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Nature 2.0: Exploring and theorizing the links between new media and nature conservation

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Abstract
Web 2.0 and social media applications that allow people to share, co-create and rate online content are crucial new ways for conservation organizations to reach audiences and for concerned individuals and organizations to be (seen as) 'green'. These dynamics are rapidly changing the politics and political economy of nature conservation. By developing the concept of 'nature 2.0' and building on empirical insights, the article explores and theorizes these changes. It argues that online activities stimulate and complicate the commodification of biodiversity and help to reimagine ideas, ideals and experiences of ('pristine') nature. By exploring the implications of these arguments in relation to several key themes in new media studies, the article aims to provide building blocks for further investigations into the world of nature 2.0 and the effects of new media on human–nature dynamics more broadly.

Keywords
Co-creation, commodification, conservation, environment, nature, new media, web 2.0

Introduction

Over the last decade, conservation organizations have rapidly adapted to the new media age. Conservation supporters are urged to 'like' organizations and their activities on Facebook, build websites around and for their favourite animals, join interactive conservation debates

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online and retweet important environmental news and campaign slogans. Nature, it seems, is increasingly saved through mouse-clicks and double-taps: The Nature Conservancy (TNC) urges their supporters to create their own my.nature.org page, which is 'the intersection between you & nature';[1] Conservation International asked visitors to 'connect 4 conservation' on an online global map, in order to 'show that people need nature to thrive';[2] and World Wide Fund for Nature (WWF) stimulates followers to 'take action online with WWF', promising them that 'by adding your voice to our campaigns, together, we can achieve big wins for our planet'.[3] All of them sport the familiar Facebook, twitter, stumble, YouTube and other signs, which offer further ways to interact with these organizations and so 'save nature'. And they are not alone: nearly all (major) conservation organizations are active on social media nowadays and offer web 2.0 communication and engagement possibilities to (potential) conservation supporters.

Clearly, this trend has implications for the politics and political economy of conservation. Exactly how remains a question, as empirical research on and theorization of this phenomenon have only just commenced (see Büscher and Igoe, 2013; Igoe, 2010, 2013). At the same time, research on the social and political–economic dimensions of new media has so far mostly neglected environmental questions and human–nature relations, exemplified among others by recent works on (the political economy of) new media (Arora, 2012; Arvidsson, 2006; Couldry, 2012; Deuze, 2007; Farman, 2012; Fisher, 2010; Nunes, 2006; Poster, 2001) and articles published in *New Media and Society*. Moreover, the little research that has addressed the links between Internet media and conservation has not yet caught up with the rapid rise of web 2.0 and social media (Levitt, 2002; Luke, 2001; Weeks, 1999). One possible exception, Blewitt's (2010) *Media, Ecology and Conservation*, does not systematically investigate new media.

In this article, I posit and develop the concept of 'nature 2.0' in order to explore and theorize the relation between new media and nature conservation. Nature 2.0 denotes new online forms and manifestations of what political ecologists refer to as 'second nature': 'a nature that is *humanly* produced (through conceptualization as well as activity) and that therefore partakes, but without being entirely, of the human' (Biersack, 2006: 14). These 'new online forms and manifestations' are countless and it is not my intention to do justice to all of them. My aim, rather, is to provide several conceptual and theoretical building blocks in order to encourage others to take up and further study the manifold dimensions of this trend. I do so based on an ongoing, in-depth engagement with nature 2.0 that seeks to empirically connect online conservation spaces and how these are facilitated and organized by conservation actors with local offline conservation dynamics in southern Africa.[4] The aim of this engagement has been to connect online and offline conservation discourses, practices and political economies to understand how they influence the global and local politics of conservation.

In the course of the research, I noted how little new media studies have taken environmental and especially conservation issues into account. Even the 'media ecologies' literature (Fuller, 2005; Goddard, 2011; Parikka, 2011) does not study environmental conservation issues as such, though their focus on the dynamic 'material qualities' of media systems is important. The purpose of the article is therefore to bring environmental conservation into new media studies, which is important for two reasons. First, new media is rapidly changing the politics and political economy of conservation with as-of-yet

unknown consequences for conservation practice and prospects for a more sustainable future. Second, a focus on the material dimensions of environments, ecosystems and species in relation to online efforts to conserve these has potentially major consequences for important debates in new media literatures.

In the ensuing pages, I explore and theorize these two points with an explicit focus on the role of new media and conservation within the broader political economy of contemporary neoliberal capitalism. This is important since just as the Internet 'is still a medium constructed in a capitalist era' (Papacharissi, 2002: 18), it is clear from a swiftly growing body of literature that the organization, form, imaginations and practice of conservation are currently seeing a push to conform to neoliberal governmentalities, politics and practices (Arsel and Büscher, 2012; Brockington and Duffy, 2010; Igoe, 2010; MacDonald, 2010). As Corson (2010) argues, conservation is trying ever harder to create 'new symbolic and material spaces for global capital expansion' (p. 578). Through schemes and activities such as ecotourism, 'payments for ecosystem services' 'wetland credits', biodiversity derivatives and more, nature conservation is being subjected to capitalist market dynamics and restyled as a tool for the accumulation of capital (Büscher et al., 2012; Fletcher, 2012). This dynamic is neither straightforward nor ever complete, with new media and web 2.0 trends further complicating the picture. Two key issues in particular, I argue, characterize the way these online trends influence the politics and political economy of conservation, namely, how they stimulate *and* complicate the commodification of biodiversity, ecosystems and landscapes, and how they help to reimagine ideas, ideals and experiences of ('pristine') nature. After further delineating nature 2.0 in the next section, these two issues will structure the ensuing discussion of how new media and conservation intersect.

The concluding section builds on these discussions to briefly reflect on two key themes in new media studies, namely, those around materiality and the argument that 'meaningful distinctions' between 'lived and mediated reality are fading' (Deuze, 2007: xii). The purpose is not to discuss and theorize these exhaustively but through critical engagement employ them to provide building blocks for further investigations into the (potential) impact of new media on the political economy of conservation. Given the many global socio-ecological predicaments currently unfolding, I offer these building blocks in order to encourage a better understanding of the prospects and politics of conservation in an era of new communicative possibilities.

Delineating and exploring nature 2.0

According to Fuchs (2008), the 'web 2.0 is a phase that is dominated by human communication on the Net' (p. 17). Central in the empirical phenomenon of nature 2.0, therefore, is the occurrence of *co-creation* (Zwick et al., 2008) or *prosumption* (Ritzer and Jurgenson, 2010), meaning that online information is not simply consumed, but actively modified or co-produced. The above examples all relate to this possibility of enabling conservation supporters to partly co-create the (information about) natures and conservation they want to 'consume'. But nature 2.0 goes beyond the co-creative element; it also includes sharing, liking and linking these through social media, and indeed captures the full spectrum of possibilities for interactive online communication and action. It follows

that I use social media – online platforms for many-to-many communication – and web 2.0 – web-based technologies enabling co-creation – fairly loosely in the article.

Although it is hard to capture the breadth and dynamics of current online conservation tools and practices, we can distinguish several prominent nature 2.0 categories. Arguably, the most basic are ecological search engines such as http://www.ecosearch.org and http://www.ecosia.org. The latter explains that they are an online search engine, like Google or Yahoo, but one where 'you can help protect the rainforest just by searching the web',[5] with 80% of the proceeds of advertised links going to rainforest conservation. Another, more interactive category relates to online games that support conservation. My Conservation Park, a Facebook game, for example, helps conservation supporters to 'build, protect and preserve'.[6] According to the introduction video, 'your parks in the game are directly connected to conservation efforts in the real world. As you play, we pay'. In April 2013, WWF South Africa launched a mobile gaming app called 'rhino raid'. One can play 'Rad' the 'radical rhino' who chases poachers 'across the African savannah in search of the crime syndicate kingpin who is feeding the Asian demand for rhino'. In the process, 'The game is also filled with rich information about rhinos and exposes the truth behind the current plague of poaching'.[7] There are many more, and sites like http://ecogamer.org/ and http://www.gamesfornature.org/ try to educate netizens on the possibilities and ideas behind different conservation games.

Yet another nature 2.0 category relates to online communities dedicated towards environmental and conservation ends. http://www.care2.com is a longstanding platform with over 23.5 million community members, while http://www.nudge.nl and http://www.ampyourimpact.com focus on building communities that help share sustainability resources. A similar category relates to dedicated web 2.0 platforms aiming to give (potential) supporters new co-creative possibilities to engage in conservation action. One such platform is http://www.pifworld.com, a 'crowdsourcing platform for a better world' where you can 'change the world your way'.[8] One can browse the globe for charities, project and other Pifworld 'players' and assume different roles, like donating, fundraising, blogging, knowledge sharing and more. Another platform is 1% club, the 'online marketplace that connects people with smart ideas in developing countries with people, money and knowledge around the world'.[9] Like Pifworld, 1% club enables people to donate money, time and knowledge to good causes, including environmental ones.

As with platforms, there has been an explosion of (mobile or web-based) conservation and environmental apps with varying degrees of prosumptive possibilities. Many conservation and government agencies develop apps to raise awareness or give information, but others enable conservation supporters to actively contribute to conservation activities or ecological research. For example, citizens can now help conservation biologists track Cane Toads in New South Wales, Australia and through an online 'Toad Tracker' and 'Toad Scan' locate this invasive species responsible for endangering indigenous wildlife (Newell et al., 2012). Citizens co-create an online database that helps contain a threat to conservation.[10] Another example is TNC's 'Nature Near You' app, which helps you 'interact with the world around you by exploring photos and nature preserves in and around your area. Capture your experience with photography then share on Flickr, Twitter, Facebook or Email'.[11]

Important is that these and other nature 2.0 possibilities are intricately linked to social media platforms like Facebook, Twitter, Pinterest, YouTube and others. The websites of most conservation organizations and initiatives sport the familiar buttons that enable viewers to share, like or respond to content. These 'Social Plugins', particularly those by Facebook but also by other platforms, are, according to Gerlitz and Helmond (2013), 'reworking the fabric of the web':

> With the introduction of Social Plugins and the Open Graph, Facebook activities such as liking, commenting and sharing are no longer confined to the platform but are distributed across the web and enable users to connect a wider range of web content to their profiles. Social Plugins may also have a decentralising impact on external websites. Engagement with web content is not confined to designated comment spaces, but takes place across a wide range of platforms and within Facebook across many profiles and News Feeds. In this context, external websites cannot be considered as discrete entities, but function as initialisers for a series of platform-based interactions. The more Social Plugins a website integrates, the more it opens itself up to being shaped by the activities of Facebook users. (p. 1354)

Not only do nearly all conservation organizations these days have Facebook websites, through Social Plugins, they allow Facebook to partly determine how people experience their communication. Obviously, there are more aspects to this, which I will touch on below. For now, the point that social media platforms are integrated with other web 2.0 possibilities and dynamics – and indeed form these – is important to understand the contemporary political economy of conservation. As many crucial aspects of conservation like raising funds, awareness and legitimacy, informing, educating, encouraging and receiving feedback from supporters and creating links between actors and sectors are moving online, so the political economy of conservation changes. Some of these are fairly obvious and have been discussed quite extensively in the literature, like the possibilities for linking causes, actors and organizations; the need for continuous, visually attractive and dynamic content; and the reach, speed and fleeting character of information, which has led some commentators to criticize online activism as 'clicktivism' or 'slacktivism' (see, for example, Fuchs, 2008; Lovink, 2012). Yet, they sometimes have farther reaching effects that are unforeseen: effects brought forth by the possibilities and demands for co-creation.

Interviews with social media staff of conservation and environmental organizations hint at these. For one, staff of several organizations mentioned that social media and web 2.0 are '24/7' and thus 'constantly on'. Hence, to stay abreast of discussions and see how information is used, shared, liked and interpreted, some had started 'weekend-Twitter-shifts' (my term). Specific staff, mostly from media departments, were responsible for ensuring the organization's online presence, and this meant they had to spend entire weekends online.[12] Another major issue mentioned by several interviewees is that conservation supporters are increasingly restless and demand information and answers immediately. In the case of the South African national conservation parastatal SANParks, staff was struggling with the 'Rhino issue' on social media. As the poaching of Rhinos in South Africa's national parks increased dramatically in recent years, conservation supporters put increasing pressure on SANParks to communicate information and solutions on social media. Several SANParks staff officers mentioned that if they do not respond

the same day, or even within 2 hours, people think they have something to hide and start rumours, which can lead to uncomfortable situations for the organization.[13]

These are just two potentially far-reaching effects of the nature 2.0 trend. There are many more, and the following two sections will focus on those that relate to the above-mentioned key issues of the commodification and reimagining of nature online.

Stimulating and complicating commodification

According to Fuchs (2008), the Internet should be analysed from a 'dialectical view that sees cyberspace as a contradictory space that is embedded into societal antagonisms and hence is shaped by various conflicting tendencies of development' (p. 247). One of the antagonisms emphasized by Fuchs is that between competition and cooperation and between commodity and gift economies. Fuchs (2008) argues that processes of decommodification *and* commodification are stimulated on the web but that 'although the gift model transcends the commodity model, it is also subsumed under capital' (p. 201) (see also Streeter, 2011: 72). This is because

> especially newer strategies of profit generation (social networking platforms, social software, Google, etc) in the internet economy make use of information as a gift in order to achieve a high number of users and to build monopolies in certain fields so that they can charge high advertisement rates. (Fuchs, 2008: 201)

These antagonisms also play a role in nature 2.0, for example, through the above-mentioned search engine Ecosia (http://www.ecosia.org). Ecosia describes itself as 'a social business dedicated to environmental sustainability via the donation of revenue to the world's most effective rainforest protection programs'. They explain,

> Our best-known service, the search engine mask at Ecosia.org, is powered by Bing and Yahoo. It lets an essential and routine task – searching the web – double as an ecological contribution: not only are Ecosia search emissions offset, but every click on a sponsored ad within Ecosia translates into either cents for the environment – or cents for generating more cents for the environment. Cents may not sound like much, but they certainly add up. From its inception until December 2010, Ecosia was able to generate just under 125,000 Euros (164,000 USD) for its rainforest protection program with the WWF – and that in just the first year![14]

Indeed, income has risen steadily. In June 2012, Ecosia had raised €872,380, and this figure increased to €1,192,753 in March 2013, making it a significant political–economic conservation tool. Ecosia is an interesting illustration of the antagonism between gift and commodity economies. As a search engine, Ecosia provides a free gift by offering consumers web searches. They pay for this by selling commercial advertising space. In turn, they use 80% of their revenue to provide 'gifts' to 'rainforest sustainability programs'. Concretely, Ecosia has partnered with WWF[15] to support their efforts in protecting the Tumucumaque Mountains National Park in Brazil, as part of the larger Amazon Region Protected Areas programme.[16] On its site, Ecosia introduces the park and the efforts to protect it:

The Tumucumaque (too-moo-koo-MAH-key) region in northern Brazil is a special place. Not only does it harbor one of the largest protected areas in the world – it's also one of the most biologically diverse regions on the planet – making it a widely accepted global priority for conservation and sustainable development. […] There are some serious problems, though: illegal gold mining, logging, hunting, fishing and unsustainable settlements are emerging as ever-greater threats to this integral biosphere. That's why the Brazilian Ministry of the Environment established a 38,800-square-kilometre protected area in 2002 with the support of WWF.

This is a story that appeals to a particular audience (predominantly Westerners searching on the net[17]) by espousing familiar 'visions of the Amazon' – as globally important Eden and 'lungs of our planet'.[18] Slater (2002) refers to these visions as 'gigantifications', which 'are more often exaggerations than outright fabrications'. While Slater (2002) is 'not denying the physical reality or the importance of the biological diversity of the rainforest', she suggests 'that the ability of these particular images to move viewers owes in part to their success in concealing other facets of a much larger reality' (p. 15). The larger (political–economic) reality she is interested in relates to the violent and challenging lives of local *garimpeiros* (gold-diggers) and *remanescentes* (descendants of runaway African slaves), who are likely the cause of the 'serious problems' referred to by Ecosia above. These lives and stories are often left out of the 'gigantifications' of the Amazon, also on ecosia.org.

Hence, not only is the commodification of conservation complicated by the fact that it hides behind a gift economy, it also hides a much larger reality behind a (seemingly) simple task of searching the web. Yet, this example is limited in that the co-creative element is restricted to entering a search-term and clicking on results. Nature 2.0 media, platforms and activities offer far more complex and far-reaching possibilities and complications, among others, by being deeply implicated in the 'like-economy'. As noted above, the like-economy is part of a broader process of 'socialising the web', particularly by Facebook, but also by other social media platforms, which is not neutral: 'Facebook uses a rhetoric of sociality and connectivity to create an infrastructure in which social interactivity and user affects are instantly turned into valuable consumer data and enter multiple cycles of multiplication and exchange' (Gerlitz and Helmond, 2013: 1349).

Similarly, nature 2.0 is deeply 'social' as in the context of the like-economy, and many platforms have sprung up connecting user affects to the political economy of conservation. One example is http://www.greenvolved.com that uses similar connectivity tactics to turn consumer data – in this case, the amount of 'clicks' or 'votes' for environmental projects – into corporate sponsorship. In their words, 'when you click on green projects you believe in, your voice reaches powerful corporations looking for green projects to sponsor. When a project wins enough votes, it gets funded and becomes a reality'. In this way, nature is indirectly commodified through corporate social responsibility, the problematic aspects of which disappear behind the idea that 'with one click, you can save an endangered species, clean up the ocean, or support the invention of a new green energy source'.[19]

This commodified socializing of online conservation is further connected to a 'proliferating array of arrangements promising to connect conservation and consumption' (Igoe, 2013: 17). As Igoe (2010) argues, once certain 'elisions are achieved, the spectacular

productions of transnational conservation are free to propose relationships and connections that are simple and direct', for example, 'through the consumption of new commodities, which simultaneously promise opportunities for individual self-expression' (p. 384). Igoe (2010) gives the example of Conservation International's 'Protect an Acre' website, which 'features an interactive rainforest divided into discrete acres; some bear the name of their adopters and some are marked as available' (p. 384). Another example is the above-mentioned Pifworld website (http://www.pifworld.com), where conservation consumers can help 'build a wildlife park'. The website encourages its online 'players' as follows:

> Let's build the largest wildlife park in the world starting with the Elephant Corridor to give room to 100,000 Elephants. So far, the project is crowd-funded by more than 500 supporters, 33 teams and 20 companies from all over the world. This is huge! What makes The Elephant Corridor so special? It is a unique and innovative project that enables the elephants in Botswana to roam freely across the border to Zambia. This project is the first and key step in the realisation of world's biggest wildlife park covering an area of 300,000 km2.[20]

Individual players can take on different roles – fundraiser, donator, blogger, expert, reporter or leader – that enable 'you' to 'change the world your way', in this case by building a wildlife park.[21] In another article (Büscher and Igoe, 2013), I have explained why this project is based on flawed assumptions about the feasibility of the elephant corridor. Here, I want to recapitulate the larger argument of that article in relation to Pifworld's (and other organizations') emphasis on the customized 'you' since it further illustrates how nature 2.0 stimulates *and* complicates the commodification of nature. The background to this argument is what Goldman and Papson (2011) refer to as the intensification of the political economy of the sign and subsequent decomposition of sign value. As signs, such as adverts, are ubiquitous in the (online) mediatized world, there is a problem of how to make them valuable by getting people to respond and take appropriate action. In the context of nature 2.0, this could be an advertisement by WWF on Facebook with the appeal to help save tigers. Value is only realized once certain actions have been undertaken: a click on the advert, reading information on the WWF website, and a donation to its tiger programme.

But of course, WWF is not the only conservation organization – there are many that compete for the attention of (potential) online conservation supporters. The result is described by Goldman and Papson (2011) who argue that 'the greater the velocity of sign values, the greater the tendencies towards clutter and the likelihood of entropy in the value realization process' (p. 38). In turn, this problem of the 'decomposition of value' has forced producers of sign value 'to customize products for even the smallest of niche markets – You' (Goldman and Papson, 2011: 39). Hence, the focus on the generic 'you' makes sense in a highly marketized environment where 'social connections' and 'doing good' in the like-economy consist solely of individual actions by hordes of 'yous'.

In the case of the Pifworld elephant corridor, the goal is to raise €430,000, 94% of which was attained in November 2013. Again, a significant political economy of conservation is at play here, but works through complicated individualized forms of consumption whereby the 'gigantifications' of online players ill relate to the relationships and larger realities on-the-ground in Botswana and Zambia. The latter transpired during research in Botswana in July 2013 and March 2014, which showed that rather than

elephants moving to Zambia as the corridor promises, they are moving away from Zambia to the relative safety of Botswana where poaching pressures are considerably less. Several interviewees stressed that due to poaching pressures, and complicated local tenure and power dynamics, an elephant corridor such as the one proposed online will be difficult for the foreseeable future.[22] But while this complicates the commodification of nature in Botswana and Zambia (as it might – positively or negatively – impact on tourism), it hardly complicates the consumption of the idea of the elephant corridor on http://www.pifworld.com, which continued unabated.

This, in turn, was little appreciated by some conservation actors in Botswana. In interviews in January and July 2013, government and non-governmental organization (NGO) actors questioned why Dutch online conservation supporters raised funds for a corridor they had no knowledge about.[23] At the same time, they made clear they could not participate in the nature 2.0 arena as they lacked time or, in the case of government actors, a clear mandate. All in all, a political economy of conservation is at play here with familiar and new elements that deserve critical engagement, particularly how it stimulates and complicates the commodification of nature. In doing so, it is important to also be aware of how nature 2.0 could lead to the opposite: possibilities for decommodification and critical awareness of the commodification of nature. One example highlights culture jamming through games on http://www.molleindustria.org/. The website describes itself as

> a project about games and ideology, it's a bit of art, media activism, research, and agitp[r]op. The idea is to apply the culture jamming/tactical media (remember tactical media?) treatment to videogames: spreading radical memes and, in the process, challenging the language of power, the infrastructures, the modes, genres and tropes of the dominant discourse which was omnipresent in videogame culture.

Other interesting examples are Tinnell's (2011) initiative to use 'eco-blogging' as part of an 'ecopedagogy' to 'critique established, consumeristic online communication' and the attempts by activists to 'hijack' the Twitter hashtag of the World Forum on Natural Capital, held in Edinburgh in November 2013, to force them to address environmental justice issues.[24] These counter-examples, however important and powerful, are few and far between, and rarely if ever found on the web 2.0 and social media spaces of the large conservation organizations that attract the majority of global conservation funding. Most conservation actors employing new media tools openly espouse their neoliberal vision for conservation (such as Conservation International and TNC) while others do not explicate their precise involvement in the commodification of nature. Instead, most of them emphasize the possibilities that new media tools offer in terms of the reimagining of nature online.

Reimagining nature online

According to Igoe (2010), conservation activists are increasingly encouraged to engage in their own online 'world-making' projects, which 'combine to powerful effect in the spectacular productions of biodiversity conservation' (p. 377). Igoe employs Debord's concept of the spectacle, redefined as the mediation of relations between humans and nature through images. 'Spectacular productions', then, relate to how conservation

activists are now enabled and encouraged to reimagine nature according to their own ideas of what conserved nature *should* be. In their online travails, conservation activists leave pictures, messages, blogs, tweets, websites and other images that help mediate their relation to the natural world. Together they add up to a complex picture of nature that combines – among others – the imagination and priorities of individual online activists, the interests of facilitating conservation organizations and broader historical, political–economic and cultural forces and dynamics. In more abstract terms, new media transform the production and consumption of ideas and ideals of 'pristine nature' and thus how humans and nature (should) relate.

Nature 2.0, from this point of view, is nature 'tailored to your interests': *your* or *my* nature. TNC has a website called http://my.nature.org where 'You'll get green living tips, nature images, invitations and conservation news tailored to your interests!'.[25] Arguably, another antagonism is created here, that between *social* media and *individual* imagination. It is another form of Slater's 'gigantification': a focus on the animal 'you' love, whereby 'you' can completely dedicate your site or tailor the information you want to receive to the nature you like. This has of course always happened to some extent, particularly through the focus on so-called 'charismatic megafauna' (Leader-Williams and Dublin, 2000), but is now taken to a new level.

One way of explaining this 'new level' of the generic 'you' is through Streeter's (2011) discussion of the history of the term 'personal' computer (p. 62). He argues that it is odd that computers were designated 'personal', arguing that it

> entered the vocabulary of computing because it is the opposite of *impersonal*. Before the mid-1970s, both the computer industry and the culture at large generally saw computers as the embodiment of the neutral, the universal, the rational and mathematical – as impersonal tools for centralizing bureaucracies, Taylorizing the office, or winning nuclear wars […]. Like the slogan 'black is beautiful' in the 1960s, 'personal computer' was a deliberate combination of two things the dominant culture understood as opposites. At the beginning, attaching the term *personal* to something associated with impersonal universality provided a nicely startling juxtaposition, a two-word condensation of a larger cultural refiguration of the meaning of computing as a whole.

He even argues that

> it announced a radical reclassification of computers, taking them out of the old box of mathematical impersonality and putting them in a new one that associated them precisely with individual uniqueness, distinctiveness, unpredictability, and expression – with all those things we have long associated with the romantic persona. (Streeter, 2011: 62)

Streeter relates the same argument to the Internet and, I argue, it can be extended to nature 2.0. In online conservation, the dualism between romanticism and mathematical impersonality also plays an important role in that nature has long and is still often described in romantic terms – beauty, purity, serene, wild and so on – whereas its commodification is a distinctly unromantic dynamic, dependent on 'mathematical impersonality' and the metrics of the 'like-economy', among others. As Robertson (2006) argues, the 'nature that capital can see' is an impersonal nature, subjected to rational, quantitative

calculation, and sliced into small bits that can be trademarked and sold (cf. Arsel and Büscher, 2012). The tables, then, have seemingly turned: instead of the more traditional conservation narrative where rational commodified machines form a danger to romanticized natures, we increasingly see romantic computing and online imagination employed to save commodified and rationalized natures.

The workings of TNC – the world's largest conservation NGO – exemplify this. Among the most aggressively neoliberal conservation NGOs,[26] they have turned to web 2.0 and social media in a major way. Besides the above-mentioned my.nature.org website, one can join their trademarked 'all hands on earth' initiative where you can earn online 'points and badges' by doing 'bite-sized' conservation duties and sharing evidence online and with friends. Being competitive in getting 'points and badges' becomes a romantic thing with TNC as is clear from how they enthuse (potential) supporters:

> When you have an idea share it (you even get points when you comment on our pages). Maybe you'll inspire another member of the community. Or maybe we'll steal it and promote it on our website, giving you full credit of course. Thanks for helping us get All Hands on Earth. Now go have some fun saving the planet![27]

Other initiatives, among others through Facebook, twitter and other social media, are continuously developed, many of which try to convey a similar feel by allowing consumers to reimagine nature online.

But, importantly, organizations actively facilitate the reimagining of nature online, often by playing into dominant cultural tropes. In March 2013, for example, TNC organized 'Nature's Madness', an online competition akin to US college basketball, where a random selection of animals and even a hurricane were pitted against each other (Figure 1). The idea seemed to be to relate to a target-group's interest and lifeworld (young, competitive, sporty, etc.) and while doing so insert an educational element:

> Are you a super-fan of nature? In honor of college basketball's biggest moment, we've pitted together nature's fiercest creatures for our own online competition this March. Get to know our 'Sweet 16' teams below. They'll face off on our Nature Conservancy Facebook pages on select tournament dates (March 28, April 2, April 5, April 7-8). Our Facebook fans will decide on which teams advance to the Elite 8, Final Four and championship game. In real life, these critters are facing their toughest rival yet: habitat loss. We're committed to helping nature win.[28]

The animals obviously do not actually fight; the affects of conservation supporters that happen to be online and interested in playing decide the winner, and ultimately, 'nature's champion'. In turn, this reimagining of nature as a competitive championship serves to make the point that TNC is 'committed to helping nature win'. The question is 'win against what'? This is not explicated; the idea is that when we all work together through TNCs 'conservation by design' approach, we will enable 'governments, companies, and communities to use and share space, protect natural areas, improve resource management, and invest more wisely for a sustainable future'.[29]

This article is not the place to develop a major critique of TNCs 'conservation by design' and its neoliberal vision, or that of other large conservation NGOs (see Brockington and Duffy, 2010; MacDonald, 2010). Rather, the point is to give a hint of the dynamic

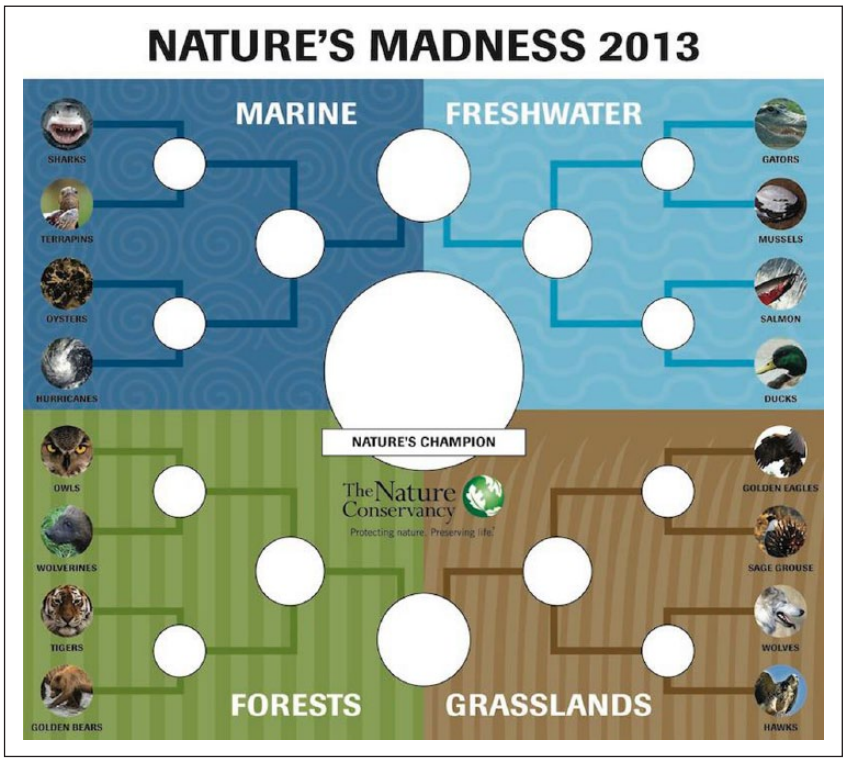

Figure 1. TNC's nature's madness 2013.
Source: http://www.facebook.com/photo.php?fbid=10151491721426740&set=a.189919806739.127298.8057376739&type=1&theater (accessed 28 March 2013).

ways in which nature is reimagined online through new co-creative technologies and social media and how this relates to the stimulation and complication of the commodification of nature under contemporary neoliberal capitalism.

New media, however, do not only stimulate the reimagining of nature online. They also enable people to reimagine and differently experience offline conservation landscapes, particularly through mobile Internet applications (cf. De Souza e Silva and Sutko, 2011). According to Farman (2012), landscapes have become 'information interfaces' whereby 'mobile interface can become a collaborative space' and users 'work together to create mobile representations that inform the lived space they traverse' (pp. 43, 53). So, for example, with the Kruger Sightings app or Twitter alerts (Figure 2), one can now experience South Africa's Kruger National Park very differently. Instead of roaming the park searching for chance encounters, one can now chase sightings reported by other visitors and so 'reimagine' your Kruger experience.[30] In this way, 'our embodied relationship to these interfaces uniquely structures our experience (and thus conception) of the world around us' (Farman, 2012: 46) while changing material dynamics in conservation areas.

Figure 2. Twitter Kruger Sightings screen shot (22 March 2013).

Concluding discussion: implications and building blocks

Web 2.0 and social media are rapidly changing the political economy of conservation through the stimulation and complication of the commodification of nature and the reimagining of nature online. And in the context of a crisis-ridden capitalist global political economy, it will be crucial to understand the consequences of these changes for conservation practice and prospects for a more sustainable future. At the same time, the specificity of nature conservation and the importance attributed to the materiality of species and habitats may have important consequences for thinking about new media. In this concluding section, I use the nature 2.0 lens to speak to important discussions in new media studies. This is intended as indicative, in order to provide building blocks for further research on nature 2.0 and the effects of new media on human–nature dynamics more broadly.

Two issues that I believe could provide interesting building blocks are materiality and distinction. These are related and emanate from a popular trope in new media studies, namely, that 'meaningful distinctions' between 'lived and mediated reality are fading' (Deuze, 2007: xii). Arvidsson (2006) argues that the 'complete integration of Media

Culture and everyday life means that it no longer makes much sense to maintain a distinction between the two' (p. 13), while Farman (2012) states that 'eventually, the collaboration between virtual space and what might be called "actual" space becomes so intertwined that it is no longer useful to think of them as distinct categories' (p. 6). Other scholars come to similar arguments but from a Foucauldian perspective (Fisher, 2010: 39) or from the perspective of locative technologies (De Souza e Silva and Sutko, 2011).

My argument builds on Kim's (2013) point that – save for exceptions such as in the 'media ecologies literature' (Fuller, 2005) – in many new media studies there has been an 'endemic exclusion of a concept of the material external to the perceiving subject. The material has been conceived of as the supplement to the virtual with the material perceptible in its disappearance' (p. 9).[31] And while the above quotes do not mention the material, I argue that the arguments implied in them corroborate Kim's point, and the key to this is in the term 'distinction'. If, as Deuze holds, there is no 'meaningful distinction between lived and mediated reality', then necessarily all of lived reality – including its material foundations – cannot be thought of as outside of mediation. This becomes (especially) problematic when one talks about the issue of nature *conservation*. After all, those employing web 2.0 and social media tools for conserving nature are not interested in conserving virtual species or habitats but material species and habitats *outside and independent of their mediation* (see Lindahl Elliot, 2006).

This is not to say that mediation and material conservation are not intertwined – indeed the opposite, as the 'nature 2.0' concept testifies. Rather, I argue that in this intertwined dynamic, meaningful and useful distinctions can and should still be made. Following Hannah Arendt (1998 [1958]), distinctions *are* important, and in the case of dichotomies between virtual and the real and especially the virtual and the material, contextual specificities of topics needs to be accounted for. Indeed, in Markell's (2011) interpretation of Arendt, it is precisely the tension between distinguishing dynamics so that they (can) provide for certain functions and not letting them become isolated, self-referential 'and thus politically impotent' that is the ontological crux in locating meaning in distinctions (pp. 36–37). And, importantly, being sensitive to meaningful distinctions is not the same as saying there is an ontologically preferential space where meaning (-making) happens in (relation to) new media. As Harvey (1996) notes,

> materiality, representation, and imagination are not separate worlds. There can be no particular privileging of any one realm over the other, even if it is only in the social practices of daily life that the ultimate significance of all forms of activity is registered. (p. 322)

All of this is important not merely to do justice to the materiality of nature (conservation) but also to sidestep other potential consequences of the desire to forego 'meaningful distinctions', namely, to be able to respond to and counter the commodification of nature. A singular focus on 'mediated realities' possibly renders mute the agency of nature in its variegated forms, which in turn might (further) obfuscate processes of commodification (Castree, 2003: 288–289). Different natures, as Castree (2003) reminds, us, 'respond' differently to different processes of commodification and as such 'real analytical discrimination must be used when examining the capitalist commodification of natures. The form and material outcome of the process depends on the articulation of specific natures

with some combination of the six dimensions of commodification' (namely, privatization, alienability, individuation, abstraction, valuation and displacement). A critique of commodified natures through nature 2.0 must, I argue, employ 'real analytical discrimination' in order to become politically potent, and it is here that further investigations into nature 2.0 could be especially fruitful.

Several questions then arise: how to conceptualize and distinguish the virtual and the real or material in such a way as to do justice to the realities of online worlds, offline worlds and their dynamic interactions? How should we further conceptualize, theorize and empirically investigate the distinctions between them? How does the question of nature and its conservation fit into this, especially in the context of contemporary neoliberal capitalism with its focus on commodifying nature as a solution to environmental crises? And how do we further theorize and empirically investigate the materiality and agency of nature in relation to the stimulation and complication of the commodification of nature through nature 2.0? For one, we need to go beyond Kim's (2013) definition of a 'substantive understanding of the material' understood as 'the presence of objects, structures, and others that comprise one's immediate surroundings' whereby 'immediate is meant here in the sense of physical proximity' (pp. 9–10). While Kim points at a 'meaningful distinction', I believe – based on the above discussions – that we should broaden the idea of material outside of physical proximity and include ideas of material in relation to other's physical proximity, as conservation nature through new media in the West can have direct, material consequences for the 'immediate surroundings' of those far away (e.g. think of the increased presence of dangerous animals for those living around parks). Reinterpreting materiality and distinction in this way provides building blocks for rethinking important arguments in new media studies, as well as enabling further investigations into the links between new media, conservation and human–nature relations.

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Notes

1. http://my.nature.org/nature/ (accessed 7 November 2013).
2. https://secure2.convio.net/cintl/site/SPageNavigator/Connect4Conservation.html (accessed 25 May 2012).
3. http://wwf.panda.org/how_you_can_help/campaign/ (accessed 25 May 2012).
4. Since the start of the research in February 2012, I have done over 60 interviews in Europe, the United States and Southern Africa with staff of major conservation and environmental organizations, online conservation supporters and local people subject to conservation interventions. I have furthermore participated in and observed online fora and offline conservation practices.
5. http://www.ecosia.org (accessed 27 March 2013).
6. http://apps.facebook.com/myconservationpark/?fb_source=search&ref=ts&fref=ts (accessed 27 March 2013).
7. http://www.wwf.org.za/act_now/rhino_raid/ (accessed 30 October 2013).

8. http://www.pifworld.com/aboutpifworld/individuals (accessed 27 March 2013.
9. http://www.1procentclub.nl/ (accessed 27 March 2013).
10. The website is http://wildbynature.com.au/toadtracker.html. For a broader discussion of citizen science in the context of web 2.0, see Goodchild (2007).
11. https://play.google.com/store/apps/details?id=com.treeline.tnc&feature=search_result#?t=W251bGwsMSwxLDEsImNvbS50cmVlbGluZS50bmMiXQ (accessed 28 October 2013).
12. Among others, interview Greenpeace employee, Amsterdam, 16 July 2012.
13. Interview SANParks staff, Pretoria, 11 February 2013.
14. http://ecosia.org/about.php (accessed 18 June 2012).
15. See http://wwf.panda.org/how_you_can_help/campaign/ecosia_search/ (accessed 18 June 2012). More recently (October 2013), it became clear that Ecosia switched to work with The Nature Conservancy.
16. See: http://www.worldwildlife.org/what/wherewework/amazon/WWFBinaryitem5243.pdf (accessed 18 June 2012).
17. Ecosia's website showed the 'distribution of searches per country': 93.74% originated in western Europe or the United States (with Germany alone taking up 59.68%), making it safe to say that their audience is 'western'. See http://ecosia.org/statistics.php (accessed 28 March 2013).
18. http://ecosia.org/rainforest.php (accessed 18 June 2012).
19. http://www.greenvolved.com/how-it-works (accessed 30 October 2013).
20. http://www.pifworld.com/projects/TheElephantCorridor/61 (accessed 29 March 2013).
21. http://www.pifworld.com/aboutpifworld/individuals (accessed 29 March 2013).
22. Interviews with NGO staff, government officials and tourism agency staff, 20–25 July 2013 and 9–14 March 2014, Kasane, Botswana.
23. Interviews with NGO staff and government officials, 21–22 January 2013, Gaborone and 20–25 July 2013, Kasane, Botswana.
24. Personal communication, Brett Matulis, November 2013.
25. http://my.nature.org/nature/ (accessed 29 March 2013).
26. Exemplified among others through their highly technocratic, 'science-based' 'conservation by design' framework, their business and corporation-friendly approach to conservation (Tercek, 2013), and with leadership straight from Wall Street (CEO Mark Tercek is a former managing director and Partner for Goldman Sachs, chief operating officer Brian McPeek, was 'with McKinsey & Company', see http://www.nature.org/about-us/governance/executive-team/index.htm).
27. http://www.nature.org/all-hands-on-earth (accessed 30 November 2013).
28. http://www.nature.org/ourinitiatives/regions/northamerica/natures-march-madness.xml (accessed 28 October 2013).
29. http://www.nature.org/ourinitiatives/urgentissues/smart-development/index.htm (accessed 28 October 2013).
30. See: http://edition.cnn.com/2012/12/31/tech/web/kruger-latest-sightings-nadav-ossendryver and http://www.justmeans.com/Social-Innovation-Wildlife-Website-Created-by-16-Year-Old-Boy-That-Attracts-Google/55348.html (accessed 9 November 2013).
31. Kim emphasizes that this is also the case for literature on embodiment in relation to new media.

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