

Mass Media Representations of Anthromes

Leslie Sklair*, London School of Economics and Political Science, London, United Kingdom

Maxwell Boykoff†, Environmental Studies, University of Colorado Boulder, Boulder, CO, United States

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Abstract

This article is divided into three sections. The first deals with the ways in which ideas of anthropogenic biomes (anthromes) have appeared in mass media coverage of climate change and global warming. The second section addresses the ways in which ideas of anthromes have appeared in mass media coverage of the Anthropocene. While the precise specifications of anthropogenic biomes have varied somewhat over time, our focus is on the six main categories, namely dense settlements/urban, croplands, rangelands, forests, wildlands, and indoor anthromes. In the third section, we draw out some conclusions from these findings.

Introduction

There are many reasons why it is important to study how scientific concepts are introduced to the public via the mass media. Often this can be a vital process of translating the complexities and nuances of jargon-laden science reports into language that the lay reader can understand. Drew Westen and Celinda Lake have written, “we tend to speak to [citizens] in our language—the language of parts per million, carbon emissions, carbon sequestration, and the like—and expect [the public] to make the translation. We would do well to make that translation ourselves...” (2009). These challenges can be partly attributed to long-standing differences between the ‘Two Cultures’ first explained by CP Snow in the 1950s.

From the invention of the Gutenberg printing press in 1450 and expanded opportunities for communication on a larger scale, books, and pamphlets, ideas, arguments, stories and commentaries began to circulate throughout various segments of society. These seeds of ‘media’ sprouted all over the world in the decades that followed, leading to a growing role in translating (information, concepts, developments, debates) from formal and often insular spaces of scientific research into communities and the public sphere.

Nonetheless, there have been many ongoing challenges of translation. Within language resides the power to effectively (mis) communicate. Differences in language use between science, policy, media and civil society can unavoidably impede efforts to make climate change, the Anthropocene—or any other issue—meaningful in society. Frankly, important research, effective arguments, and interesting insights from science often suffocates under a wet blanket of jargon and complexity. Clinging to nuance has led to alienation of the decision-makers and audiences that the research often seeks to influence in the first place. It is a struggle to translate complicated science into crisp and resonant commentary that is valued in policy communities and in civil society. Yet this is not necessarily a process of ‘dumbing down’ science for public understanding and engagement but can result in ‘smartening up’ communication of the science in order to effectively meet people where they are in the Anthropocene. In reality, scientific findings usually require translation into more colloquial terms in order to be comprehensible and valued in decision-making from the individual to the collective scales. One example of this is anthropogenic biomes or anthromes (defined below). The media, in all its manifestations, has become the main conduit between science and the general public.

The ways that the Anthropocene and anthromes are discussed in the public arena matter. Among many examples, renowned UK science and environmental filmmaker David Attenborough has credited Ralph Cicerone—then president of the US National Academy of Sciences—for delivering a rousing talk in Belgium in 2004. That public talk managed to convince the influential Attenborough of the case for the importance of anthropogenic climate change (Randerson, 2007).

*Emeritus Professor of Sociology, London School of Economics; Associate Fellow, Institute for the Study of the Americas, University of London.

†Director, Centre for Science and Technology Policy Research (CSTPR); Fellow, Cooperative Institute for Research in Environmental Sciences (CIRES); Associate Professor, University of Colorado Boulder.

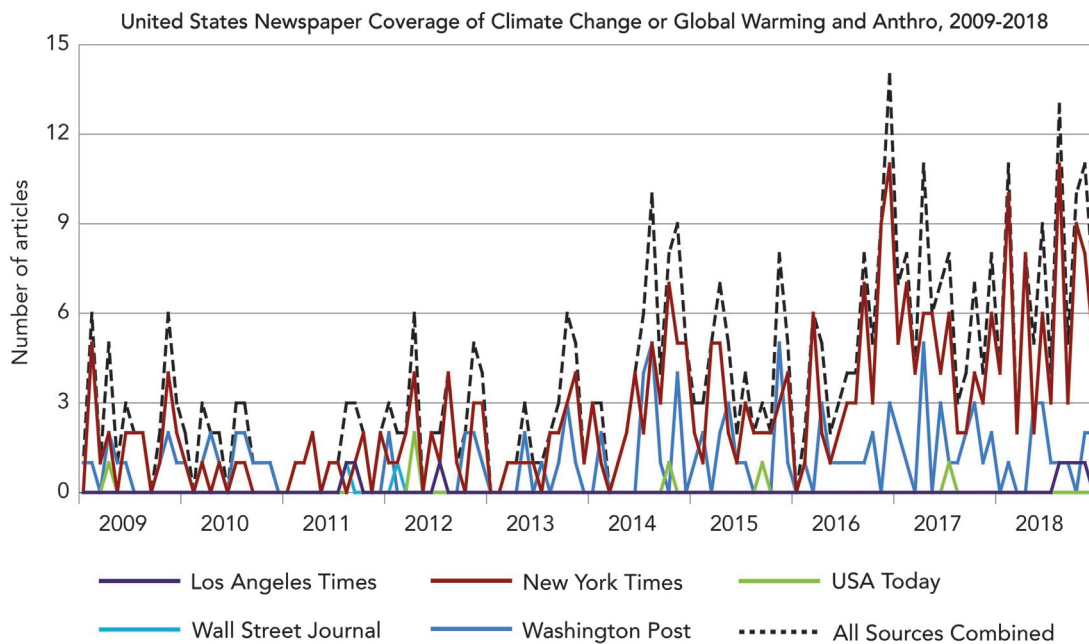
In the public arena, communications through mass media provide a bridge between the formal spaces of science-policy interactions and our everyday lives. In reality, few people spend part of their typical day perusing the latest peer-reviewed research. Instead, citizens more regularly turn to mass media. Mass media play important roles in people's everyday realities and experiences and the ways in which these are discussed at a distance between science, policy and public actors. People throughout civil society rely upon media representations to help interpret and make sense of the many complexities relating to science, governance and society. Furthermore, media messages are critical inputs to what becomes public discourse on today's issues, problems and challenges.

While the precise specifications of anthropogenic biomes, or anthromes, have varied somewhat over time, our focus is on how the main categories, namely dense settlements (urban), croplands, rangelands, and forests (See Ellis and Ramankutty, (2008). On indoor anthromes, a recent addition, see Martin et al., 2015), are represented in the media. In his popular introduction to the Anthropocene, Ellis expands on the original specification of anthromes as follows: 'anthrome landscapes are generally mosaics of used lands interspersed with less used, recovering, and remnant ecosystems transformed by being broken up and embedded within used landscapes' (2018: 121).

Anthromes in the Climate Change Mass Media

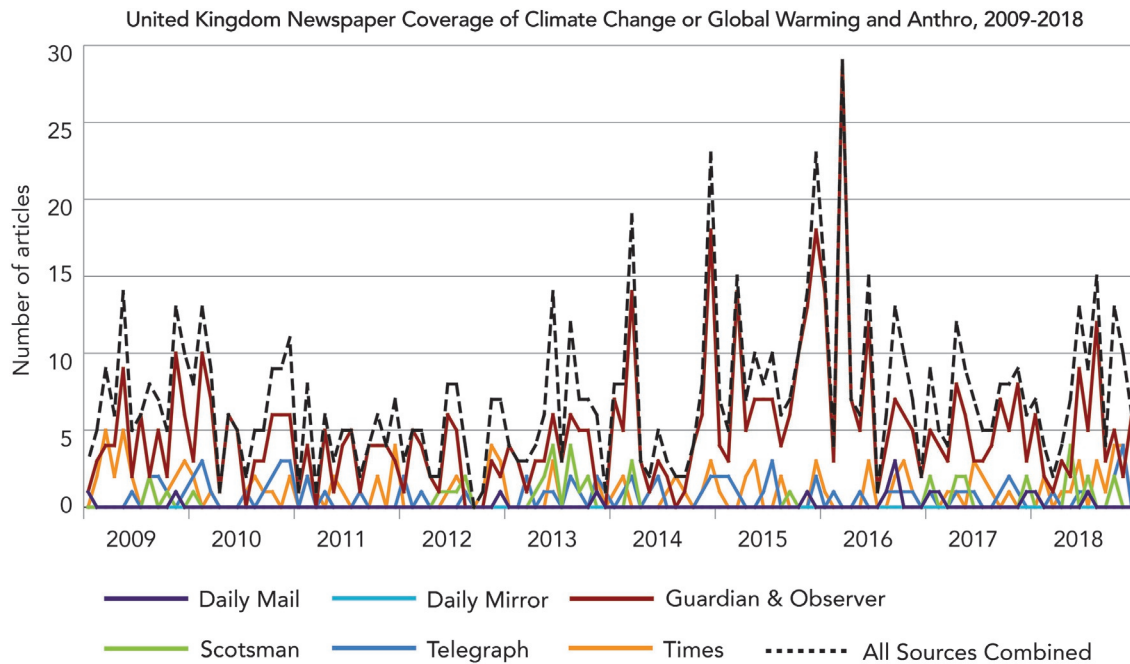
To appraise the presence of the terms climate change, and 'Anthro' (The Boolean we used was 'climate change OR global warming AND anthro'. This approach allowed for the appearance of combinations from the root 'anthro' including Anthropocene, anthromes, anthropogenic and so on. We used the Nexis Uni, Factiva and Proquest databases in order to determine these counts. Secondary checks were also made to validate the returns.) in the media, researchers at the University of Colorado monitored coverage in 12 United Kingdom (UK) and United States (US) newspapers from January 2009 through December 2018. These sources are the *Daily Mail & Mail on Sunday*, *Guardian & Observer*, *The Sun*, *News of the World & Sunday Sun*, the *Telegraph & Sunday Telegraph*, the *Daily Mirror & Sunday Mirror*, the *Scotsman & Scotland on Sunday*, and the *Times & Sunday Times* in the UK (Fig. 1) along with the *Washington Post*, *Wall Street Journal*, *New York Times*, *USA Today*, and *Los Angeles Times* in the US (Fig. 2).

We found that in the US media, coverage steadily increased over this 10-year period. In the first 5 years (2009–13) coverage of climate change and anthro-appeared 123 times, while coverage in the following 5 years (2014–18) was evident 332 times. Of the five sources monitored, the *New York Times* had the most coverage of climate change or global warming and anthro-overall ($N = 319$) followed by the *Washington Post* ($N = 119$). Comparatively, there was scant attention paid to climate change or global warming and anthro-in the *Wall Street Journal* ($N = 2$), *USA Today* ($N = 8$) and the *Los Angeles Times* ($N = 7$) over these 10 years, averaging less than a story a year. Together, the *New York Times* covered climate change or global warming and anthro-more than



This figure tracks newspaper coverage of climate change or global warming and 'anthro' in 5 US newspapers (Washington Post, Wall Street Journal, New York Times, USA Today, and Los Angeles Times), month-to-month from January 2009 - December 2018.

Fig. 1 This figure tracks newspaper coverage of climate change or global warming and 'anthro' in five US newspapers (Washington Post, Wall Street Journal, New York Times, USA Today, and Los Angeles Times), month-to-month from January 2009–December 2018.



This figure tracks newspaper coverage of climate change or global warming and 'anthro' in 7 UK newspapers (Daily Mail & Mail on Sunday; Guardian & Observer; Sun, The News of the World & Sunday Sun; Telegraph & Sunday Telegraph; The Daily Mirror & Sunday Mirror; The Scotsman & Scotland on Sunday; and Times & Sunday Times), month-to-month from January 2009 - December 2018.

Fig. 2 This figure tracks newspaper coverage of climate change or global warming and 'anthro' in seven UK newspapers (Daily Mail & Mail on Sunday; Guardian & Observer; Sun, The News of the World & Sunday Sun; Telegraph & Sunday Telegraph; The Daily Mirror & Sunday Mirror; The Scotsman & Scotland on Sunday; and Times & Sunday Times), month-to-month from January 2009–December 2018.

the other four sources combined over this 10-year period, pointing to possible differences in editorial directives, ownership structures, and story allocations (Boykoff, 2011).

In the UK media, we also found overall increases across this 10-year period. We found that there were 348 stories in the first 5 years (2009–13) that explicitly addressed climate change and anthro-, while 505 stories in the following 5 years (2014–18) included those terms. Of the six UK sources that we studied, the *Guardian/Observer* contained the most coverage of climate change or global warming and anthro-overall ($N = 587$) followed by the *Times and Sunday Times* ($N = 123$). In contrast, the *Daily Mail* ($N = 14$) and the *Daily Mirror* ($N = 1$) largely ignored stories of climate change or global warming and anthro-over this 10-years period. These numbers by media outlet show stark differences that could be linked to newsroom practices and editorial agendas within the newsrooms and ownership as *The Guardian* alone provided more coverage than the other five news organizations combined (Boykoff, 2011).

US and UK coverage combined has shown that coverage including climate change or global warming and anthro- overall has increased over the 10-year period with 183 total stories in 2018 compared to the following high amounts of coverage in 2016 ($N = 177$), 2015 ($N = 171$), and 2017 ($N = 164$). However, while coverage of the US also followed this general pattern of higher coverage in recent years (e.g. the most abundant coverage in 2016–18), coverage in the UK specifically peaked in 2015 ($N = 122$) and 2016 ($N = 115$) when coverage of the Paris climate accord pervaded public discourse. Combined, there were 471 stories on climate change or global warming and anthro-in the first 5 years of study (2009–13) (on average 24.6 per year in the US and 69.6 in the UK) and 837 stories in the second five-year window (2014–18) (on average 66.4 per year in the US and 101 in the UK). These findings also point to more abundant coverage in the UK press ($N = 853$) than the US press ($N = 455$) over this 10-year period overall, even when normalizing for stories per source in each country (as we tracked coverage in five US publications and six UK publications) (Fig. 3).

Evident increases can be seen in media in both the UK and US in similar periods of time. These increases are associated with scientific, ecological/meteorological, political, economic and cultural themes (Boykoff, 2011). For instance, initial increases in 2009 were associated with the United Nations climate talks in Copenhagen, Denmark (COP15), along with news about the hacked emails of scientists from the University of East Anglia (UEA) Climate Research Unit (CRU) in the preceding week, (not so affectionately referred to by many on the ideological right as 'Climategate'). The initial release of the 'Planetary Boundaries' research in the journal of *Ecology & Society* also generated media discussion of these links between climate change or global warming and the Anthropocene (Rockström et al., 2009). Increases in 2015 and 2016 can be attributed to attention surrounding the Paris round of United Nations climate talks and the resulting Paris Agreement (Boykoff and Luedecke, 2016).

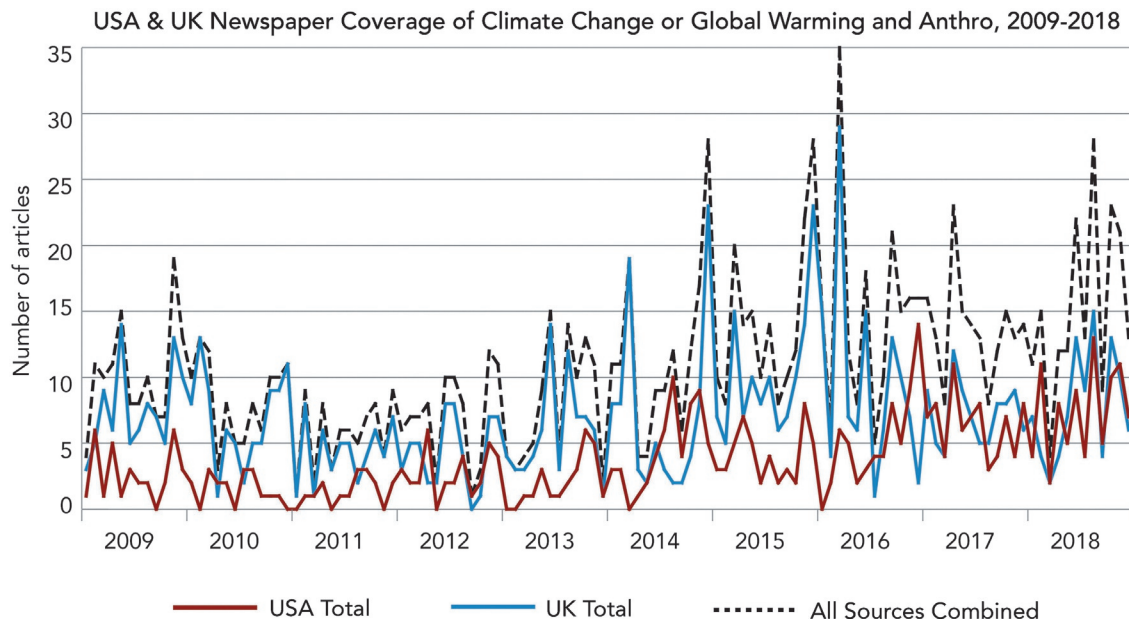


Fig. 3 This figure tracks newspaper coverage of climate change or global warming and ‘anthro’ in US newspapers (*Washington Post*, *Wall Street Journal*, *New York Times*, *USA Today*, and *Los Angeles Times*), UK newspapers (*Daily Mail & Mail on Sunday*; *Guardian & Observer*; *Sun*, *The News of the World & Sunday Sun*; *Telegraph & Sunday Telegraph*; *The Daily Mirror & Sunday Mirror*; *The Scotsman & Scotland on Sunday*; and *Times & Sunday Times*) and all 12 sources together, month-to-month from January 2009–December 2018.

It is useful to also compare these searches and the wider searches of climate change or global warming through the Media and Climate Change Observatory, where co-author Boykoff is lead Project Investigator. The total US counts of global warming or climate change for across the same five sources—*Washington Post*, *Wall Street Journal*, *New York Times*, *USA Today*, and *Los Angeles Times*—over the 10 year period (2009–18) is 32,006 articles. Compared to the 455 returned through the more specific ‘climate change OR global warming AND anthro’ Boolean string, these articles comprise 1.4% of that wider coverage. Similarly, UK comparisons across the six sources—*Daily Mail & Mail on Sunday*, *Guardian & Observer*, *The Sun*, *News of the World & Sunday Sun*, the *Telegraph & Sunday Telegraph*, the *Daily Mirror & Sunday Mirror*, the *Scotsman & Scotland on Sunday*, and the *Times & Sunday Times*—over the 10 year period (2009–18) returned 62,163 articles. Compared to the 853 articles generated through the more specific ‘climate change OR global warming AND anthro’ Boolean string, these articles also comprise just about 1.4% of that wider coverage. Across these 11 sources in the US and UK, 94,169 articles covered climate change or global warming from 2009 through 2018 (The Boolean used by the Media and Climate Change Observatory (MeCCO) is ‘climate change OR global warming.’ These US and UK newspaper sources comprise a subset of 96 sources (across newspapers, radio and TV) in 43 countries in seven different regions around the world that we monitor monthly through Nexis Uni, Factiva and Proquest databases. Each count is checked by a second counter in order to improve the validity and reliability of our monitoring. This involves a team of eighteen researchers around the world, based primarily at the University of Colorado but also at the National Institute for Environmental Studies (Japan), University of New England (USA), Universidad de Sevilla (Spain), Universidad Complutense de Madrid (Spain), Babson College (USA), and Oslo Metropolitan University (Norway)). Therefore, even though the raw counts in sources in the US and UK have varied over time (see Appendix), the percent coverage across these two countries over this 10 year period (2009–18) is approximately the same (1.4%).

Anthromes in the Anthropocene Mass Media

Interest in the Anthropocene as a potentially new geological epoch has increased rapidly since the term entered the public realm around the start of the new millennium. Though not achieving the volume of coverage of climate change and global warming in the mass media (which began in the 1980s), by the second decade of the 21st century if you were regularly browsing newspapers, magazines, or online sources in many countries in the world for the daily news you might come across mentions of the Anthropocene once or twice a year, more often if you were reading the quality press. However, in a study of coverage of the Anthropocene in the mass media (see Sklair, 2009 ed. forthcoming, hereafter referenced as AMP) (The websites of around 2,000 newspapers, magazines and online news sites were manually searched, finding over 4,000 items that mentioned the term ‘Anthropocene’.), very few items made direct references to anthromes.

The first mass media reference to anthromes found in an item that also mentioned the Anthropocene was by Brandon Keim in the magazine *Wired* (August 27, 2010). ‘Maps: How Mankind Remade Nature,’ was based on the 2008 article by Ellis and Ramankutty ‘They called their newly-defined areas “anthromes,” short for anthropological biomes. It was a map for the

anthropocene’ (Quotes from media sources (translated where necessary) have been edited for clarity. Articles can be accessed by sources and title. Translations from non-English language sources are by researchers from their mother-tongues or translation software, often embedded in media websites. This was often a frustrating task as some languages (notably Japanese) appear to have several terms for the Anthropocene.). In 2011 Andy Revkin in his influential dot.earth blog in the *New York Times*: ‘Confronting the Anthropocene’ described a presentation by ecologist Erle Ellis ‘a mesmerizing tour of the planet’s profoundly humanized systems, which he said would be better described as “anthromes” than “biomes.”’ Ellis said it was important to approach this reality not as a woeful situation, but an opportunity to foster a new appreciation of the lack of separation of people and their planet and a bright prospect for enriching that relationship.’ Revkin revisited anthromes several times in subsequent articles in the *Times* and elsewhere (For the influence of Revkin in publicising the idea of the ‘good’ Anthropocene, see Sklair, 2009 ed. (forthcoming, chapter 4)). In 2015 the *Independent* newspaper (UK) reported: ‘The idea of a domesticated Amazonia, the immense diversity of social, cultural and historical processes that shaped Amazonia during the Holocene, situates this vast area in the company of other world anthromes.’ The online magazine *The Conversation* (2016) published ‘**Humans now drive evolution on Earth, both creating and destroying species**,’ by the prominent Anthropocene researcher Mark Maslin who cites the work of Ellis on **Anthromes**. Maslin discusses both loss of biodiversity and emergence of new species (for example, the common house mosquito (*Culex pipiens*) which has become ‘adapted to London’s underground railway,’ an unusual shared anthrome. Also in 2016 the Chinese newspaper, *Jing Bao* (Shenzhen) under the heading ‘The Beauty of Nature in the Human Age,’ reviews Diane Ackerman’s popular science book, *The Human Age* in ‘Is nature “natural” anymore?’, explaining Ellis’s term anthrome as ‘global ecological patterns created by sustained direct human interactions with ecosystems.’ And in a rare example from the creative arts, in 2018 *Boulder Weekly* reported on an exhibition ‘Anthrome’ by Jason DeMarte: ‘the artist chose a word he came across that means hybrid human-natural systems that now dominate the Earth’s surface. . . It means that in the future everything natural will have some sort of human element in it’. The Anthropocene Media project research turned up more than 600 arts references to the Anthropocene (Sklair, 2009 ed. forthcoming, chapter 13). Despite this paucity of direct references, the idea of anthromes (without citing the term itself), appears very regularly in mass media coverage of the changes in the Earth System that have led to the Anthropocene. Let us now turn to a small selection of articles from a much larger archive on the six major categories of anthromes. This may serve readers as a bridge from everyday experiences of city life, pollution, deforestation, fire, floods and drought, to the idea of the Earth System.

Dense Settlements/Cities/Urban

Anthropocene coverage in the mass media often highlights the connection between urban settlements and anthropogenic biomes. In the Czech mainstream weekly journal *Geoskop* (2013) we find: ‘The Anthropocene is not only geologically, but also a cartographically important phenomenon (dense settlements and large infrastructures).’ Similarly, *La Hora* (Chile) in 2016, ‘The Earth enters a new geological epoch. . . In the Holocene, human societies increased food production with the development of agriculture, built urban settlements and took advantage of the planet’s water, mineral and energy resources’ (reprinted in *Ambito Financiero*, Argentina). *The Post* (Athens, Ohio) ‘Southeast Sustainability’ (2016) is more explicit: ‘The Holocene’s stability allowed humanity to take advantage of ecosystem services. . . to develop their settlements. Those settlements, however, have now proliferated. . . they threaten the stability that initially allowed them to come into being.’ From Singapore, the *Straits Times* in 2015, ‘Cities power the way into new epoch’ tells a different story: ‘Cities are efficient users of resources and are best placed to deal with environmental challenges. For Singapore, this brings opportunities. . . Singapore thus has the opportunity to contribute to global solutions for sustainable urban growth in many areas. Indeed, Singapore was the highest ranked city in the Economist Intelligence Unit’s Asian Green City Index’ (According to Eco2 Index ratings Singapore was one of the worst ecological performers in the world. <https://www.int-res.com/articles/theme/m530p271.pdf>).

The *Daily Telegraph* (UK) in 2017 goes a little further in a review of *Provisional Cities: Cautionary Tales for the Anthropocene* by Renata Tyszczyk which explores cities as ‘exemplary sites for thinking about living in this unsettled time.’ Many sources draw attention to the ecological impacts of rapid urbanization. Examples include ‘Making a difference’ in *The Himalayan* (Nepal) in 2017: ‘Once an ecological hot spot, Kathmandu, ten decades ago, was very different from the maze of concrete and buildings it is today. The air was not thick with dust and smoke requiring people to wear a mask; the rivers were not dirty with black slime and there was a decent amount of greenery in the valley. Smog is ever present over cities during the winter months. The drains that are directly empty on the rivers in the capital have wiped out the aquatic life in these rivers. Effects of biodiversity loss through deforestation can be seen in mere years, not in hundreds of years or even decades today. Droughts and massive flooding have increased in duration and magnitude over the past decades.’ *Daily Star* (Bangladesh): ‘Urbanisation signal detected in evolution’ (2017) reports ‘changes that were observed in more than 1,600 studies were having an impact on evolution and that human activity, in the form of urbanisation, would have a lasting legacy on life on Earth.’

Croplands

Supporting the idea of anthromes as mosaics, many media references to crops and croplands also engage with other anthromes, as the following items illustrate. *India Today* (2014) ‘Ancient Maya activities left lasting impact on environment’ reports that researchers believe that the Maya used water management to adapt to climate change. In studying the wetland systems, we were surprised to find a combination of human and natural contributions (the term Mayacene is used as an early form of Anthropocene); the *Daily Express* (UK) with ‘Climate change shock as professor says impact has been GOOD [sic] for wildlife’ (2014) reports the research of

Professor Chris Thomas who argues that nature is fighting back against human industrialization of the globe... citing the impact of the cane toad on an array of native creatures after it was introduced to Australia from south America to eat beetles on agricultural crops'; and *New Scientist* (2014) in 'Should we upgrade photosynthesis and grow supercrops?' declares: 'Crops with turbocharged photosynthesis will be growing in our fields in a few decades. But there is a danger too.' The *Daily Mail* (UK) in 2015 discussed 'the irreversible transfer of crops and species between the New and Old worlds' (the Columbian Exchange). The *Irish Examiner* (2015) 'Video: Will Humanity be Extinct in 100 Years?' is one of several items to connect water, croplands and potential extinction: 'With no alternative to water not only would millions die of thirst but the ground will be unable to provide us with crops.' Poland's *Krytyka Polityczna* (2015), quoting from an article by George Monbiot first published in the *Guardian*, puts the situation bluntly: 'Without concern for the soil, humanity will not survive. Earth owners around the world are taking part in an orgy of the destruction of the soil on a gigantic scale.' Taking this a little further, the US-based *Scientist* magazine (2016) explains simply 'Speaking of Microbiology... In the Anthropocene, we have lost millions of tons of soil fungi due to conversions of forests to cropland'; *Gazeta po Ukrainski* reported in (2016): 'Could the first farmers cancel the ice age?... The spread of agriculture about seven thousand years ago... to free land for crops and pastures, people burned the forest and, as a result, the amount of carbon dioxide and methane in the atmosphere has increased to such an extent that instead of cooling, there was a warming' (referencing the work of William Ruddiman on the 'early Anthropocene'). *Fox News* (2015) asks: 'Have Humans Caused a New Geological Era?' reporting a scientist who explains: 'when farmers clear-cut forests and plant crops, they change how sediments and runoff wash into the local rivers, often creating a thick layer of silty, sandy clay on the flood plain... But using such geologic clues to date the Anthropocene era runs into a problem: agriculture began at different times around the globe. Some areas, such as certain pockets in Africa, may not have had intensive agriculture until recently' (This connects with debates around start dates for the Anthropocene, a topic often covered in the media.)

Rangelands

In 2008 two articles from the USA discuss rangelands in the context of the Anthropocene. Science journalist Cornelia Dean addresses this as a regional issue in the *New York Times* with 'The Southwest in the Anthropocene,' where she argues, 'Until recently, natural landscapes varied as droughts came and went, warm years were followed by cold years and so on. Now, though, the actions of people have widened the parameters of this natural change, with potentially troubling results in places like the Southwest,' citing William deBuys in the magazine *Rangelands*. In *Mother Jones* 'Us to Earth: We Will Rock You': Soil scientists at Duke University say that these days, even the dirt beneath our feet is man-made, quoting lead researcher Daniel Richter: 'With more than half of all soils on Earth now being cultivated for food crops, grazed, or periodically logged for wood, how to sustain Earth's soils is becoming a major scientific and policy issue.' The popular German weekly *Welt am Sonntag* (2009) puts this issue in starker terms: 'Can we survive the "anthropocene" period?... the methane-producing cattle population has risen to 1.4 billion, contributing to the increasing rate of destruction of tropical rainforests, which releases carbon dioxide and contributes to faster species extinction. Land conversion for grazing (and construction), together with crop tillage, has also caused soil erosion at 15 times its natural rate.'

Forests

Many media articles speak of forests and deforestation. Several items in *News International* (Pakistan) engage with deforestation, for example in 2013 'A forest without trees... One of the ways to fight this menace of environmental destruction is to carry out afforestation at a massive scale and protect the existing trees. But instead of protecting trees, the country seems to be on a tree-cutting spree... Mangroves forest depleting due to man-made mess.' *Gulf News* (2014) assessing Kolbert's book *Field Notes on a Catastrophe* (published in 2006) reports on: 'the extent to which tropical forests in Peru can adapt to rapid change, of habitat fragmentation in the Amazon basin and beyond, and of the consequences of the mass global transference of species from one place to another. It is all pretty grim.' This depressing theme is reinforced in the news website *Guinea Live* in 2015, 'Ebola and Advocacy for the Environment... One of the main causes [of the crisis] is the drastic reduction in the area of forest heritage and wildlife habitat... The natural habitats of wild animals are dangerously reduced'; *Misiones* (Argentina) in 2015 with 'This type of action would reduce the problems we will have in this century to live in the Anthropocene' reports research on 'multiple ways to lessen the alarming disappearance of forests around the world, such as stricter conversation policies, better forest management, and a global framework for climate change policies. Forests are ecological superheroes: they ventilate the planet, nourish the Earth's habitats, regulate the global climate and carbon cycles. From the poles to the equator, our survival depends entirely on healthy forests... this biome is much more threatened by direct anthropogenic contact... it is very possible that humans can curb damage to forests and perhaps even reverse it in some places... it seems suicidal not to consider this option'. We find support for this conclusion in *L'Express* (Canada), 'The environment in 2017: sowing seeds of optimism' reports on the research of Professor Elena Bennett, 'targeting a more positive future with her [Seeds for a Good Anthropocene project](#)... [her] favorite example is a project named Health in Harmony where they work in Borneo, Indonesia to reconnect with forests and healthy people. People receive [health] care at little or no cost in return for the promise to protect local tropical forests and its residents, the orangutans.' The *Independent* (UK) in 2015: 'How we must adjust our lifestyles to nature: Welcome to the Anthropocene, the human epoch' concludes with a striking anthropogenic image: 'the scrolling text on TV news should show us not only share prices, but data about the size of forests and bogs, about air quality, energy use and bird populations'. Finally, *Sanlian Life Week* (China) in 2012 connects rising populations and anthromes philosophically: '7 billion population—how dangerous is the earth?' arguing 'Glaciers, oceans, forests, once represented

certain borders of the world, they were the objects on which human put their fantasy and awe. Now they are precarious under human footprint.'

Conclusion

The science of the Anthropocene and anthromes is very complicated and it is not surprising that journalists do not always report fine detail or the implications of research findings entirely correctly. The complexity is exemplified by a study by Gaffney and Steffen (2017), which mapped out an 'Anthropocene Equation' to clearly articulate human influences on climate change and our life-supporting ecosystem services. This publication was discussed in newspapers all over the world with, understandably, varying degrees of accuracy and attention to detail (for example, in *Gulf Daily*, *India Today*, Indonesia's *Femina*, Iran's *Financial Tribune*, Pakistan's *The Nation* and *Pakistan Today*, Spain's *La Voz de Galicia*, *Al Ghad* in Syria, *The Guardian*, *Star Tribune* from Minneapolis-St. Paul, and *New York Post*). Gaffney and Steffen noted that humans are changing the climate about 170 times faster than natural forces would do alone, which made an eye-catching headline. They concluded that 'the rate of change of the Earth system over the last 40–50 years is purely a function of industrialized societies. Anthropogenic sources contributing to this Anthropocene Equation—affecting the distribution of energy across the planet—include fossil fuel burning (primarily coal, gas and oil) and land use change. This has prompted considerable discussion on how to develop policies to address these developments in the Anthropocene. These processes have been referred to as dimensions of environmental politics (Löwbrand et al., 2015) and have also been dubbed 'Anthropocene Geopolitics' (Dalby, 2007; Clark, 2014).

When reporting on debates among scientists who research anthromes, climate change, and the Anthropocene, journalists are confronted with a heavy responsibility to represent findings accurately, and to draw reasonable conclusions from the evidence in ways that members of the general public (and politicians and corporate executives) will understand and that might help to change behavior to minimize potential risks. In the Anthropocene era, media are powerful and important interpreters of Earth System science and science policy, and journalists have the opportunity of translating what can often be alienating, jargon-laden information into information that all sections of the public could understand. The apparent inability of governments and owners of major industries to take decisive action to deal with what most scientists appear to believe is a series of rapidly accelerating ecological emergencies does not bode well for the future of human life on the planet. Few opinion-formers in the media communicate a sense of urgency. Despite media focus on renewable sources of energy (none of which are carbon neutral) and the need to curb population increases and consumption in richer and poorer societies, research suggests that the media generally neutralize the potential risks of the Anthropocene. This is the message that media reporting of anthromes generally sends.

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