

# Making accounting for biodiversity research a force for conservation

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**Commentary: Making accounting for biodiversity research a force for conservation**

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## Commentary

### **Making *accounting for biodiversity* research a force for conservation**

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Within the accounting literature, there has recently been a rapid rise in the number of published papers concerned with the issue of biodiversity. The argument expressed within these papers tends to begin by stressing the magnitude of planet-wide biodiversity loss, frequently invoking the warning from some biologists that humanity is causing a modern-day mass extinction event (see Ceballos et al., 2015). The argument then proceeds to suggest that since accounting plays a major role in shaping society, then accounting for biodiversity can/should have a role in addressing biodiversity loss (e.g. Jones & Solomon, 2013). However, within this extant literature there have emerged two distinct approaches to thinking about how accounting can play such a role. A first approach focuses on efforts to bring biodiversity into existing social and environmental accountability mechanisms, such as corporate sustainability reporting. A second approach takes a different starting point, looking instead to biodiversity conservation efforts and then investigating the role of accounting in such efforts. The purpose of this short commentary is to set out the essential features of these two approaches, and to argue that it is this second approach that offers research in accounting for biodiversity the most potential to develop into a force for conservation.

#### **First approach: biodiversity reporting**

A major stream of accounting research on the theme of biodiversity has been the study of corporate reporting on this topic. As such, this work is a continuation of social and environmental accounting research into corporate disclosure practices, or what Bebbington and Larrinaga (2014, p. 397) call a 'sociology of preparers'. Content analyses of biodiversity reporting have covered listed corporations in Sweden (Rimmel & Jonall, 2013), Denmark (van Liempd & Busch, 2013), Britain and Germany (Atkins, Grabsch, & Jones, 2014), as well as corporations in the Fortune Global 500 (Adler, Mansi, &

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3 Pandey, 2018) and large mining companies (Adler, Mansi, Pandey, & Stringer, 2017; Boiral, 2016).  
4 The main finding of all this work is that there is not very much corporate biodiversity reporting and  
5 what little there is does not enable stakeholders to meaningfully assess a corporation's biodiversity  
6 impacts. Schneider, Samkin, and Davey (2014) find a similar lack of useful biodiversity disclosures in  
7 reporting by New Zealand local authorities.  
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11 One major preoccupation of this research is to evaluate whether the content of biodiversity  
12 reporting conveys an ecocentric (i.e. deep ecology) or anthropocentric (i.e. instrumental)  
13 perspective. Unsurprisingly, corporate disclosures are broadly found to take an anthropocentric  
14 view of biodiversity, seeing it in terms of natural resources that are economically valuable. This  
15 perspective is understood to be encouraged by institutions like the GRI, IIRC, professional  
16 accountancy bodies and the Big 4 firms (cf. Milne & Gray, 2013). In a content analysis of biodiversity  
17 reporting by UK local councils, Gaia and Jones (2017) find that these organisations also represent  
18 biodiversity from an anthropocentric viewpoint, largely in terms of its provision of economically  
19 valuable ecosystem services (see TEEB, 2010). Given local governments' mandate to ensure the  
20 welfare of its citizens, it is perhaps to be expected that they would see biodiversity in terms of the  
21 economic benefits it provides.  
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30 Concern over this anthropocentric approach to current reporting practices has led to two separate  
31 attempts to define a normative framework to encourage organisations to embed ecocentric thinking  
32 into their biodiversity reporting. The first of these has been developed by Samkin, Schneider, and  
33 Tappin (2014), drawing on principles of deep-ecology philosophy (Naess & Sessions, 1984) and  
34 setting out a tool for assessing the degree to which reporting is consistent with this philosophy.  
35 They apply their framework to the annual reporting of what they refer to as an 'exemplar  
36 organisation' (p. 555) – the New Zealand Department of Conservation – and find that the majority of  
37 its disclosures do reflect ecocentric thinking. However, an ecocentric view of biodiversity would  
38 appear to be consistent with this organisation's mandate to manage the nation's conservation  
39 estate. It is less clear how Samkin et al's framework applies to organisations whose main purpose is  
40 to generate financial profits.  
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48 A similar attempt to develop a normative framework for corporate reporting is set out in three  
49 recent papers – Atkins and Maroun (2018), Maroun and Atkins (2018), and Atkins, Maroun, Atkins,  
50 and Barone (2018) – describing the notion of "extinction accounting". The framework claims to be  
51 emancipatory and transformational by encouraging a corporation to develop a narrative account of  
52 its own understanding of species extinction and how it is acting to prevent extinctions. The  
53 framework is described as 'a hybrid of both anthropocentric and deep ecological views' (Atkins &  
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3 Maroun, 2018, p. 761). Thus, on the one hand corporations are encouraged to consider the business  
4 risk of extinction by estimating the economic value that might be lost if a species were to go extinct  
5 but, on the other hand, they are also encouraged to recognise their own moral imperative to help  
6 prevent species extinctions. In a content analysis of the reporting of South African listed companies,  
7 Atkins et al. (2018) find that some corporations are disclosing contributions they have made to  
8 rhinoceros conservation projects and conclude that this reporting of these philanthropic gestures  
9 represents a shift in the way these corporations are thinking about extinction:  
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15 In the authors' views, this points to deep ecological framing. There is a sense that species  
16 must be preserved, not because of the immediate business case, but because of the moral  
17 and social costs of failing to take immediate action as well as because of the rhinoceros'  
18 intrinsic value (Atkins et al., 2018, p. 693).  
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22 The extinction accounting framework thus rests on the hope that if corporations can be encouraged  
23 to provide accounts of their own impacts on species extinctions then this could have the effect of  
24 changing the prevailing mindset within the corporation, which in turn could lead to changes in  
25 organisational behaviour.  
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29 A fundamental problem with accounting research that promotes corporate reporting as a means of  
30 addressing biodiversity loss (including species extinction), is that this research has thus far provided  
31 very little in the way of a theoretical basis for explaining what connection, if any, this corporation-  
32 centred accounting has with biodiversity conservation. Most research in this stream does not  
33 address this at all. The extinction accounting framework does address it, but the explanation given is  
34 limited to suggesting that corporations will be impelled into action by a combination of self-interest  
35 (by recognising business risks associated with species extinction) and a desire for legitimacy. This is  
36 not an adequate explanation because, in a world in which corporations are ultimately constrained by  
37 short-term financial imperatives, they will simply not have the capacity to act in ways that achieve  
38 conservation (cf. Gray, 2010). Within a capitalist economic system, corporations do not have the  
39 option of sacrificing profits, which benefit their own shareholders, for conservation work that will  
40 benefit the biosphere and wider society. The only viable option for corporations is to engage in  
41 impressions management, with notional token activities (such as donations to conservation projects)  
42 dressed up in corporate reporting as a symbol of their commitment to the conservation cause (cf.  
43 Tregidga, Milne, & Kearins, 2014). Research into corporate biodiversity reporting has not, thus far,  
44 explained how this form of accounting can create any form of agency – the capability to act  
45 (MacKenzie, 2009b) – to conserve biodiversity, or prevent species extinctions.  
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3 Conservation is an active process of organising the world in ways that are conducive to protection of  
4 wildlife (Hamblen & Canney, 2013; Jepson & Ladle, 2010). Accounting can play a vital role in this  
5 organising (cf. Miller & Power, 2013). Thus the challenge for accounting researchers is to explain  
6 this role: how is accounting, in whatever form, implicated in conservation activities? How is  
7 accounting acting as what Miller and Power (2013, p. 558) call a 'productive force'? Extant work on  
8 biodiversity (or extinction) reporting has not adequately addressed these questions. There is  
9 currently a gaping hole between assertions that biodiversity loss (or species extinctions) must be  
10 addressed and the subsequent descriptions of corporate reporting. The challenge for scholars  
11 wishing to pursue this approach to accounting for biodiversity research is to develop a credible  
12 theoretical basis for explaining how corporate reporting and conservation are actually connected in  
13 a meaningful way.  
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### 23 **Second approach: accounting and conservation**

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26 There is a second stream of research on accounting for biodiversity that perhaps offers more  
27 promise as a means of contributing to society's efforts to address biodiversity loss. Rather than  
28 simply seeking to extend the "sociology of preparers" programme of social and environmental  
29 accounting, this approach instead begins by seeking out efforts to conserve biodiversity and then  
30 looks to identify and explain the role played by accounting, in whatever form that is found. This is  
31 consistent with Bebbington and Larrinaga's (2014) call for researchers to begin their work by  
32 focussing on the sustainable development challenges facing society (such as biodiversity loss).  
33 Within the extant literature, this approach has manifested in shifting the analytical focus onto  
34 different organisational forms: conservation organisations, market mechanisms, and socio-ecological  
35 systems. The remainder of this section will briefly discuss this extant work and highlight potentially  
36 fruitful directions for further research.  
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44 There are thousands of organisations in the world dedicated to biodiversity conservation. These  
45 range from local groups committed to conserving a particular patch of habitat or locally important  
46 species, through to national and international organisations with multi-million pound budgets.  
47 There has been surprisingly little research within the accounting literature on these entities, which  
48 are so crucial to holding back biodiversity loss. A major exception is Powell and Tilt's (2017) study of  
49 an organisation that has worked to protect vast areas of Australian bushland, and thus the  
50 indigenous species within these areas, by establishing parks for carefully managed eco-tourism.  
51 Powell and Tilt examine the inevitable conflicts between the conservation and business objectives of  
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3 the organisation and how these played out in the design of its accounting and performance  
4 management systems, finding that these conflicts were ultimately very damaging to the  
5 implementation of this organisation's "business model". Thomson's (2014) study of the  
6 development of UK biodiversity indicators also provides insights into how conservation performance  
7 is being constructed and measured. Conservation organisations potentially offer rich sites for  
8 research into how accounting plays a role in achieving biodiversity conservation. Conservation  
9 organisations have limited resources and must make decisions about how these are allocated. How  
10 are these decisions made? What kinds of performance measurement systems are deployed? How  
11 are these organisations made accountable for these decisions and their implementation? There is  
12 an emerging literature on accountability within non-governmental organisations (Dhanani, 2018;  
13 Gray, Bebbington, & Collison, 2006; Hall & O'Dwyer, 2017), which could offer useful insights for  
14 pursuing these kinds of questions. The challenge here will be to develop theoretically credible  
15 explanations of how conservation organisations use accounting in their pursuit of conservation, and  
16 how different forms of accounting affect the conservation strategies employed by these  
17 organisations.  
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27 There is currently a rapid proliferation of various kinds of market mechanisms to try to shape the  
28 conditions for organisational decision-making towards conservation (see TEEB, 2010). For example,  
29 the Reducing Emissions from Deforestation and forest Degradation (REDD) mechanism aims to  
30 create a financial value for intact tropical forests, so as to provide economic incentives for their  
31 protection. This requires the application of carbon accounting techniques to forests, which shapes  
32 the nature of the forest protection activities, with consequences for wildlife and indigenous peoples  
33 (Cuckston, 2013, 2018a). Product certifications, or "eco-labels" are another kind of market  
34 mechanism that purports to ensure goods have been produced in ways that do not harm  
35 biodiversity (Elad, 2001, 2014; Lanka, Khadaroo, & Bohm, 2017; Thomson & Georgakopoulos, 2005).  
36 A particularly controversial form of market mechanism, which is rapidly proliferating around the  
37 world, is biodiversity offsetting. Accounting researchers have traced the accounting calculations  
38 performed within these mechanisms to equate a biodiversity loss in one place with a biodiversity  
39 gain in another place, so as to derive a "net loss/gain in biodiversity". In the mechanisms studied,  
40 these have been found to be highly problematic and unlikely to produce genuine conservation,  
41 leading to the conclusion that they are little more than tools for legitimisation and impression  
42 management (Ferreira, 2017; Sullivan & Hannis, 2017; Tregidga, 2013). Similarly, formal decision-  
43 making processes that purport to take account of the value of biodiversity have been found to act as  
44 mechanisms for justifying habitat destruction (Hrasky & Jones, 2016). It may be that, if well  
45 designed and properly implemented, new market mechanisms might have the potential to help  
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3 change the “rules of the game” of capitalism, creating conditions in which it is made possible for  
4 corporations and governments to act to conserve biodiversity (cf. Callon, 2009; MacKenzie, 2009a).  
5 These mechanisms are growing in scale and scope, defining how people see and comprehend the  
6 value of biodiversity. As such, accounting research explaining how these mechanisms delineate and  
7 calculate such values is important and urgent (see Bebbington, Larrinaga, Russell, & Stevenson,  
8 2015). By developing this kind of understanding, researchers might potentially be able to articulate  
9 how these mechanisms can be made better, so that the purported conservation objectives of these  
10 mechanisms can be realised.  
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16 Conservation is an organisational activity: human and non-human life must be organised in ways  
17 that are conducive to protecting biodiversity (Hamblen & Canney, 2013; Jepson & Ladle, 2010). As  
18 such, accounting researchers can usefully study the role that various forms of accounting play in this  
19 organising. This requires a shift in conceptualisation of the accounting entity, away from  
20 organisations *per se*, and towards the socio-ecological systems that are being organised. Indeed, the  
21 seminal accounting for biodiversity work of Jones (1996, 2003) focuses on cases where land was  
22 being actively managed for conservation. The conceptualisation of socio-ecological systems as  
23 accounting entities is more explicitly developed in Dey and Russell’s (2014) study of the role played  
24 by counter accounts in a campaign to restore the River Garry in Scotland. This study re-centred the  
25 analytical focus onto the river basin as an accounting entity. Researchers have also begun to analyse  
26 some of the tools that conservationists use in their organising of socio-ecological systems. Cuckston  
27 (2017) conceptualises a degraded blanket bog habitat as an accounting entity and traces the  
28 accounting devices used to manage its ecological restoration. Feger and Mermet (2017) analyse  
29 how the Natural Capital Project toolkit is used as a basis for evaluating ecosystem management  
30 performance. Cuckston (2018b) studies the International Union for the Conservation of Nature  
31 (IUCN) Red List of Threatened Species to explain how species extinction risk is created as a calculable  
32 accounting object that is used, in various ways, to make certain kinds of conservation strategies  
33 thinkable and possible. A shift in thinking, so as to see conservation as an act of organising socio-  
34 ecological systems, offers the potential to open up a rich vein of research into the power of  
35 accounting to address sustainable development challenges such as biodiversity loss. How is  
36 accounting implicated in this organising? And how, therefore, might future developments in this  
37 accounting play a role in enhancing this organising to more effectively conserve biodiversity?  
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### **Making *accounting for biodiversity* research a force for conservation**

In their exposition of accounting for sustainable development, Bebbington and Larrinaga (2014, p. 396) describe how they are 'motivated by a desire to keep open the possibility that the discipline of accounting might, under certain conditions, allow organisations to address sustainable development challenges'. A similar motivation drives this short commentary on accounting for biodiversity. Gray and Milne (2018, p. 831) warn that 'species extinction, as with other examples of environmental degradation, is a systematic consequence of humanity and its current ways of organising'. As such, it is imperative that researchers seek to understand the organising of humanity's relations with other species on the planet, so as to be in a position to see how things might become re-organised in ways conducive to conservation. Indeed, it is at this level of theoretical, conceptual explanation of the organising of human-nature relations that accounting academe can contribute to the cause of conservation (cf. Russell, Milne, & Dey, 2017).

Accounting for biodiversity research has been driven largely by a shared concern regarding planetary biodiversity loss, and a passionate desire to do something to help stem this ecological crisis. But research in this fast-emerging field has, thus far, overall, lacked the kind of theoretical rigour that will ultimately be necessary to make a significant impact on conservation efforts (cf. Bebbington & Unerman, 2018; O'Dwyer & Unerman, 2016). Research questions are driven by our conceptual and theoretical understandings of the world (Chua, 1986). Therefore, the formulation and pursuit of research questions that will generate insights useful to conservation will require the development of explanatory theoretical frameworks that enable rich conceptualisations of the problem of biodiversity loss and the possibilities for re-organising human-nature relations. That is, there is a need for theoretical work to explain how society can be (re-)organised so that it has a collective capacity to conserve biodiversity. Actor-network theory offers one possibility, enabling researchers to trace how calculability – and, consequently, agency – can be collectively achieved by organising people and devices into socio-technical arrangements (Callon & Law, 2005; Cuckston, 2018b). But development of a rich theoretical resource for this programme of research will require going beyond the usual toolkits found in the accounting literature. Engagement with research on conservation and human-nature relations – such as in the disciplines of conservation biology (see Bennett et al., 2017) and human geography (see, e.g. Castree, 2014; Eden, Tunstall, & Tapsell, 2000; see also Cuckston, 2017) – will be vital in this regard.

In conclusion, this short commentary has suggested that an extension of the social and environmental accounting project into issues of biodiversity reporting currently offers very little in the way of explaining how accounting can contribute to addressing biodiversity loss. In contrast, a

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3 shift in empirical and theoretical focus, so as to seek out the work of organising conservation and  
4 then to develop theoretically credible explanations for the role of accounting in this organising,  
5 might enable accounting for biodiversity research to become a force for conservation.  
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## 10 References

- 11  
12  
13 Adler, R., Mansi, M., & Pandey, R. (2018). Biodiversity and threatened species reporting by the top  
14 Fortune Global companies. *Accounting, auditing and accountability journal*, 31(3), 787-825.
- 15 Adler, R., Mansi, M., Pandey, R., & Stringer, C. (2017). United Nations Decade on Biodiversity: a study  
16 of the reporting practices of the Australian mining industry. *Accounting, auditing and*  
17 *accountability journal*, 30(8), 1711-1745.
- 18 Atkins, J., Grabsch, C., & Jones, M. (2014). Corporate biodiversity reporting: exploring its  
19 anthropocentric nature. In M. Jones (Ed.), *Accounting for biodiversity*. Oxford: Routledge.
- 20 Atkins, J., & Maroun, W. (2018). Integrated extinction accounting and accountability: building an ark.  
21 *Accounting, auditing and accountability journal*, 31(3), 750-786.
- 22 Atkins, J., Maroun, W., Atkins, B., & Barone, E. (2018). From the big five to the big four? Exploring  
23 extinction accounting for the rhinoceros. *Accounting, auditing and accountability journal*,  
24 31(2), 674-702.
- 25 Bebbington, J., & Larrinaga, C. (2014). Accounting and sustainable development: an exploration.  
26 *Accounting, organizations and society*, 39(6), 395-413.
- 27 Bebbington, J., Larrinaga, C., Russell, S., & Stevenson, L. (2015). Organizational, management and  
28 accounting perspectives on biodiversity. In A. Gasparatos & K. Willis (Eds.), *Biodiversity in the*  
29 *green economy*. London: Routledge.
- 30 Bebbington, J., & Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals:  
31 an enabling role for accounting research. *Accounting, auditing and accountability journal*,  
32 31(1), 2-24.
- 33 Bennett, N., Roth, R., Klain, S., Chan, K., Christie, P., Clark, D., Cullman, G., Curran, D., Durbin, T.,  
34 Epstein, G., Greenberg, A., Nelson, M., Sandlos, J., Stedman, R., Teel, T., Thomas, R.,  
35 Verissimo, D., & Wyborn, C. (2017). Conservation social science: understanding and  
36 integrating human dimensions to improve conservation. *Biological conservation*, 205, 93-  
37 108.
- 38 Boiral, O. (2016). Accounting for the unaccountable: biodiversity reporting and impression  
39 management. *Journal of business ethics*, 135, 751-768.
- 40 Callon, M. (2009). Civilizing markets: carbon trading between in vitro and in vivo experiments.  
41 *Accounting, organizations and society*, 34(3-4), 535-548.
- 42 Callon, M., & Law, J. (2005). On qualification, agency, and otherness. *Environment and planning D:*  
43 *society and space*, 23(5), 717-733.
- 44 Castree, N. (2014). *Making sense of nature*. Oxford: Routledge.
- 45 Ceballos, G., Ehrlich, P., Barnosky, A., Garcia, A., Pringle, R., & Palmer, T. (2015). Accelerated modern  
46 human-induced species losses: entering the sixth mass extinction. *Science Advances*, 1(5),  
47 e1400253.
- 48 Chua, W. F. (1986). Radical developments in accounting thought. *The accounting review*, 61(4), 601-  
49 632.
- 50 Cuckston, T. (2013). Bringing tropical forest biodiversity conservation into financial accounting  
51 calculation. *Accounting, auditing and accountability journal*, 26(5), 688-714.
- 52 Cuckston, T. (2017). Ecology-centred accounting for biodiversity in the production of a blanket bog.  
53 *Accounting, auditing and accountability journal*, 30(7), 1537-1567.
- 54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 Cuckston, T. (2018a). Creating financial value for tropical forests by disentangling people from  
4 nature. *Accounting forum*, *In press*.
- 5 Cuckston, T. (2018b). Making extinction calculable. *Accounting, auditing and accountability journal*,  
6 *31(3)*, 849-874.
- 7 Dey, C., & Russell, S. (2014). Who speaks for the river? Exploring biodiversity accounting using an  
8 arena approach. In M. Jones (Ed.), *Accounting for biodiversity*. Oxford: Routledge.
- 9 Dhanani, A. (2018). Identity constructions in the annual reports of international development NGOs:  
10 preserving institutional interests? *Critical perspectives on accounting*, *In press*.
- 11 Eden, S., Tunstall, S., & Tapsell, S. (2000). Translating nature: river restoration as nature-culture.  
12 *Environment and planning D: society and space*, *18*, 257-273.
- 13 Elad, C. (2001). Auditing and governance in the forest industry: between protest and  
14 professionalism. *Critical perspectives on accounting*, *12*, 647-671.
- 15 Elad, C. (2014). Forest certification and biodiversity accounting in the Congo basin countries. In M.  
16 Jones (Ed.), *Accounting for biodiversity* (pp. 189-211). Oxford: Routledge.
- 17 Feger, C., & Mermet, L. (2017). A blueprint towards accounting for the management of ecosystems.  
18 *Accounting, auditing and accountability journal*, *30(7)*, 1511-1536.
- 19 Ferreira, C. (2017). The contested instruments of a new governance regime: accounting for nature  
20 and building markets for biodiversity offsets. *Accounting, auditing and accountability*  
21 *journal*, *30(7)*, 1568-1590.
- 22 Gaia, S., & Jones, M. (2017). UK local councils reporting of biodiversity values: a stakeholder  
23 perspective. *Accounting, auditing and accountability journal*, *30(7)*, 1614-1638.
- 24 Gray, R. (2010). Is accounting for sustainability actually accounting for sustainability ... and how  
25 would we know? An exploration of narratives of organisations and the planet. *Accounting,*  
26 *organizations and society*, *35(1)*, 47-62.
- 27 Gray, R., Bebbington, J., & Collison, D. (2006). NGOs, civil society and accountability: making the  
28 people accountable to capital. *Accounting, auditing and accountability journal*, *19(3)*, 319-  
29 348.
- 30 Gray, R., & Milne, M. (2018). Perhaps the Dodo should have accounted for human beings? Accounts  
31 of humanity and (its) extinction. *Accounting, auditing and accountability journal*, *31(3)*, 826-  
32 848.
- 33 Hall, M., & O'Dwyer, B. (2017). Accounting, non-governmental organisations and civil society: the  
34 importance of nonprofit organizations to understanding accounting, organizations and  
35 society. *Accounting, organizations and society*, *63*, 1-5.
- 36 Hambler, C., & Canney, S. (2013). *Conservation*. Cambridge: Cambridge University Press.
- 37 Hrasky, S., & Jones, M. (2016). Lake Pedder: accounting, environmental decision-making, nature and  
38 impression management. *Accounting forum*, *40(4)*, 285-299.
- 39 Jepson, P., & Ladle, R. (2010). *Conservation*. Oxford: Oneworld Publications.
- 40 Jones, M. (1996). Accounting for biodiversity: a pilot study. *British accounting review*, *28(4)*, 281-303.
- 41 Jones, M. (2003). Accounting for biodiversity: operationalising environmental accounting.  
42 *Accounting, auditing and accountability journal*, *16(5)*, 762-789.
- 43 Jones, M., & Solomon, J. (2013). Problematising accounting for biodiversity. *Accounting, auditing and*  
44 *accountability journal*, *26(5)*, 668-687.
- 45 Lanka, S., Khadaroo, I., & Bohm, S. (2017). Agroecology accounting: biodiversity and sustainable  
46 livelihoods from the margins. *Accounting, auditing and accountability journal*, *30(7)*, 1592-  
47 1613.
- 48 MacKenzie, D. (2009a). Making things the same: gases, emission rights and the politics of carbon  
49 markets. *Accounting, organizations and society*, *34(3-4)*, 440-455.
- 50 MacKenzie, D. (2009b). *Material markets: how economic agents are constructed*. Oxford: OUP.
- 51 Maroun, W., & Atkins, J. (2018). The emancipatory potential of extinction accounting: exploring  
52 current practice in integrated reports. *Accounting forum*, *42*, 102-118.
- 53  
54  
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57  
58  
59  
60

- 1  
2  
3 Miller, P., & Power, M. (2013). Accounting, organizing, and economizing: connecting accounting  
4 research and organization theory. *The academy of management annals*, 7(1), 557-605.
- 5 Milne, M., & Gray, R. (2013). W(h)ither ecology? The triple bottom line, the Global Reporting  
6 Initiative, and corporate sustainability reporting. *Journal of business ethics*, 118, 13-29.
- 7 Naess, A., & Sessions, G. (1984). Basic principles of deep ecology. *Ecophilosophy*, 6, 3-7.
- 8 O'Dwyer, B., & Unerman, J. (2016). Fostering rigour in accounting for social sustainability.  
9 *Accounting, organizations and society*, 49, 32-40.
- 10 Powell, L., & Tilt, C. (2017). The examination of power and politics in a conservation organisation.  
11 *Accounting, auditing and accountability journal*, 30(3), 482-509.
- 12 Rimmel, G., & Jonall, K. (2013). Biodiversity reporting in Sweden: corporate disclosure and preparers'  
13 views. *Accounting, auditing and accountability journal*, 26(5), 746-778.
- 14 Russell, S., Milne, M., & Dey, C. (2017). Accounts of nature and the nature of accounts: critical  
15 reflections on environmental accounting and propositions for ecologically informed  
16 accounting. *Accounting, auditing and accountability journal*, 30(7), 1426-1458.
- 17 Samkin, G., Schneider, A., & Tappin, D. (2014). Developing a reporting and evaluation framework for  
18 biodiversity. *Accounting, auditing and accountability journal*, 27(3), 527-562.
- 19 Schneider, A., Samkin, G., & Davey, H. (2014). Biodiversity reporting by New Zealand local  
20 authorities: the current state of play. *Sustainability accounting, management and policy  
21 journal*, 5(4), 425-456.
- 22 Sullivan, S., & Hannis, M. (2017). 'Mathematics maybe, but not money': on balance sheets, numbers  
23 and nature in ecological accounting. *Accounting, auditing and accountability journal*, 30(7),  
24 1459-1480.
- 25 TEEB. (2010). *The economics of ecosystems and biodiversity: ecological and economic foundations*.  
26 London: Earthscan.
- 27 Thomson, I. (2014). Biodiversity, international conventions, government strategy and indicators: the  
28 case of the UK. In M. Jones (Ed.), *Accounting for biodiversity*. Oxford: Routledge.
- 29 Thomson, I., & Georgakopoulos, G. (2005). Organic salmon farming: risk perceptions, decision  
30 heuristics and the absence of environmental accounting. *Accounting forum*, 29(1), 49-75.
- 31 Tregidga, H. (2013). Biodiversity offsetting: problematisation of an emerging governance regime.  
32 *Accounting, auditing and accountability journal*, 26(5), 806-832.
- 33 Tregidga, H., Milne, M., & Kearins, K. (2014). (Re)presenting 'sustainable organizations'. *Accounting,  
34 organizations and society*, 39, 477-494.
- 35 van Liempd, D., & Busch, J. (2013). Biodiversity reporting in Denmark. *Accounting, auditing and  
36 accountability journal*, 26(5), 833-872.
- 37  
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41  
42  
43  
44  
45  
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