

Improving landholder engagement in biodiversity conservation: What can be learned from literary theory and design

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Abstract

1. Drawing on a case study of an ecological assessment report used in part for landholder engagement by an Australian government biodiversity initiative, this paper illustrates how literary theory and design might aid in designing improved versions of documents and communications used to engage and inform landholders, which may contribute to improved biodiversity outcomes.
2. Biodiversity monitoring and reporting documents used by ecologists to record and communicate data can be required to fulfil different and often contrasting purposes when used in multi-stakeholder situations. Documents might need to stand up to the scrutiny of different disciplinary domains, such as law, ecology and business, while also informing, entertaining and communicating at an emotional level. In this sense, the design of such documents is a significant challenge, made more difficult by the siloing of disciplinary knowledges that deal with ecological and social concerns.
3. Attention to the design of documents and their role in a broader service system is argued to be an important perspective alongside research into conservation management that focuses on the psychological motivations of landholders and environmental management, planning and governance.

KEYWORDS

biodiversity, conservation, design, literary theory, narrative

1 | THE IMPORTANCE AND CHALLENGE OF COMMUNICATING BIODIVERSITY

Biodiversity remains a challenging issue to communicate to broader audience despite widespread consensus in the scientific community regarding its ecological importance (Kidd et al., 2019; Kusmanoff, 2017; Väliaverronen & Hellsten, 2002). A recent research program called Biodiversity Revisited led by the Luc Hoffman Institute has been developed in recognition of the limitations of current approaches, and has sought to bring in different disciplinary knowledges and perspectives to help improve engagement and

outcomes (Luc Hoffmann Institute, 2019). Disciplinary perspectives including philosophy, ecology, economics, sociology, environmental management, geography, anthropology and environmental psychology have been brought together to make important contributions to framing biodiversity as a problem that is only partially understood when construed as exclusively natural and social (Allen et al., 2018; Chan et al., 2018; Ives & Kendal, 2014; Ojala & Lidskog, 2011; Sandbrook et al., 2013; Whitehead et al., 2014).

A variety of reasons have been used to explain and respond to the difficulty of communicating biodiversity (Kidd et al., 2019; Kusmanoff, 2017). Arroz et al suggest that factors specific to the

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problem of communicating biodiversity loss include 'the difficulty of evaluating the impact of biodiversity loss, the uncertainty and pervasiveness of this risk, and the delayed invisibility of its effects' (2016, 71). As with the issue of climate change, challenges associated with communicating the importance of biodiversity are in part challenges associated with the relationship between questions of technique, precision and accuracy, on the one hand, and questions of meaning on the other hand. The former view is often informed by an assumption that the public will not be able to grapple with the complex science of biodiversity loss (Pearce et al., 2015), while the latter view stresses the importance of mainstreaming science and avoiding technical language (Arroz et al., 2016; Rapley et al., 2014).

Private landholders around the globe are increasingly recognised as having an important role to play in preventing biodiversity loss (Blackmore & Doole, 2013; Cooke et al., 2020). As noted by Tennent and Lockie (2013) in the Australian context, most 'natural resources are located on privately managed land' (2013, 6). Therefore, landholders have a crucial role to play in improving biodiversity outcomes in Australia. The same is true in many wealthy, western democracies where private landownership to a large extent defines the accessibility of land and permissible management practices (Drescher & Brenner, 2018; Gooden & 't Sas-Rolfes, 2020; Kamal et al., 2015). There are, however, a range of challenges associated with engaging landholders in practices to promote biodiversity, including competing land-use pressures and priorities, lack of time, education and stress (Moon et al., 2012). Problems associated with the design and implementation of environmental governance measures associated with biodiversity can further exacerbate such challenges (Lawson, 2019, 138). Furthermore, biodiversity is often perceived to be an issue of minor importance, even among the environmentally concerned, particularly when compared to seemingly more extreme impacts associated with climate change, such as drought and severe weather (Arroz et al., 2016), not to mention what are commonly viewed as more pressing social concerns associated with jobs, education and health.

In this article, we propose that particular conceptual approaches from design and literary theory can make a substantive contribution in framing areas for further research focused on engaging landholders in biodiversity initiatives. We take some initial, exploratory steps towards describing what such a framing of research might look like. We focus on how the selection and arrangement of text and image in a particular document plays a role in shaping epistemologies and experiences, and in turn determine which kinds of action are important in particular contexts—in this case a document known as a Site Values Report (SVR) used in a biodiversity conservation agreement. We argue the SVR is at once specific and representative of a certain cultural, conceptual and institutional problem that emerges when values and practices associated with the law and science mix with the participatory, collaborative and customer-centric approaches favoured in many contemporary approaches to environmental governance.

Our research diverges from, and is complementary to, existing work that investigates questions concerning biodiversity communication and engagement, and relatedly, the relationship between biodiversity and conceptions of values (Chan et al., 2018; Ives & Kendal 2014). In this sense, we aim to address the problem outlined by Carolan (2006, 346), who suggests that environmental scholars need to develop ways of reducing the 'epistemic distance' between abstract conceptions of values and beliefs and how these are represented and investigated in relation to experiential, material and tactile forms, whether these are immersive spaces like exhibitions, learning resources like games or field guides aiming to promote knowledge and interest. In understanding such tactility as a question of design, we explore the relationship between possibilities for the construction of meanings in the selection and arrangements of text and image and begin to wonder at what impacts these possibilities might have if brought into being and subsequently used over time.

2 | THE DESIGN AND AGENCY OF DOCUMENTS

Numerous valuable approaches to understanding biodiversity conservation-related programs on private land have focused on the psychological motivations of private landholders and approaches to environmental planning, management and governance (Allen et al., 2018; Genskow & Wood, 2011; Lawson, 2019; Tennent & Lockie, 2013). It is less common to interpret documents as actors (Callon, 1991; Latour, 1993) with the power to direct and influence such programs. Understanding this influence and the specific roles played by different documents within conservation initiatives is becoming increasingly important as the demands of these initiatives shift with emerging ideas of governance, and in particular the growth of 'customer-centred' approaches.

To demonstrate how approaches from design and literary theory may be effectively employed to understand the role and possibilities of such documents, we draw on an Australian case study from the Biodiversity Conservation Trust (BCT), with a particular focus on a document called a SVR. The BCT is statutory not-for-profit body established by the Australian state of New South Wales tasked with upholding *Biodiversity Conservation Act 2016*, the key legislative instrument protecting biodiversity in Australia's most populous state. The challenges faced by the BCT are common to conservation-oriented organisations with limited resources, which need simultaneously to cut through to a diverse base of customers to ensure uptake and continued engagement for biodiversity outcomes, while at the same time maintaining internal efficiencies and standards for bureaucratic purposes.

A key role of the BCT is to engage with the many private landholders as important ecological custodians. Since 2017, the BCT has created conservation areas across 37,000 hectares and arranged conservation agreements with 169 landholders, protecting 63 unique threatened species and more than 17 unique threatened

ecological communities. According to the BCT website, 'Landholders with funded agreements are typically being paid between \$21 and \$423 per hectare per annum to manage these conservation areas'. According to the *BCT 2018–2019 Annual Report*, encouraging 'landowners to enter agreements to conserve biodiversity and support productive landscapes' is one of the five key goals in the BCT business plan. Other relevant goals to the present research include supporting landowners, increasing broader public awareness of biodiversity issues and building a 'customer-centred organisation' (BCT Annual Report 2018–2019, 13).

The SVR plays a central role in how landholders engage with and understand the biodiversity value of their land. The document is provided to all landowners who enter into a Biodiversity Conservation Agreement (BCA) with the BCT to 'provide a record of the biodiversity values of the Conservation Area at the date the Agreement was entered into' (Site Values Report—'Coorah' Conservation Agreement). The SVR must function simultaneously as a document that can be used by field ecologists, that stands up to legal scrutiny and—most importantly in the context of the present article—that engages landholders in biodiversity conservation management activities. This latter purpose is what might be described as a *latent* purpose of the SVR, in the sense that biodiversity engagement is not what the SVR was originally or primarily designed to do.

This latent purpose of the SVR becomes increasingly important in the context of environmental governance measures which move away from the 'government-centric, legislated command-and-control style' to measures that involve participatory and collaborative approaches reliant on harnessing motivations of various stakeholders—in this context landholders in particular (Lawson, 2019). Organisations that facilitate voluntary stewardship programs, such as the BCT, must in this sense negotiate institutional processes and cultures focused on the internal needs of government bureaucracy, with increased demands associated with user and customer-centredness, which aim to ensure new and ongoing participation in programs.

The SVR is in this sense an exemplary artefact that tells an at once general and specific story about the not always happy meeting of legacy systems and associated forms of documentation designed for official purposes, on the one hand, and increased demands for public institutions to be customer-centric and more closely connected with stakeholders, on the other. Market research, marketing campaigns and engagement-oriented roles are some of the common approaches to confronting some of the problems associated with juggling such objectives (MacMillan et al., 2013; Verissimo et al., 2018). While important, these approaches tend not to focus on documents that are used by different stakeholders, nor do they explore the full scope of latent possibilities for how documents might be used differently and how this connects with the needs of landholders engaged in conservation management activities. Design agencies who are engaged by organisations after market research has been conducted tend to be limited in the scope they have to conduct exploratory research into how different documents are used and how they might be made to

mean differently. By contrast, design research centres in a university context have the capacity to selectively draw from deep disciplinary knowledges across a variety of contexts. The particular mixing of disciplinary knowledges proposed in this article aims to combine the higher levels of practical, user-oriented understanding that is often missed in market research, with the wide-ranging, speculative exploration of ideas that can thrive in institutional contexts such as universities, which protect part of their operations from immediate business objectives (Walden et al., 2018).

In the following sections we explore some of the specific tools that may be drawn from literary theory and design through the example of the SVR. We show how apparently ordinary documents communicate a range of different meanings that can be redesigned to more directly and richly accord with the desires of multiple audiences.

3 | GENRE, DESIGN AND NARRATIVE: WAYS OF UNDERSTANDING THE PURPOSE AND MEANING OF DOCUMENTS

In the two subsections that follow a series of speculative design changes to the SVR are proposed in the context of relevant conceptual and historical tensions associated with literary theory and design. The research discussed is theoretical and exploratory in nature and the intent at this phase in the program of research is less to offer immediate practical value to the BCT and landholders, than to set the stage for an emerging program of research, the objective of which is to bring together theoretically sophisticated analysis from literary theory and the user or customer orientation of design. Combining these disciplinary domains has the potential to collectively increase visual and narrative literacies in biodiversity communication and engagement. The present phase of research should be followed by testing tangible realisations of theoretical and speculative design propositions with BCT ecologists, participating landholders in the BCA scheme and non-participant landholders.

3.1 | Genre

While the notion of genre is more commonly used to analyse and discuss dramatic communicative forms, analysing textual artefacts such as the SVR as distinctive literary kinds has the potential of opening up questions about *who the document is for, why it is designed as such and how it might be modified* based on more precise and expansive understandings of history and design. Documents such as the SVR often develop from messy and contingent histories, combining a mix of different textual genres and purposes, which do not always work in harmony with each other—the genre of the legal agreement and the field guide, for example. Using genre as an analytical lens is one way of going back to first principles with regard to the relationship between the attributes and purpose of a document, and to invite further exploration with

regard to reconfiguring, discarding and replacing various of those attributes. In this sense there is a semantic, or normative aspect to genre, and a dynamic aspect, which, by contrast, focuses on change and innovation to textual forms. Both aspects are relevant to the present analysis.

In this subsection, the concept of genre is first defined in relation to relevant theoretical research, after which the analysis returns to the SVR to outline some specific, speculative possibilities for how genre might be used both to create a document that aligns with the needs of different users and invite new thinking about the relationship between humans and nature.

Genre has been proposed as a 'powerful' organisational unit in the construction and interpretational of textual meaning (Frow, 2005, 129). In the Western context, theories of genre date back as far Plato and Aristotle, the latter of whom proposed an influential hierarchical order of genres with 'tragedy' at the pinnacle, superior in its force and purity, followed by the 'epic', superior though impure or mixed, then 'comedy' (inferior-dramatic) and last of all the impure and inferior 'parody' (Aristotle, 2003). At its most simple genre can be described as the analysis of literary kinds. Contemporary theories such as those of Frow extend far beyond the canonical examples discussed by Aristotle and include a broad range of texts, such as the tabloid press, the picaresque novel and the Petrarchan sonnet (Frow, 2005). Like all genres, each of these examples is a 'bounded and schematic domain of meanings, values and affects, accompanied by a set of instructions for handling them' (2005, 134). The technical shading Frow gives to the term genre relates to what he describes as 'the unsaid of texts, information which lies latent in a shadowy region from which we draw it as we need it' (2005, 2). He compares his framing of genre to approaches such a gestalt theory and the analysis of 'schematic worlds' (2005, 130), both of which, like many approaches to narrative research, imply different elements coming together as coherent wholes.

By focusing on genre, Frow and fellow literary theorists such as Pavel (2003) and Poovey (2014) aim to stress 'what texts do' (Frow, 2005, 129), how they function (Poovey, 2014), the needs they fulfil (Pavel, 2003) and their 'intentional direction' (Connor, 1995, 9), rather than what texts 'say they are about', which is the case in other units of analysis such as thematic content (Frow, 2005, 129). As we aim to demonstrate shortly, such a focus is particularly apt when analysing texts such as the SVR, which, perhaps even more so than a literary text, is defined less by its content than by variously implicit and explicit formal conventions that convey meaning.

Unlike Aristotelian conceptions of genre, which emphasise the necessity of formal elements, the contemporary literary theorists listed above insist on the instability and flexibility of genre, outside strictly formal examples, such as the sonnet, for example, which is defined primarily by the number of lines in the poem. While Pavel argues that genre is an indispensable notion in the study of literary and historical texts and that genres 'have an internal set of normative requirements' (2003, 206), these requirements are not 'an abstract a priori' but rather the 'consequence of the cultural tasks the genre chooses to fulfil' (2003, 206). In this sense, analysing a text in terms

of genre can both limit and expand questions concerning design, audience and meaning.

Poovey in particular has shown how genre can be successfully used as an interpretive lens for the analysis of how value is produced in both literary and non-literary writing, specifically paper money (Poovey, 2014) and double entry bookkeeping (Poovey, 1998). Poovey makes the perhaps surprising choice to analyse the history of literary writing alongside monetary genres such as 'gold and silver coins, paper money and forms of credit paper' and types of writing about price and the market, such as 'shipping lists, prices current, economic theory and so on' (2014, 2). In bringing together what might seem like motley collection of genres, Poovey draws attention to presently taken for granted distinctions that separate literary writing from other forms of writing that have historically shared some of the functions and formal features: 'A shipping list was identical in format to the lists that appeared in poetic blazons or satiric catalogs, for example, and the promissory note used to acknowledge a debt contained phrases that also appeared in some imaginative texts' (2014, 2). These surprising connections between documents that are now considered to be vastly different in form and function demonstrate how the classificatory function of genre can be used to open up thinking about new possibilities for interpreting written and graphic forms, the present function of which might be taken for granted.

Genre can be used as a framing focus to examine the different textual and visual elements operative in the SVR. The SVR depends on the work done by genres such as the legal agreement, wildlife photography and a wildlife monitoring survey, each of which has a distinct purpose, associated structural attributes, affordances and a different audience. The legal agreement, for example, involves specific kinds of participation on the part of the landholder who is required to sign and date the SVR in order to demonstrate they have recognised its representative adequacy (Figure 1). Wildlife photography, by contrast, aims to inspire conservation either by expressing the unmediated beauty of the natural world, or emphasising the destructive impact of human activities (Farnsworth, 2011). Analysing the SVR from the perspective of genre is one way to help bring into focus questions relating to which of these nested, coexisting genres is most relevant to the present purpose of the SVR, or, whether a distinctively new genre is required, and if so, to outline its key attributes and objectives.

The generic conventions of the SVR are immediately suggested by the title of the document. 'Site Values Report' clearly signals this is a document for official purposes. The language is colourless, impersonal and bureaucratic. Many of the graphic and textual elements used throughout the report suggest authority, technicality and apparent finality, which Brockett et al. (2019) suggest can preclude engagement from landholders in the processes of information gathering done on their land. Information for distinguishing, comparing and evaluating plant and animal species is tabulated throughout the SVR. Aerial photographs with coloured patches overlaying a base map demarcate the boundaries of the agreed conservation areas (Figure 2). Photographs of the Monitoring Plots within the

Protection of nationally endangered Box Gum Grassy Woodlands and habitat for threatened woodland birds including the Superb Parrot

Signature Box - Parties sign that report is a reflection of condition of the site, describes the plants and animals found on the site at the time of entering into the agreement, and acknowledge any management recommendations made.

Signed and dated by landowners recognising biodiversity values and management recommendations made.

Name:

Signature:

Date

FIGURE 1 The legal agreement, a genre with specific cultural, textual, emotional and visual conventions. This section of the SVR is reproduced from the landholder SVR (see Supporting Information)

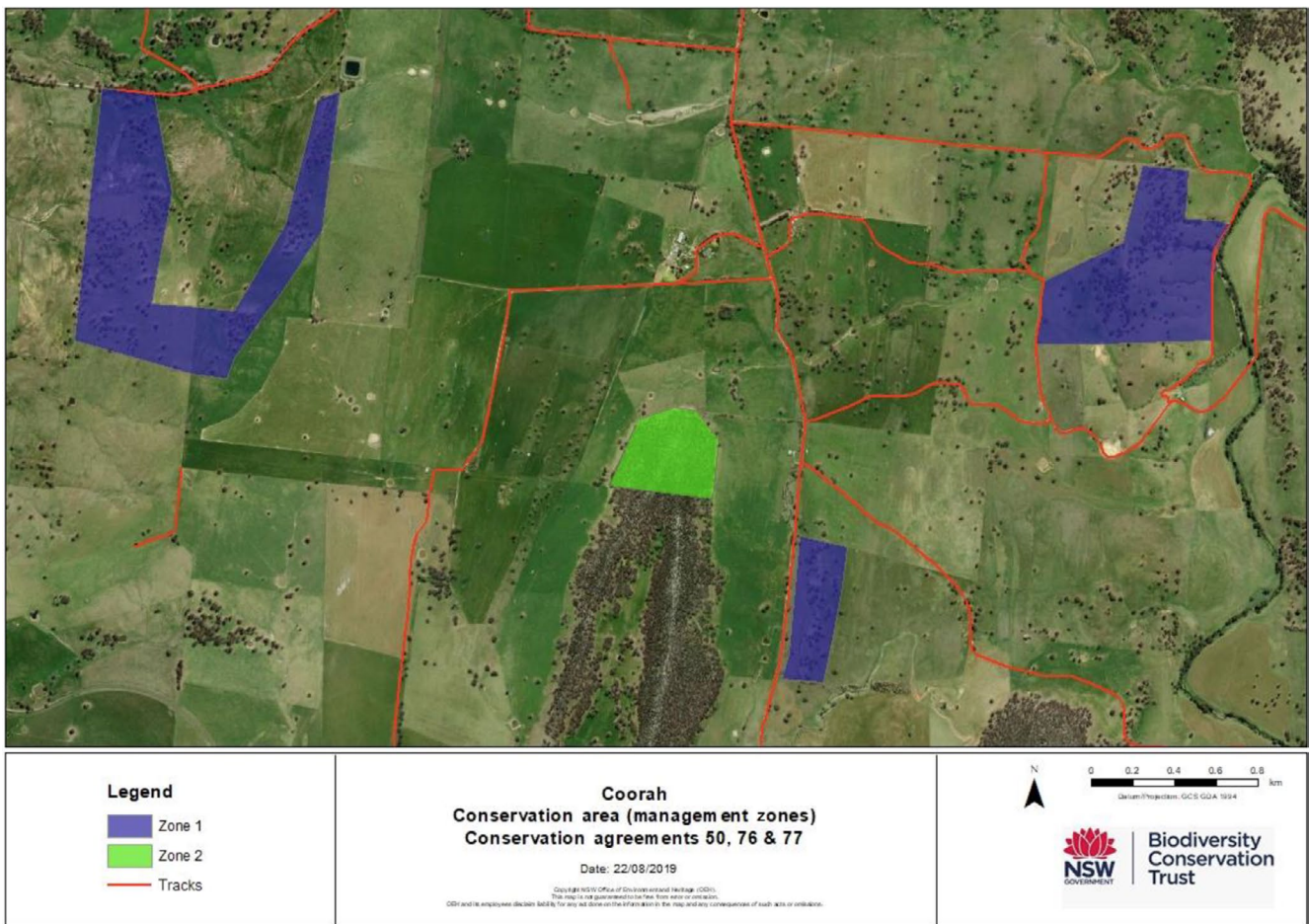


FIGURE 2 Aerial photograph of conservation zones. This section of the SVR is reproduced from the landholder SVR (see Supporting Information)

conservation areas are described as a ‘reference point to record any disturbance and change over time’ and show measurements taken of grass sword height, with small relatively low-quality images of grass species measured against a ruler (Figure 3). Based on these attributes and the broader implications of the agreement and survey genres, it would seem that the report is a document for trained

field ecologists and government officials rather than landholder. The purpose of the document is to ensure landholders comply with conservation management practices and to provide objective evidence for the purpose of agreement between landholders and government.

And yet, despite possessing the explicit and defining attributes of an official report, the SVR also seems as though it wants to be a

7.2 Grazing baseline report

Healthy condition thresholds Grass Sward Height: 10 cm Ground cover: 80%



Plot	Grass sward height (cm)	Photo	Ground cover (%)	Photo - not available
1	2		80	
2	8		70	

FIGURE 3 Measurements taken of grass sward height. This section of the SVR is reproduced from the landholder SVR (see Supporting Information)



FIGURE 4 Prominent photograph of the brightly coloured Superb Parrot, image credit: Tim Bergen

field guide of some sort. The wildlife photography used in the SVR has a conspicuously different generic purpose and features to the legal agreement and the photographs of the conservation areas and monitoring plots. On a page titled Recommendations, the SVR features a large, prominent photograph of the brightly coloured Superb Parrot and the title page features a close-up of a native flower about to bloom (Figure 4). These visual elements are presumably intended to connect with the conservation aspirations of landholders and give them a sense of pride about the conservation management work they conduct on their properties. Furthermore, the lists of flora and fauna species recorded on the conservation areas clearly have the potential to be used to aid species identification in the field, and in this sense serve the broader purpose of informing and engaging landholders.

The SVR brings together the genre of the report and the field guide in a way that does not seem fully resolved at this point. In

its present condition, the SVR feels like a document that is created primarily for official, reporting purposes, though with a few extra elements added which aim to engage landholders in line with the customer-oriented goals of the BCT. Understanding how the documents operate at the level of genre highlights a number of areas that might make biodiversity stewardship a more meaningful activity for landholders. Future design research might explore whether it is better to improve the SVR in its current form, making it more user-friendly as a field guide, or, alternatively, design a system so different sets of documents are used for different purposes—an official report type document that makes explicit objective site values for the purpose of external ecological monitoring and legal agreement, and a personalised field guide that landholders can use to continue their biodiversity education and share with off-farm visitors, who might also be future BCT customers.

3.2 | Visual communication

In emphasising the importance of use with regard to genre, both Frow and Pavel hint at the relevance of design as a conceptual or disciplinary lens for understanding the way meaning is produced in literary texts. Despite this apparent relevance, questions of design are not commonly seen as central to the analysis of written documents in humanities and social science disciplinary traditions (Lorber-Kasunic & Sweetapple, 2018). As noted by Drucker, attention to certain material or aesthetic aspects of texts can be considered elitist by some cultural critics (2014, 72). Influential post-structuralist theories that emphasise the poetic, dynamic, expressive capacity of graphic and written elements can seem curiously negligent of what Drucker describes as the 'mundane matters of history of letters and fonts, or design precepts such as layout and composition' (2014, 86). While appealing to the hidden organisational principles at work in different kinds of texts, the closest Frow comes to acknowledging

the importance of design is the mention of ‘the use of large and bold font’ as a distinguishing feature of a tabloid headline (2005, 131). Such an absence seems particularly glaring when so many texts created today combine both word and image, and when different formats proliferate at a rapid pace on account of digitisation.

To construe design as a discipline and approach concerned with use does not mean neglecting poetic and imaginative aspects of texts. On the contrary, as noted by Nelson and Stolterman, ‘design is about bringing things into the world that have not existed before. It is about creating the not-yet-existing’ (2012, 127). In this sense, design often draws on practices of the imaginative and poetic. Likewise, in her argument for design as a mode of knowing, Drucker emphasises ‘the acts of making that form the basis of production are grounded in poetic expression and rhetorical argument rather than logic’ (2014, 85). We prefer to place emphasis on the richly interconnected patterning of tensions between the logical and the poetic in different, concrete examples, rather than make claims about the foundations of knowledge—despite its inarguable humanness, poor old logic has been battered around enough by advocates for the poetic, the creative and humanistic research. Nonetheless, both Nelson and Stolterman (2012) and Drucker (2014) put forward the view that design is undoubtedly a practice that trades in the potential or the not yet realised, as much as the actual. In this sense, design explores how materials, images, spaces and systems can be made to mean differently. In addition to the details and features of different documents, design aims to explore what Frow describes as ‘information which lies latent in a shadowy region’ of a text. The poetic and imaginative aspects of design allow for these regions of latent possibility to be treated as malleable and explored to the fullest scope.

Design research might involve the analysis of specific documents (as objects of the design), or research through making, where new approaches to documentation are created. As Drucker (2014) and other thinking-through-making advocates suggest (Lorber-Kasunic & Sweetapple, 2018), the latter of these (creative making) can be used to do the former (analysis)—to be fair, it seems worthwhile to point out that if analysis is done through creative making, then analysis too is often a readying process or a potentialising of something that, if not exactly making, certainly helps making get on its way. To interpret a document as an object of design is to understand both its discrete and composite aspects as purposive carriers of meaning. From a visual communication perspective, this might include elements such as the information hierarchy implied by headings and

subheadings, format choices, navigation or implied reading methodology, page layout, font and so on. As noted by Drucker, inconspicuous, ubiquitous graphic features play a crucial role extending human cognitive and creative capacities, these might include a table of contents, the columns in a spreadsheet, the use of margins, paragraph indentations, even the spacing between words (2014, 85).

Visual communication design can play an important role in developing new systems of data capture and data visualisation that may improve the experience of the SVR for diverse user groups. For example, the colour-coded, three-tiered ‘key’ used to ‘provide an indication of the structure, composition and functionality’ of vegetation (SVR, See supplementary material Coorah, 2019) could be reimaged according to a different, more accurate, engaging and dynamic system for visualising data. Currently, the key uses a ‘traffic light’ graphic, with ‘green’ meaning ‘good—meeting benchmark values for that vegetation community’; ‘orange’ meaning ‘moderate—on the way to meeting benchmark values for that vegetation community’; and ‘red’ meaning ‘poor—well below benchmark values for that vegetation community’ (Figure 5). In the case of Monitoring Plot 1, in the section for Vegetation Composition, a red is given due to an absence of shrubs, when the benchmark for similar vegetation communities is three shrubs. In the section for Vegetation Structure, a red is given for the percentage of ground cover occupied by Forbs plants, which is 1% compared to the benchmark of 6%. Such a firm, linear system of ranking has the advantage of appearing definitive at a superficial level and allows for ease of communication. On closer inspection, however, an outsider might wonder why the gap between the aspirational orange, which is ‘on the way to meeting benchmark values’ and the grimly negative red (‘poor—well below benchmark values’) seems greater than the gap between the simple goodness of green and orange. While such impressionistic insights into the apparent limitations of the present system are good fodder for initial speculation, deeper research into historical and contemporary alternatives for vegetation assessment in conservation management is necessary in the future.

A further limitation of the current system for data visualisation concerns the communication of benchmarks for good vegetation. Despite the regular mention of benchmarks and the ‘Benchmark number’ which gives some further insight into the ranking system, there is nonetheless a disjunct between the visual elements of the system and what it aims to capture and communicate about the quality of the landscape. *What does benchmark vegetation cover look like? What does it do? How might it make people feel? Why is it desirable?*

Key




Colour	Meaning
	Good - meeting benchmark values for that vegetation community
	Moderate - on the way to meeting benchmark values for that vegetation community
	Poor - well below benchmark value for that vegetation community

FIGURE 5 The colour-coded, three-tiered key used to provide an indication of the structure, composition and functionality of vegetation. This section of the SVR is reproduced from the landholder SVR (see Supporting Information)

The traffic light ranking gives little tangible indication as to what a 'good' looks like in terms of vegetation composition, structure and function, despite these words all having strong evocative connotations with regard to the expression of form, particularly concerning the relationships between negative (bare ground) and positive space (dense and diverse vegetation). Ranking and communicating biodiversity values in a way that captures the aesthetic elements of conservation landscapes is exactly the kind of brief that ought to animate the thinking and practice of visual communications designers. A different ranking system might choose abstractions that have a more tangible, direct connection to positive values associated with biodiversity.

User research focused on visual design would also play crucial role if transforming the SVR into a document that functions more like a field guide. As noted by Farnsworth et al. (2013) with regard to the next generation of digital field guides, design-oriented approaches to user testing are crucial ways to 'engage new audiences while fostering rigorous science and an appreciation for nature' (2013, 891). The species list included as an appendix in the SVR informs landholders of the species on their property; however, it lacks

many of the visual elements and attention to layout that would allow for ready reference in the field (Figure 6).

Further questions that might be addressed in a more expansive program of research focused on the design and use of a field guide equivalent of the SVR might include:

- Investigating the different affordances of screen-based and analogue formats in biodiversity guides and how these connect with the needs of landholders engaged in conservation management activities;
- Exploring the potentials of different field guide formats in promoting knowledge sharing and social interaction among private landholders engaged in biodiversity stewardship schemes;
- Determining how personalised, user-friendly information about biodiversity influences the conservation management activities of different landholders who are signatories to environmental stewardship programs.

These questions are not only relevant to the specific example of the SVR. Any governmental organisation aiming to educate and

Species Name	Common Name	Plot no.
Grasses & grass-like plants		
<i>Aristida ramosa</i>	Purple Wiregrass	1
<i>Anthosachne scabra</i>	Common Wheatgrass	1
<i>Austrostipa setacea</i>	Corkscrew Grass	2
<i>Dactylis glomerata</i>	Cocksfoot *	Outside plots
<i>Lomandra filiformis</i>	Wattle Mat-rush	1
<i>Microlaena stipoides</i>	Weeping Grass	1, 2
<i>Panicum humifusum</i>	Hairy Panic	Outside plots
<i>Phalaris aquatica</i>	Phalaris *	Outside plots
<i>Rytidosperma caespitosum</i>	Ringed Wallaby Grass	1
Forbs & herbs		
<i>Einadia nutans</i>	Creeping Bluebush	2
<i>Daucus glochidatus</i>	Native Carrot	Outside plots
<i>Geranium solanderi</i>	Native Geranium	1, 2
<i>Goodenia hederacea</i>	Forest Goodenis	Outside plots
<i>Hibbertia obtusifolia</i>	Grey Guinea Flower	2
<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	2
<i>Oxalis perennans</i>	Wood Sorrel	1
<i>Solenogyne dominii</i>	Solengyne	1
<i>Stuartina muelleri</i>	Spoon Cudweed	2
<i>Vittadinia cuneata</i>	Fuzzweed	2

FIGURE 6 The species list included as an appendix in the SVR. This section of the SVR is reproduced from the landholder SVR (see Supporting Information)

engage landholders in biodiversity conservation will face important challenges with regard to the design of sets of materials used at different stages of what is commonly called a 'user journey' in design research (Følstad & Kvale, 2018). These questions and the role of design become particularly important when considering personalisation at scale. Designing templates and an associated information management system that are easy to use internally for governmental organisations such as the BCT and that connect with the practices and desires of landholders are likely to be crucial considerations in such initiatives.

Documents like the SVR emerge from messy and contingent histories that often do not take into account the full repertoire of possibilities concerning how documents are used in different context and what they can come to mean based on the desires of different audiences. In order to make full use possibilities, visual communication research affords, further phases of iterative testing using different design options, with different users of the BCT service are necessary. As such, the essential next phases in the application of these conceptual approaches are the creation of prototype documents based on the concepts sketched in the above analysis and multiple phase testing with different user groups associated with voluntary stewardship programs.

4 | CONCLUSION

This article has proposed a conceptual and practical meeting ground between different disciplinary areas of biodiversity conservation, narrative theory and design. The conceptual approaches presented demonstrate an opportunity for cross-disciplinary collaboration to improve the way biodiversity is conceptualised and communicated at both a macro and granular level, and more specifically in the context of this research, to widen (more participants) and deepen (committed participants) engagement from private landholders in Australia in pursuing efforts to increase biodiversity on their land. The value of such initial research will be contingent on the rigour that comes through the next phases of research and testing with relevant participants. In the case of the particular example of the SVR document, further research proposals involving landholders, visual communication researchers and field ecologists are currently in development. There is great scope to extend the approaches presented in this paper in research across the range of biodiversity communication material from different organisations, not only to consider how to better engage landholders in biodiversity schemes and outcomes, but to engage the broader community in conservation practices and invite them to reimagine relations within complex socio-ecological systems more broadly.

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CONFLICT OF INTEREST

None to declare.

AUTHORS' CONTRIBUTIONS

T.L. conceived the ideas and contributed primary knowledge for literary theory and design' R.W.-R. contributed knowledge of biodiversity research. Both the authors contributed critically to the drafts and gave final approval for publication.

DATA AVAILABILITY STATEMENT

This manuscript does not include any data.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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