policy alternatives (Parks and Gowdy, 2013). Economists have recognised the difficulties associated with establishing value to society through aggregation of individual values (Baveye et al., in press), calling into question why many

economists continue to uncritically employ aggregation methods that have long been shown to be problematic (Parks and Gowdy, 2013).

5.1. Shared and social values and Total Economic Value

Thus, there are fundamental issues associated with establishing value to society through arithmetically aggregating the plural values of diverse individuals. Nonetheless, the question might arise of whether shared and social values may be sufficiently addressed through assessment of TEV. TEV includes 'altruistic' value (value of knowing that something benefits other people alive now), 'bequest' value (value of knowing that something benefits future generations), and 'existence' value (value of knowing that something benefits non-human life). These value-components together make up 'non-use' value, which, along with direct and indirect use value, completes the TEV framework.

If one interprets its non-use components as other-regarding, TEV can be linked in various ways to the different types of shared values identified in Section 3. First, bequest, existence and altruistic values may be seen as various components of other-regarding values. Second, TEV-components may be underpinned by various transcendental values, such as justice and fairness in relation to other people or other species, and harmony with the environment. Third, these values may be associated with communal, societal and cultural values, stemming from or being strengthened by being part of a community where these kinds of values are held in common. Fourth, they may become more or less important or articulated when elicited through a deliberated process, and fifth, they may be expressed as a group verdict, rather than as individual values.

² Note that this issue is not particular to economics; Arrow's impossibility theorem applies to any situation where a social preference is derived through aggregating individual preferences.

Potential to address commensurability and aggregation issues	Spatial scale	Resources required	Timescales
High — Deliberation process not restrictive of the type of values that are expressed, though lack of structure can lead to omission of latent/implicit values. Equitable means of aggregation can itself be made a topic of deliberation.	Any, mostly used locally/regionally	Low (local scale) to high (national scale) — In contrast to some other deliberative methods there is no set structure, thus process and outcomes are uncertain and highly dependent on the quality of facilitation.	Short to medium — Highly flexible though dependent on number of groups and iterations
Medium to high — Deliberation structures are not restrictive of the type of values that are expressed. Aggregation method pre-determined	Any	Low to medium — Quality depends on availability of evidence and witnesses (which may drive up cost).	Medium — Depends on complexity of issue, an iterative approach may be required.
Medium — Process may restrict the type of values that are expressed. Aggregation method pre-determined	Any	Medium to high — Mobilising large sample may require considerable effort. Large-scale application can be facilitated through digital resources.	Medium to long — Mobilising large sample may require considerable effort/time.
Low to medium — A highly structured process is likely to restrict the type of values that are expressed unless additional deliberate exercises are incorporated	Any, system bounds can be established either spatially or contextually.	Low to high, depending on complexity of model, whether models are conceptual or also quantitative and computer based. Complex processes require elaborate facilitation.	Short to long — Depends on complexity
Low to high — Strongly dependent on focus of deliberation (economisation, moralisation or both), degree to which the process restricts or inhibits elicitation of plural value types and motivations, and degree to which value convergence is enforced. Group-based decision-making and use of 'fair price' or social WTP as payment terms can address some of the issues around aggregating individual preferences.	Any	Econometric DMV requires the advanced quantitative and survey design skills needed for applying CV or CEs, plus facilitation skills. They also require a substantial sample size. Large-scale DMV can be costly though is potentially more efficient for valuation of complex goods, than a conventional individual interview approach. Non-econometric approaches do not require statistical expertise or large samples but do require substantial facilitation and process design skills.	Econometric approaches: medium to long — Depends on sample size and complexity. Non-econometric: short to medium — Depends on complexity
Low to high — Strongly dependent on focus of deliberation (economisation, moralisation or both), degree to which the process restricts or inhibits elicitation of plural value types and motivations, and degree to which value convergence is enforced. Group-based outcomes can avoid issues around aggregating individual preferences.	Any	Low to medium — MCA processes can range from simple to complex, and thus facilitation, design and statistical expertise required varies. Sample size requirements lower less than those of econometric DMV	Short to medium — Depends on complexity

In our experience, it is commonly perceived by both users and producers of environmental valuation evidence that TEV is thus, to some degree, able to incorporate shared and social values, particularly other-regarding values, into economic analysis. Yet, economic conceptualisations of altruistic, bequest and existence values are conceived to *only* relate to the personal satisfaction ('warm glow') that one gains from knowing that others might benefit from some environmental good. If this were not the case, there would be a danger of double counting, as satisfaction of an individual's preferences may be counted by both that individual, and by others. There is even some debate on whether the welfare associated with 'warm glow' should be excluded from welfare measures and CBA (Hausman, 1993; Nunes and Schokkaert, 2003). In practice, when using economic monetary valuation methods, most types of shared values (transcendental, societal, communal and other-regarding) would be implicitly elicited within any TEV-based assessment; neither stated nor revealed preferences can avoid being influenced by them. However, when using an individualistic monetary valuation approach, it is likely that these values are both incompletely captured and poorly understood.

6. Deliberative and non-monetary assessment of shared and social values

A wide range of other monetary and non-monetary techniques exist that can elicit different types of shared and social values to varying degrees, including deliberative monetary valuation,

participatory multi-criteria analysis, citizen juries, deliberative fora and polls, in-depth discussion groups, participatory modelling and mapping, interpretive techniques such as media analysis, and psychometric approaches (Tables 4–5). When attempting to establish value to society in monetary terms, deliberative monetary valuation can elicit a pre-aggregated, social willingness-to-pay (i.e., 'how much is this worth for society to pay for?' or 'how much should society allocate to priority X as opposed to Y?'), which establishes a measure of social welfare through debate and negotiation rather than aggregation of individual WTP. Such a process allows better incorporation of transcendental, other-regarding and cultural values in relation to the different components of TEV, as well as rights, duties and virtues that are extrinsic to the TEV framework (Howarth and Wilson, 2006), albeit on the condition that the process is consciously designed and facilitated to mitigate potential social biases (Kenter et al., 2014).

Participatory and deliberative processes are appealing in that they provide participants of valuation studies with time to learn about the good under investigation, as well as time to reflect upon (and construct or potentially modify) their preferences (Christie et al., 2006; Macmillan et al., 2002; Spash, 2007). Deliberative methods can also challenge the assumption that values (particularly around complex goods, such as biodiversity and ecosystem services) are pre-formed, indicating that they need to be constructed through some kind of transformative process of deliberation and learning (Christie et al., 2012; Kenter et al., 2011, 2014; Parks and Gowdy, 2013; Schlapfer, 2009; Spash, 2007, 2008). A group learning process is also important in respect to bringing

Table 5

Overview of interpretive–potentially deliberative, interpretive, psychometric–deliberative and psychometric methods that can be used to assess shared values of ecosystems, their potential to address value commensurability and aggregation issues, their suitability for different spatial scales and their relative requirements in terms of resources and timescales. Note: this table spreads *horizontally* across two pages.

Technique		Description	Types of values that may be elicited
Interpretive, potentially deliberative	Participatory mapping/GIS	A group of stakeholders consider or create a physical or digital map to indicate landscape features that are valuable (and/or problematic). Participants may also rate or rank these features for importance. Map layers can also incorporate photo, video, artwork, poetry, etc.	<i>Process:</i> Communal contextual values, if features are important/assessed on a larger scale: contextual cultural/societal values. <i>Outcome:</i> As above. If features are deliberated and decided upon or rated/ranked by groups, these take the form of deliberated group contextual values and indicators.
	Storytelling	Participants are asked to tell stories about their experiences of or in relation to places. These may be reflected upon in a group setting to discuss values related to these experiences.	<i>Process:</i> Communal contextual values, if features are important/assessed on a larger scale: contextual cultural/societal values. Other–regarding and transcendental values only likely to be made explicit if prompted through reflection/deliberation process. <i>Outcome:</i> As process. If stories are deliberated in a group setting, these may take the form of deliberated group values. Number of times particular themes or values are expressed can provide indicators.
	Interviews	Participants are interviewed about their values, beliefs and preferences. Group interviews allow for deliberation and are similar to in-depth discussion groups. However, in group interviews, terms are set by the interviewer rather than the group.	<i>Process and outcome:</i> As storytelling
Interpretive	Media analysis	Use of a range of textual analysis tools (particularly content, frame and discourse analysis) on (mass) media outputs and social media content over a selected period of time	<i>Process:</i> n/a <i>Outcome:</i> Transcendental, communal, societal and cultural values, other–regarding-values
	Desk-based cultural history study	This approach can be used effectively as a first option to quickly scan existing literature over a specified period of time to identify values connected with the decision being considered. The study can cover academic and grey literature, as well as creative writing (prose and poetry). Historical analysis can deliver understanding of past value and belief conflicts that can help to better manage present issues and mitigate risks.	<i>Process:</i> n/a <i>Outcome:</i> Transcendental, communal, cultural and societal values, other–regarding-values
	Other interpretive methods	A wide range of qualitative techniques including ethnography and participant observation, genealogy, life history methods, dramaturgical analysis, reviewing landscape character descriptions, other textual analysis of various sorts including discourse, content and frame analysis.	<i>Process:</i> N/A. <i>Outcome:</i> Variable, can be particularly suited to transcendental, communal, societal and cultural values.
Psychometric deliberative	Value compass	This method asks participants to consider which of their individual transcendental values are most important by ranking or rating them, and then asks to discuss the degree to which these values are important for one's community, culture or society. Values can also be ranked or rated on a group basis. It is based on the values typology developed by Schwartz (1990).	<i>Process:</i> Transcendental individual, communal, cultural and/or societal values. <i>Outcome:</i> As process, plus group and deliberated values
Psychometric	Subjective well-being indicators	These can be used to assess how and the degree to which places contribute to one's well-being, and are thus highly suitable for assessing the value of cultural ecosystem services using a quantitative non-monetary metric.	<i>Process:</i> N/A <i>Outcome:</i> Communal, societal and cultural contextual values
	Other psychometric	Psychometric testing refers to the measurement of psychological phenomena and processes, e.g., knowledge, experience, attitudes, values, worldviews. psychometric models (e.g., Values-beliefs-norms, theory of planned behaviour) can be used to better understand the impact of deliberative processes on values.	<i>Process:</i> N/A <i>Outcome:</i> Standard scales exist for transcendental values, and can be developed on a case-by-case basis for contextual communal, cultural and social values. Statistical models can be used to relate psychometric variables (e.g., transcendental values) to contextual values and indicators such as WTP.

out cultural and communal transcendental values (Kenter et al., 2011), and coming to well-considered decisions on group contextual values and common preferences (Niemeyer, 2004). Such group values might be expressed as a consensus or majority view on what the group believes to be in the best interest of society, although consensus views are not always achievable or desirable (Sagoff, 1998). A deliberative process could also result in the recognition of a diversity of values, where outcomes are achieved that account for reasonable differences (Lo, 2011, 2013).

Non-monetary, non-deliberative methods also have potential to address various types of shared values. Interpretive and narrative-based

methods can reveal communal and transcendental values, while the latter can also be assessed using psychometric survey-based methods and interviews. Societal and cultural values at a larger scale can be assessed through ethnographic methods and textual methods such as media content and discourse analysis.

As Tables 4–5 illustrate, particular methods relate to the different types of shared values both in terms of outcomes of the process (contextual values and indicators such as a deliberated group verdict, a group ranking or deliberated group WTP) and in terms of values that arise through the process. Different methods generate different types of shared value outcomes and indicators, while both the method and

Potential to address commensurability and aggregation issues	Spatial scale	Resources required	Timescales
High — Using group-based approaches, there is no need to make features of value commensurable across a single metric or aggregate them through an arithmetic means.	Any, so far used mostly locally/regionally	Low to medium — Depends on the complexity of number of workshops needed and the GIS. Resources needed increase with scale.	Short to medium — Increases with scale and complexity
High — In interpretation/analysis, values are generally treated as subjective and incommensurable.	Any	Low to medium — Depends on transcription requirements and complexity of coding	Short to medium — Depends on number of individuals/groups
High — In interpretation/analysis, values are generally treated as subjective and incommensurable.	Any	Low to medium — Depending on transcription requirements and complexity of coding	Short to medium — Depending on number of individuals/groups
High — Interpretive methods generally consider that values are subjective and plural and cannot be made commensurable in a single metric	Any	Low to medium — Media analysis can be a cost-effective and relatively rapid approach for large-scale assessments for assessment of societal and cultural values.	
As media analysis	Any	Low to medium — Depending on depth of investigation	Short to medium — Depends on depth of investigation
Idem	Variable	Variable	Ethnography: Long. Others: Variable — Depends on complexity and sample size
High — Different values are considered separately and compared but not aggregated.	N/A	Low	Short
Low to high, different kinds of indicators can be considered separately or averaged and aggregated	Any — highly suitable for large-scale assessments, though there is a need for standardised scales	Medium — Statistical expertise and sample size requirements. Establishment of new instruments is complex and time consuming. Using existing validated, reliable instruments can be relatively inexpensive and rapid.	Short to medium — Depends on complexity and sample size
N/A	Any	As subjective well-being indicators	As subjective well-being indicators

implementation of the deliberative process determines the types of values that arise within the process, e.g., whether transcendental and other-regarding values are made explicit, which determines to what degree the outcomes of the process are ‘moralised’ and ‘democratised’ (c.f. [Lo and Spash, 2012](#)). While most deliberative and non-monetary methods are not bound to the problematic assumptions around value commensurability and aggregation associated with conventional economic methods ([Tables 4–5](#)), some analytical methods that use arithmetic to aggregate across different dimensions of value (e.g., many forms of multi-criteria analysis) contend with similar theoretical critiques ([Raymond et al., 2014](#); [Kenter, in press](#)).

7. Discussion

This paper has presented a theoretical framework for the consideration of shared and social values, discussed the relationship between shared and individual values, considered the limitations of neoclassical economic valuation in assessing shared and social values, and briefly discussed deliberative and interpretive alternatives. In general, the elicitation of shared and social values goes beyond the narrow elicitation of individual monetary valuations to incorporate common notions of social goods and cultural importance through social processes that can incorporate a broad set of individual and shared meanings and concerns.

Seven distinct but interrelated and non-mutually exclusive types of shared and social values have been identified (Table 1) and the relationship between individual and shared values conceived of as a dynamic interplay, where values can be considered at multiple levels (individual, community, culture/society). While individuals represent and express their culture, many transcendental societal values are implicit and require group deliberation to be fully brought to light. Hence assessment of shared values can provide a more comprehensive account of value than individual valuation alone.

One way in which the framework is particularly useful is for developing a clearer description of how deliberative processes impact on values. So far the literature on deliberative valuation has distinguished different processes, where preferences may be 'economised' by becoming more informed and robust through exchange of information and reflection in groups, 'moralised' through discussion of transcendental values, or 'democratised' through Habermasian debate, developing intersubjective, communicatively rational preferences (Lo and Spash, 2012; Lo, 2013). Our analysis can help to clarify how each of these processes affects different types of values. For example, Lo (2013), describing a case study of small group deliberation on paying for climate change measures, showed the process of democratisation presents preference convergence rather than value convergence: agreeing to pay under value disagreement. This could, however, be interpreted by noting that participants shared certain transcendental values (e.g., mutual respect), which enabled a democratic process that focused on finding agreement on contextual values and negotiating value-indicators. Kenter et al. (2014) presented a deliberative contingent valuation and a deliberative choice experiment case study as part of the follow-on phase of the UK NEA. In both cases WTP decreased as a result of deliberation sessions, which included explicit consideration of a wide range of transcendental values by a UK wide sample of recreational users and a local sample of community councillors respectively. Within the overall decrease in willingness-to-pay, there was a shift away from prioritizing options that were more associated with self-regarding values (in this case, recreational benefits) towards prioritizing options that focused on other-regarding values (species conservation) and value to society. Econometric, psychometric and qualitative analysis of these deliberations showed that participants were both 'economised' (e.g., about what benefits really meant, how long they might last and who might benefit most) and 'moralised' (e.g., balancing environmental versus socio-economic priorities, duties to other species and generations, a collective sense of responsibility for the environment and a felt shared desire to 'do your bit'). In a third UK NEA case study (a local group of stakeholders considering the value of the marine environment using a range of deliberative monetary and non-monetary methods) participants started out by identifying a very specific set of communal transcendental values that then continued to provide a touchstone for testing contextual values during democratic deliberative discussions on management options (Kenter et al., 2014). Future research can explore in further detail how different types of processes elicit or construct different types of values, and how this might enhance the reflection of subtle transcendental, cultural and communal values in contextual values and value-indicators.

Although democratisation is by definition a social process, economisation and moralisation do not just happen in groups, as individuals can also engage in deliberation in the sense of thinking and reflection. Asking people for altruistic, bequest, or existence values is, by definition, a moral question, which is unlikely to receive a response in terms of measure that reflects welfare alone (hence the debate about whether stated WTP is more of an indicator of attitudes than of welfare; see Kahneman et al., 1999; Spash et al., 2009; Ryan and Spash, 2011). When confronted with such questions, people will almost certainly refer back to senses of duty or virtue, and this is likely to include taking other people's values and norms into account as well as their own. Conventional monetary valuation methods that purely focus on establishing WTP may not capture the richness of value motivations that is

provided by transcripts of group discussion, but survey methods could be enhanced by including psychometrics, open-ended motivational questions, etc., or, on a smaller scale, by using individual interviews. This way, and by including time to think to allow for individual deliberation, it may be possible to elicit higher quality contextual values that are a better reflection of underlying transcendental values, and to go beyond the 'whims' of poorly formed individual preferences.

Nonetheless, such an 'individual deliberation' approach to valuing the environment misses out on one of the main advantages of group-based deliberative approaches: the opportunity for social learning. Deliberative learning processes, if well facilitated, allow the exchange of information, considerations, perspectives, values, beliefs and norms, which provides an opportunity to collectively wrestle with difficult questions, particularly where there are risks, uncertainties, and winners and losers. Learning also becomes particularly important when environmental goods themselves are considered to have plural value dimensions, with some components more subtle than others. An example is the benefit of cultural identity formation and the way environmental spaces and cultural goods enable a particular livelihood and way of life, sense of place, aesthetics, and the social bonding that happens around the active or passive use of spaces. These diverse values all tend to be tied to a place, which is often intimately connected with a sense of community around that place. Consequently, these place-bound values are likely to be strongly shared as communal values. Initially, when valuing particular environmental attributes (regardless of whether this is through monetary or non-monetary means), only the more obvious (e.g., provisioning) services and benefits might be valued; a social learning process may be required to bring out more subtle shared senses of values with stronger moral and aesthetic components (Kenter et al., 2011; Reed et al., 2013). Additionally, the limited research available on the preferences for individual or group-based approaches from valuation participants themselves seems to suggest that they feel their values are more considered, and can be better expressed, after group deliberation (Clark et al., 2000; Ryan and Spash, 2011; Kenter et al., 2014).

Although a considerable literature exists on social and deliberative learning processes, there is as yet little evidence on *where*, *whether* and *how* group-based deliberative methods are able to elicit 'better' values beyond those gained from an improved individual survey approach to valuation, not just according to conventional instrumental criteria (e.g., reduction of hypothetical bias), but also substantive criteria. Research is thus needed to consider what might be the most appropriate protocols and techniques for legitimate deliberation, in order to reduce the impact of problematic processes such as social-desirability bias, and to know more about the impact of different ways of framing and different approaches to instigate learning. If group learning strongly influences values, it needs to be critically evaluated to what degree this learning is endogenous to participants, and to what degree it is instigated by those that develop, frame, and facilitate the process.

Another important question is to consider when and where decision-makers see shared value evidence as having more or less legitimacy than evidence based on the values of individuals. While there has now been decades' worth of valuation evidence available, produced with the explicit aim of policy-makers taking better account of environmental benefits and costs, this has still not translated into tangible improvements in terms of environmental outcomes. Certainly, the belief that, if we can only produce better and more convincing value evidence, this might change, is somewhat naïve (Jordan and Russel, 2014; Nutley et al., 2007). There is a widely divergent view as to what 'better' values and valuation might be, ranging from technical improvements and eliminating instrumental and substantive biases to making values spatially explicit, better informed, more considered or 'deeper' and more representative. What is certainly clear is that decision-makers require evidence to be contextualised as well as being of high quality (Church and Ravenscroft, 2011). This suggests that, in addition to the quality of evidence, decision-makers' ideas of 'better' are aligned to different

perspectives of legitimacy, concerns about what evidence is defensible, and the usability of the evidence. These conceptualisations and concerns will also vary across different decision-making venues and scales. For example, whereas national or transnational institutions that monitor ecosystem services may be interested in aggregate biophysical data, quantitative indicators of well-being and monetary data, decision-makers in a local policy consultation may be more interested in value outcomes of a carefully designed process involving all relevant stakeholders. This is not to say that national-scale indicators cannot be delivered through group-based valuation processes. For example, large-scale deliberative monetary valuation, deliberative polls or citizens' juries could generate successful forms of evidence, although there have been few examples of this in practice.

However, shared and social values are not just about generating more accurate, more complete or more legitimate evidence, but also about recognising the importance of inclusiveness in decision-making. The example of the UK government's forest privatisation (Section 4) shows the power of collective values expressed as part of the public response to the proposed policy. The public response revealed deeply held shared cultural and communal values that had not been fully understood and that did not show up in CBA. Utilising methods that elicit such shared and social values as an integral part of policy development could provide a greater understanding of the potential public response, and help avoid inappropriate proposals and costly objections to non-inclusive decisions. In potentially contentious issues such as major infrastructure projects, the siting of renewables or the designation of protected areas, taking account of the things that people communally or collectively value could also positively engender support. Understanding shared and social values through cross-community deliberation can bring to the surface a richness of views that could inform more beneficial, well-accepted decisions. In particular, understanding which values are shared, and which are not, could help to allocate resources to resolve points of conflict. For businesses, engaging in shared value deliberations with stakeholders on how to implement new plans or projects could also be an important aspect of risk management, through enhancing buy-in and reducing conflict. Shared and social values are also important for NGOs, particularly those who own large tracts of land and have close connections to local communities and interest groups. A better understanding of the shared and social values that matter to these groups can help NGOs in managing their land and communicating their key messages. Linking core objectives to shared transcendental values can also increase the support that NGOs receive, and strengthen their membership base.

Considerable further research is necessary in terms of building up a credible evidence base for demonstrating the importance of shared and social values in these different sectors and spheres, and in terms of developing pluralistic methodologies for assessing the many and diverse shared and social values of nature. Such evidence-generation should actively and directly involve decision maker to ensure that approaches, methods, and results are considered legitimate, relevant and ultimately useable. This way, a more appropriate valuation of public policy alternatives can be achieved, and the substantial collective meanings, significance and value of nature more effectively recognised and safeguarded.

Supplementary data to this article can be found online at <http://dx.doi.org/10.1016/j.ecolecon.2015.01.006>.

Acknowledgements

The theoretical framework outlined in this paper was developed initially through a series of expert workshops as part of the Valuing Nature Network – BRIDGE: From Values to Decisions project, funded by the UK Natural Environment Research Council (NERC). It was developed further through the follow-on phase of the UK National Ecosystem Assessment (Work Package 6: Shared, Plural and Cultural Values) funded by the UK Department of the Environment, Food and Rural Affairs

(Defra), the Welsh Government, NERC, the Economic and Social Research Council (ESRC), and the Arts and Humanities Research Council (AHRC).

References

- Arrow, K.J., 1950. A difficulty in the concept of social welfare. *J. Polit. Econ.* 58, 328–346.
- Bachika, R., Schulz, M.S., 2011. Values and culture in the social shaping of the future. *Curr. Sociol.* 59, 107–118.
- Baveye, P., Baveye, J., Gowdy, J., 2013. Monetary valuation of ecosystem services: it matters to get the timeline right. *Ecol. Econ.* 95, 231–235.
- Bebbington, J., Brown, J., Frame, B., 2007. Accounting technologies and sustainability assessment models. *Ecol. Econ.* 61, 224–236.
- Beckerman, W., Pasek, J., 1997. Plural values and environmental valuation. *Environ. Values* 6, 65–86.
- Bourdieu, P., 1972. *Outline of a Theory of Practice*. Cambridge University Press, Cambridge.
- Brown, G., 2013. The relationship between social values for ecosystem services and global land cover: an empirical analysis. *Ecosyst. Serv.* 1–11.
- Bryan, B.A., Raymond, C., Crossman, N.D., King, D., 2010. Comparing spatially explicit ecological and social values for natural areas to identify effective conservation strategies. *Conserv. Biol.* 25, 172–181.
- Christie, M., Rayment, M., 2012. An economic assessment of the ecosystem service benefits derived from the SSSI biodiversity conservation policy in England and Wales. *Ecosyst. Serv.* 1, 70–84.
- Christie, M., Hanley, N., Warren, J., Murphy, K., Wright, R., Hyde, T., 2006. Valuing the diversity of biodiversity. *Ecol. Econ.* 58, 304–317.
- Christie, M., Fazey, I., Cooper, R., Hyde, T., Kenter, J.O., 2012. An evaluation of monetary and non-monetary techniques for assessing the importance of biodiversity and ecosystem services to people in countries with developing economies. *Ecol. Econ.* 83, 69–80.
- Church, A., Ravenscroft, N., 2011. Politics, research and the natural environment: the lifeworlds of water-based sport and recreation in Wales. *Leis. Stud.* 30 (4), 387–405.
- Clark, J., Burgess, J., Harrison, C.M., 2000. I struggled with this money business: respondents' perspectives on contingent valuation. *Ecol. Econ.* 33, 45–62.
- Cleary, S., Mooney, G., McIntyre, D., 2011. Claims on health care: a decision-making framework for equity, with application to treatment for HIV/AIDS in South Africa. *Health Policy Plan.* 26, 464–470. <http://dx.doi.org/10.1093/heapol/czq081>.
- Colman, A., 2001. *Oxford Dictionary of Psychology*. Oxford University Press.
- D'Agostino, F., 2000. Incommensurability and commensuration: lessons from (and to) ethico-political theory. *Stud. Hist. Phil. Sci. A* 31, 429–447.
- Daily, G.C., Polasky, S., Goldstein, J., Kareiva, P.M., Mooney, H.A., Pejchar, L., Ricketts, T.H., Salzman, J., Shallenberger, R., 2009. Ecosystem services in decision making: time to deliver. *Front. Ecol. Environ.* 7, 21–28.
- Desvousges, W.H., Johnson, F.R., Dunford, R.W., Hudson, S.P., Wilson, K.N., 1993. Measuring natural resource damages with contingent valuation: tests of validity and reliability. In: Hausman, J.A. (Ed.), *Contingent Valuation: A Critical Assessment*. North Holland Press, Amsterdam, pp. 91–164.
- Dietz, T., Fitzgerald, A., Shwom, R., 2005. Environmental values. *Annu. Rev. Environ. Resour.* 30, 335–372.
- Dobson, A., 2012. The death of politics. *Cent. Study Democr. Bull.* 18, 1–3.
- Natural England, 2012. Monitor of Engagement with the Natural Environment: The National Survey on People and the Natural Environment. <http://publications.naturalengland.org.uk/publication/1712385>.
- Eagly, A.H., Chaiken, S., 1993. *The Psychology of Attitudes*. Harcourt Brace Jovanovich College Publishers.
- Farber, S.C., Costanza, R., Wilson, M.A., 2002. Economic and ecological concepts for valuing ecosystem services. *Ecol. Econ.* 41, 375–392.
- Feldman, A., 1987. *Welfare economics*. The New Palgrave Dictionary of Economics/MacMillan, London, pp. 889–895.
- Fish, R., Burgess, J., Chilvers, J., Footitt, A., Haines-Young, R., Russel, D., Turner, K., Winter, D.M., 2011a. Participatory and Deliberative Techniques to Embed an Ecosystems Approach Into Decision-making: Full Technical Report. DEFRA, London.
- Fish, R., Burgess, J., Church, A., Turner, K., 2011b. Shared values for the contributions ecosystem services make to human well-being. UK National Ecosystem Assessment: Technical Report. UNEP-WCMC, Cambridge.
- Frey, R., 1994. *Eye Juggling: Seeing the World Through a Looking Glass and a Glass Pane: A Workbook for Clarifying and Interpreting Values*. University Press of America, Lanham.
- Fujiwara, D., Campbell, R., 2011. Valuation Techniques for Social Cost–Benefit Analysis – Stated Preference, Revealed Preference and Subjective Well-being Approaches, A Discussion of the Current Issues. HM Treasury, London.
- Funtowicz, S.O., Ravetz, J.R., 1993. Science for the post-normal age. *Futures* 25, 739–755.
- Haines-Young, R., Potschin, M., 2012. CICES V4.2 – Report Prepared Following Consultation on CICES Version 4, August–October 2012. EEA Framework, Contract No EEA/IEA/09/003.
- Hausman, J.A. (Ed.), 1993. *Contingent Valuation: A Critical Assessment*. North Holland Press, New York.
- Hitlin, S., Piliavin, J.A., 2004. Values: Reviving a dormant concept. *Annu. Rev. Sociol.* 30, 359–393.
- Holland, A., 2002a. Are Choices Tradeoffs? *Economics, Ethics, and Environmental Policy Contested Choices*. In: Bromley, D.W., Paaola, J. (Eds.), Blackwell, Oxford, Malden, MA, pp. 17–34.
- Holland, A., 2002b. Assumptions of cost–benefit analysis. The Thingmount Working Paper Series on the Philosophy of Conservation, pp. 1–18.

- Howarth, R.B., Wilson, M.A., 2006. A theoretical approach to deliberative valuation: aggregation by mutual consent. *Land Econ.* 82, 1–16.
- Independent Panel on Forestry (IPF), 2011. Independent Panel on Forestry: The Final Report. Independent Panel on Forestry.
- Ishihara, H., Pascual, U., 2012. Institutions and agency in creating collective action for common pool resources. University of Cambridge Environmental Economy and Policy Research Discussion Paper Series. 53.
- Ives, C.D., Kendal, D., 2014. The role of social values in the management of ecological systems. *J. Environ. Manag.* 144, 67–72.
- Jordan, A., Russel, D., 2014. Embedding the concept of ecosystem services? The utilisation of ecological knowledge in different policy venues. *Environ. Plan. C* 32, 192–207. <http://dx.doi.org/10.1068/c3202ed>.
- Kahneman, D., Ritov, I., Schkade, D., 1999. Economic preferences or attitude expressions?: an analysis of dollar responses to public issues. *J. Risk Uncertain.* 19, 203–235.
- Keat, R., 1997. Values and preferences in neo-classical environmental economics. In: Foster, J. (Ed.), *Valuing Nature? Ethics, Economics and the Environment*. Routledge, London.
- Kennedy, J.J., Fox, B.L., Osen, T.D., 1995. Changing social values and images of public rangeland management. *Rangelands* 17, 127–132.
- Kenter, J.O., 2015. Ecosystem assessment: deliberative and non-monetary valuation methods. In: Haines-Young, R., Potschin, M., Fish, R., Turner, R.K. (Eds.), *Handbook of Ecosystem Services*. Routledge Handbook Series. Routledge (in press).
- Kenter, J.O., Hyde, T., Christie, M., Fazey, I., 2011. The importance of deliberation in valuing ecosystem services in developing countries—evidence from the Solomon Islands. *Glob. Environ. Chang.* 21, 505–521.
- Kenter, J.O., Reed, M.S., Irvine, K.N., O'Brien, E., Brady, E., Bryce, R., Christie, M., Church, A., Cooper, N., Davies, A., Hockley, N., Fazey, I., Jobstovgt, N., Molloy, C., Orchard-Webb, J., Ravenscroft, N., Ryan, M., Watson, V., 2014. UK National Ecosystem Assessment Follow-on: Work Package Report 6: Shared, Plural and Cultural Values of Ecosystems. UNEP-WCMC, Cambridge.
- Klamer, A., 2003. A pragmatic view on values in economics. *J. Econ. Methodol.* 10, 191–212 (+271).
- Lawrence, A., Jollands, M., 2011. The Future of the Public Forest Estate in England: Analysis of Responses to the Suspended Consultation January–February 2011. Forest Research, Farnham.
- Lo, A.Y., 2011. Analysis and democracy: the antecedents of the deliberative approach of ecosystems valuation. *Environ. Plan. C* 29, 958–974.
- Lo, A.Y., 2013. Agreeing to pay under value disagreement: reconceptualizing preference transformation in terms of pluralism with evidence from small-group deliberations on climate change. *Ecol. Econ.* 87, 84–94.
- Lo, A.Y., Spash, C.L., 2012. Deliberative monetary valuation: in search of a democratic and value plural approach to environmental policy. *J. Econ. Surv.* 2012.
- Macmillan, D.C., Philip, L., Hanley, N., Alvarez Farizo, B., 2002. Valuing the non-market benefits of wild goose conservation: a comparison of interview and group-based approaches. *Ecol. Econ.* 43, 49–59.
- Markus, H.R., Kitayama, S., 1994. The cultural construction of self and emotion: implications for social behavior. In: Kitayama, S., Markus, H.R. (Eds.), *Emotion and Culture*, 89–130. United Book Press, Baltimore, MD.
- Maxwell, S., Henderson, D., McCloy, R., Harper, G., 2011. Social Impacts and Wellbeing: Multi-criteria Analysis Techniques for Integrating Non-monetary Evidence in Valuation and Appraisal. Defra Evidence and Analysis Series, p. 5.
- Mooney, G., Jan, S., Wiseman, V., 2002. Staking a claim for claims: a case study of resource allocation in Australian Aboriginal health care. *Soc. Sci. Med.* 54, 1657–1667. [http://dx.doi.org/10.1016/S0277-9536\(01\)00333-1](http://dx.doi.org/10.1016/S0277-9536(01)00333-1).
- UK National Ecosystem Assessment, 2011. UK National Ecosystem Assessment: Technical Report. UNEP-WCMC, Cambridge.
- Niemeyer, S., 2004. Deliberation in the wilderness: displacing symbolic politics. *Environ. Polit.* 13, 347–372.
- Norton, B.G., Steinemann, A.C., 2001. Environmental values and adaptive management. *Environ. Values* 10, 473–506.
- Nunes, P.A., Schokkaert, E., 2003. Identifying the warm glow effect in contingent valuation. *J. Environ. Econ. Manag.* 45, 231–245.
- Nutley, S.M., Walter, I. And, Davis, H.T.O., 2007. *Using Evidence: How Research Can Inform Public Service*. Policy Press, Bristol.
- O'Neill, J., 1996. Cost-benefit analysis, rationality and the plurality of values. *Ecologist* 26, 98–103.
- Parks, S., Gowdy, J., 2013. What have economists learned about valuing nature? A review essay. *Ecosyst. Serv.* 3, e1–e10.
- Peacock, M., 1997. Rationality and social norms. In: Forster, J. (Ed.), *Valuing Nature?* Routledge, New York.
- Pearce, D., Moran, D., 1994. *The Economic Value of Biodiversity*. Earthscan Publications.
- Price, C., 2000. Valuation of unpriced products: contingent valuation, cost-benefit analysis and participatory democracy. *Land Use Policy* 17, 187–196.
- Ravenscroft, N., 2010. The mythologies of environmental economics. *J. Policy Res. Tour. Leis. Events* 2 (2), 129–143.
- Raymond, C.M., Kenter, J.O., Plieninger, T., Turner, N., Alexander, K., 2014. Comparing instrumental and deliberative paradigms which underpin the assessment of social values for cultural ecosystem services. *Ecol. Econ.* 107, 145–156.
- Reed, M., Evely, A.C., Cundill, G., Fazey, I.R.A., Glass, J., Laing, A., Newig, J., Parrish, B., Prell, C., Raymond, C., 2010. What is social learning? *Ecol. Soc.* 15 (online).
- Reed, M.S., Hubacek, K., Bonn, A., Burt, T.P., Holden, J., Stringer, L.C., Beharry-Borg, N., Buckmaster, S., Chapman, D., Chapman, P.J., Clay, G.D., Cornell, S.J., Dougill, A.J., Evely, A.C., Fraser, E.D.G., Jin, N., Irvine, B.J., Kirkby, M.J., Kunin, W.E., Prell, C., Quinn, C.H., Slee, B., Stagl, S., Termansen, M., Thorp, S., Worrall, F., 2013. Anticipating and managing future trade-offs and complementarities between ecosystem services. *Ecol. Soc.* 18 (online).
- Rokeach, M., 1973. *The Nature of Human Values*. Free Press.
- Ryan, A.M., Spash, C.L., 2011. Is WTP an attitudinal measure? Empirical analysis of the psychological explanation for contingent values. *J. Econ. Psychol.* 32, 674–687.
- Sagoff, M., 1986. Values and preferences. *Ethics* 96, 301–316.
- Sagoff, M., 1998. Aggregation and deliberation in valuing environmental public goods: a look beyond contingent pricing. *Ecol. Econ.* 24, 213–230.
- Schlapfer, F., 2009. Contingent valuation: confusions, problems, and solutions. *Ecol. Econ.* 68, 1569–1571.
- Schultz, P.W., 2001. The structure of environmental concern: Concern for self, other people, and the biosphere. *J. Environ. Psychol.* 21, 327–339.
- Schwartz, S.H., 1992. Universals in the content and structure of values: theoretical advances and empirical tests in 20 countries. *Adv. Exp. Soc. Psychol.* 25, 1–65.
- Schwartz, S.H., 1999. A theory of cultural values and some implications for work. *Appl. Psychol.* 48, 23–47.
- Schwartz, S.H., Bilsky, W., 1987. Toward a universal psychological structure of human values. *J. Pers. Soc. Psychol.* 53, 550–562.
- Schwartz, S., Jerusalem, T., 1994. Are there universal aspects in the structure and contents of human values? *J. Soc. Issues* 50, 19–45.
- Sherrouse, B.C., Clement, J.M., Semmens, D.J., 2011. A GIS application for assessing, mapping, and quantifying the social values of ecosystem services. *Appl. Geogr.* 31, 748–760.
- Current Sociology, 2011. Values and Culture. Volume 59, Number 2 Monograph 1. Sage Publications, Los Angeles.
- Spash, C.L., 2007. Deliberative monetary valuation (DMV): issues in combining economic and political processes to value environmental change. *Ecol. Econ.* 63, 690–699.
- Spash, C.L., 2008. Deliberative monetary valuation and the evidence for a new value theory. *Land Econ.* 84, 469–488.
- Spash, C.L., Urama, K., Burton, R., Kenyon, W., Shannon, P., Hill, G., 2009. Motives behind willingness-to-pay for improving biodiversity in a water ecosystem: economics, ethics and social psychology. *Ecol. Econ.* 68, 955–964.
- Stagl, S., 2004. Valuation for sustainable development – the role of multicriteria evaluation. *Vierteljahrsh. Wirtsch. Forsch.* 73, 53–62.
- Stein, T.V., Anderson, D.H., Kelly, T., 1999. Using Stakeholders' Values to Apply Ecosystem Management in an Upper Midwest Landscape. *Environ. Manag.* 24, 399–413.
- TEEB, 2010. The economics of ecosystems and biodiversity: the ecological and economic foundations. *The Economics of Ecosystems and Biodiversity: The Ecological and Economic Foundations*. Earthscan, London.
- Turnpenney, J., Russel, D., Jordan, A., 2014. The challenge of embedding an ecosystem services approach: patterns of knowledge utilisation in public policy appraisal. *Environ. Plan. C* 32, 247–262.
- UK National Ecosystem Assessment, 2014. UK National Ecosystem Assessment Follow-on Phase: Synthesis Report. UNEP-WCMC, Cambridge.
- Vadnjial, D., O'Connor, M., 1994. What is the value of Rangitoto Island? *Environ. Values* 3, 369–380.
- Vatn, A., 2009. An institutional analysis of methods for environmental appraisal. *Ecol. Econ.* 68, 2207–2215.
- Webler, T., Kastenholz, H., Renn, O., 1995. Public participation in impact assessment: a social learning perspective. *Environ. Impact Assess. Rev.* 15, 443–463.
- Wegner, G., Pascual, U., 2011. Cost-benefit analysis in the context of ecosystem services for human well-being: a multidisciplinary critique. *Glob. Environ. Chang.* 21, 492–504.
- White, R.M., Fischer, A., Marshall, K., Travis, J.M.J., Webb, T.J., Di Falco, S., Redpath, S.M., Van der Wal, R., 2009. Developing an integrated conceptual framework to understand biodiversity conflicts. *Land Use Policy* 26, 242–253.
- Zografos, C., Howarth, R.B., 2010. Deliberative ecological economics for sustainability governance. *Sustainability* 2010, 3399–3417.