

The capitalist passive environmental revolution

Five decades ago, the environmental movement was radical, progressive and ecologically inspired, challenging both the productivist state and capitalist enterprise. Then, the movement was tamed: the environment became a tradable financial asset and the idea of limits on the economy was transformed into ‘sustainable development’ and ‘green growth’. According to the *Production Gap Report*, by 2030 global fossil fuel production levels will exceed by 50% a 2°C global warming pathway, and by 120% a 1.5°C pathway (Stockholm Environment Institute *et al.*, 2019). No matter – the prevalent claim has remained that ‘the system’ can be ‘adjusted’ to address social, ecological and economic crises without removing corporate or capitalist structures. In the face of crisis the reaction has been a complacency that aims to rebuild and make more extreme the role of financial and capital-accumulating regimes in the pursuit of the mythical ‘growth economy’. Such co-opting of revolutionary potential, through the top-down imposition of ‘solutions’ that maintain existing power structures, is what Antonio Gramsci referred to as a *passive revolution*. If this is to be avoided, and environmentalists are to be relevant in helping achieve an ethical, just and equitable social–ecological transformation, then they will have to be clear and specific about who they support, who they oppose and on what grounds.

People who suffer environmental injustice – people of colour, indigenous communities, people who live on top of toxic waste dumps, or next to polluting factories, busy roads, noisy airports and toxic rivers – have long hoped the environmental movement would do something. Some 40 or 50 years ago the movement was radical, progressive and ecologically inspired – indeed, being too radical and too progressive for both the productivist State and capitalist enterprise, environmentalism had to be tamed and mainstreamed. After the 1987 ‘Bruntland Report’, later published as *Our Common Future* (World Commission on Environment and Development, 1991), the idea of limits on the economy was converted to ‘sustainable development’ and ‘green growth’.

Modern environmental NGOs (ENGOS) talk only indirectly, if at all, of the systemic problems behind environmental degradation. They avoid discussing capitalism, corporations, the military–industrial complex and economic growth. The preferred positive ‘framing’ of things is in general

terms of greening and sustaining, with metaphors of spaceship Earth, ecological footprints and economic doughnuts. Environmentalists speak the weak words of apologetic conservative reformers who fear scaring people. For example, the WWF, an organization formerly concerned with wildlife, now states “we love cities,” supporting urban lifestyles and treating nature as capital (Spash, 2015a). ENGOS turned away from protest and towards green marketing, creating their own corporate identities with logos to match and T-shirts to sell. In the neoliberal era of consumerism, environmental messages had to be sold to people in friendly packaging. Environmentalists should not mention being anti-capitalist, for degrowth, wanting population stabilized, pollution stopped, resources kept in the ground, but nice positive things like saving furry animals such as pandas. Harsh realities should be made soft.

Since the 1980s and the rise of neoliberalism, ENGOS increasingly concluded that communicating environmental concerns required adopting the dominant

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form of power discourse in society – money. Ecologists adopted the language of economics, referring to ecosystems as goods and services, nature as capital, pollution as an ‘externality’ beyond the responsibility of economic agents, and getting the prices right as ‘the solution’. In line with mainstream economists, everything was to be weighed up in order to determine the most ‘efficient’ level at which to pollute others, both human and non-human, and the ‘optimal’ rate at which species should become extinct. Selling the environment to preserve it became the accepted credo. By the early 2000s this ‘new environmental pragmatism’ was ready to dominate policy on climate change, biodiversity and global sustainability (Spash, 2009).

Human induced climate change is good for growth

In 2006, Nicholas Stern, an ex-Chief Economist of the World Bank, and his 22 colleagues, produced a report heralded as the first ‘rational’ approach to human-induced climatic change (Stern *et al.*, 2006). It predicted a 20% loss in GDP, the common measure of a modern nation’s success at expanding the wealth of its economy, and was widely quoted by environmentalists. Unusually for a government economic report, it talked of ethics, distributional inequity and catastrophic events, but the bottom line was the monetary assessment of optimal and economically efficient action (Spash, 2007). Stern was honoured, becoming a professor and being appointed to the British House of Lords.

Key to Stern’s success was describing greenhouse gas (GHG) control as an opportunity for (rather than a constraint on) economic growth. Financial organizations could make big money by trading government-issued allowances to pollute. GHG traders, renewable energy suppliers and other entrepreneurs quick off the mark could profit. The headline hustlers immediately posted: ‘Tackling climate change is the pro-growth strategy’. The environmental pragmatists joined the chorus line. The environmental crisis was as an investment opportunity. Stern’s cost–

benefit analysis showed climate change was a good investment with positive returns, a profitable macroeconomic enterprise, and then added market-based emissions trading and new energy markets. Rather than asking why humanity should expect a positive rate of return on climatic disaster prevention, the only question became: How large is the return and where should we invest first to win the competitive market game?

The idea of a ‘carbon’ emissions trading system (ETS) – called ‘cap and trade’ in the USA – has been heavily promoted as the efficient solution to GHG mitigation. This system requires that a set of polluters within a given jurisdiction must either control their emissions directly or buy allowances held by other polluters. In 2005, in order to meet Kyoto Protocol commitments, the EU initiated the world’s largest ETS, with annual trade around 70 billion Euros before the 2008 financial collapse and 50 billion Euros more recently, before the latest crash. The scheme has proven susceptible to price instability, speculators and profiteering, and large-scale fraud (Spash and Theine, 2018). Where free allowances are given to polluters to get buy-in they can make millions through trading. In general, corporate power is a major force affecting ETS operation and design (Spash, 2010a). Despite its problems, marketing GHG emissions has extended internationally and also via trading offsets.

Offsetting requires that someone (the offset provider) performs an activity that reduces GHGs in the atmosphere, for which they get a credit. They then sell the credit to a polluter who adds GHGs to the atmosphere. In theory the outcome is no net addition, the meaning behind policies called ‘net zero emissions’. GHG offsets, or credits, can be created through investing in a variety of projects: forestry and land use, renewable energy, energy-efficiency, fuel switching, GHG capture or destruction. Market efficiency targets the cheapest options which means exploiting the fact that the poor sell cheaply so they should undertake GHG reduction allowing the rich to go on polluting. The Kyoto Protocol’s

Clean Development Mechanism empowers industrially developed nations to offset emission with projects (such as dams, waste incinerators, wind farms, commercial forestry and oil palm plantations) in industrially developing nations. However, these projects can just as easily increase, rather than reduce, net emissions.

Indeed, both ETS and offsets have been notoriously ineffective at controlling emissions. The main contributions to actual global GHG emissions reductions have been the collapse of the Soviet Union with the demise of industrial emissions from Russia and Eastern Europe and the economic recession due to the 2007–2008 financial crisis. The economic impacts of the Covid-19 pandemic have similarly cut emissions. That is, actual GHG reductions have required significant declines in economic growth and shrinking of industrial production and consumption, and are reversed as soon as economic growth is re-established. In sum, international climate policy has been a failure.

Besides mandatory ETS and regulated offsets, there are voluntary offsets that are unregulated traded GHG credits issued by companies (e.g. airlines) and civil society groups (Spash, 2010a; Spash and Theine, 2018). These encourage individuals to not worry about their personal, and especially consumer-related, emissions because they can pay for them. This removes moral responsibility and crowds out voluntary actions (e.g. they fly more not less). In 2019 purchases of voluntary offsets were booming, a growth in sales attributed to the ‘Greta effect’ after climate activist Greta Thunberg (Laville, 2019). At the 2020 annual meeting of the world’s business elite in Davos, Thunberg actually countered this, stating: “We’re not telling you to offset your emissions by just paying someone else [...] emissions have to stop [...] forget about net zero we need real zero” (Thunberg, 2020).

Both emissions trading and offset schemes distract from the need to change human behaviour, social institutions (i.e. conventions, norms, rules and regulations) and infrastructure to avoid emissions in

the first place. Their aim is to maintain a growing economy; their primary concern is to protect financial capital, not people or ecosystems.

In 2014, the Global Commission on the Economy and Climate published *Better Growth Better Climate: The new climate economy report*, with Stern as lead economist (Calderon *et al.*, 2014). Unsurprisingly, the report concludes that all countries have the opportunity to build lasting economic growth while simultaneously reducing “the immense risks of climate change.” Four years later they headlined “the inclusive growth story,” and argued for a ‘green economy’ where government funds corporations, with US\$90 trillion expected for energy and other transition works in coming decades (Calderon *et al.*, 2018). This, they claim, heralds a new era of economic growth – rapid technological innovation, infrastructure investment, increased resource productivity, jobs, economic savings, improved competitiveness and market opportunities.

The Paris Agreement was targeted by these same interests and associated neo-liberal ENGOs (Spash, 2016). Nat Keohane of the Environmental Defence Fund bragged on its website how it had pushed in the corridors of Paris for “an opening for markets.” An eighteen-country neoliberal lobby led by New Zealand had its negotiators pushing ETS. This was hidden by negotiators in the international doublespeak of the Agreement. You will not find emissions trading, markets, cap and trade or offsets mentioned, but rather “internationally transferred mitigation outcomes” (clause 108 and Article 6). After getting ‘carbon’ markets into the Agreement, the fight to establish an international ETS became explicit and was central to the failed UN 2019 Madrid negotiations.

In the same year, over 3000 economists endorsed a ‘carbon tax’, because they believe substituting a price signal for cumbersome regulations will promote economic growth (www.econstatement.org). Some corporations also now prefer a carbon tax over an ETS. Why? Government officials can be lobbied to set taxes low and provide

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exemptions. The tax is stable unlike ETS prices. Corporations can argue for tax revenues to be used to subsidize a ‘just transition’ – that is, paying them to move from fossil fuels to renewable energy and related technologies. They also fear being held liable for deliberate harm of the innocent and believe accepting a tax is the price for exemptions from future damage claims and reparations. As with big tobacco or asbestos producers before them, the fossil fuel industry appears guilty of a series of acts establishing their corporate moral responsibility for knowingly creating harm over a long time frame, while having the capacity to avoid that harm (Grasso and Vladimirova, 2020). They are also culpable for denial of the truth amounting to spreading lies in their own interest, and self-enrichment by their harmful actions. The top 100 corporate polluters produced over 70% of global GHG emissions (1988–2015) with just 25 producing 51% (Spash, 2020).

Biodiversity loss is a financial treasure trove

In Potsdam, May 2007, the German Federal Government and the G8+5 created the UN-backed project ‘The Economics of Ecosystems and Biodiversity’. This was led by Pavan Sukhdev, a Managing Director in the Global Markets division at Deutsche Bank, with the philosophy of ‘you cannot manage what you cannot measure’. Referencing the Stern report, the project proposed a range of mainstream economic approaches including all-encompassing monetary valuation – reporting that the solution to our problems was placing ecosystems and biodiversity within a set of ‘sustainability’ metrics to complement the familiar metrics of GDP growth and corporate profitability (The Economics of Ecosystems and Biodiversity, 2010). Rather than opposing this reduction of nature to money, many ecologists and conservation biologists joined with orthodox economists to promote it.

In 2008 the joint international agency Working Group on Statistics for Sustainable Development, placed great emphasis on “the

capital approach,” and repeatedly discussed the need to be “practical” (UN Economic Commission for Europe *et al.*, 2008). Its basic assumption is that everything can be measured on a comparable basis and added together. Implicit in this approach is the ability to trade-off one thing for another: social capital (the connectivity of people), natural capital (species, ecosystems), cultural capital (both tangible and intangible), manufactured capital (machinery, buildings) and human capital (education). The claim that all values can be measured on the same basis and equated – made commensurable – is key to the whole capitalist approach to the environment.

In October 2010, the UN Environment Programme Finance Initiative published *Demystifying Materiality: Hardwiring biodiversity and ecosystems into finance*, supported by Rio Tinto, Industrial Development Corporation, JP Morgan Chase & Co, Uni Credit Group, Credit Suisse, Citigroup, Barclays, Bank of America Merrill Lynch, and similar others. Rather than demonstrate that nature has measurable value, the new message was that values could be ‘captured’. How?

Ideas like carbon emissions trading and GHG offsets could be expanded by more innovative financial market devices (Spash, 2009). In the US, for example, ‘endangered species credits’ provided companies with tradable certificates to offset their negative impacts on threatened species and habitats. They had also established wetland banking, allowing companies or individuals undertaking development or agricultural expansion to degrade or destroy wetland ecosystems by making payments, called environmental credits. The concept of ‘bio-banking’ had been pioneered by New South Wales, Australia in 2006 allowing developers to buy credits – created by ‘enhancing’ other land (*e.g.* areas previously degraded by development) – to offset negative impacts on biodiversity. The basic idea of all such schemes is to offset harmful destructive acts in one place and time by supposedly equivalent good acts in another place and time. All too often the good act is a future promise and the harm a present actuality.

There is big money in these schemes, with the market for wetland credits alone in the US estimated as worth US\$1.1–1.8 billion already back in 2010. No more worrying about absolute protection or annoying regulations – just opportunities to trade, create new financial instruments and make money. This is not about biodiversity protection or conservation, but seeking to remove regulation and restrictions for developers (Spash, 2015b).

No more heroes anymore?

In 2019, calls for ‘systems change, not climate change’ gained ground due to Extinction Rebellion (XR) and the school strikes of FridaysForFuture (FFF) fronted by Greta Thunberg. These new environmental movements return to the plain speaking of the 1960s. They emphasize that there is an imminent ecological crisis and ongoing mass species extinction, that human induced climate change is an ‘emergency’ and that therefore action is urgent. However, their agenda is disconnected and incomplete. As I have noted elsewhere (Spash, 2012), restrictions are necessary on both population growth and the scale of human activity, but this combined issue appears absent. Even more fundamentally, the new environmental activists have not yet substantively addressed the structure of the economic system, its consumerism and dominant corporate institutions, the political processes and politicians that maintain it, nor how such a system of political economy can realistically be transformed (Spash, 2020).

Neoliberal political leaders and the World Economic Forum, commonly known as the Davos elite, have been hosting Thunberg and promoting her speeches. This raises the question as to what they expect to achieve by doing so. She has called for a new political system without competition, new economics and new way of thinking that includes living within planetary boundaries, sharing resources and addressing inequity. In a *Rolling Stone* interview she stated corporations are to be held responsible for knowingly perpetrating harm which she regards as “a crime against humanity”

(Aronoff, 2019). Apparently strong calls to action. However, these statements remain generalized complaints and unspecific as to mechanisms. The danger is that environmental criticism and calls for systems change without substance and specifics are subject to manipulation and diversion from radical and revolutionary reform.

Corporations, pro-growth governments and bureaucrats, have already adopted these calls for urgent action to advocate a range of environmental ‘deals’, such as the European Commission ‘Green Deal’, the UN Environment Programme ‘New Deal for Nature’, and the UN Conference on Trade and Development ‘Global Green New Deal’. Ursula von der Leyen, European Commission President, stated that, “Supported by investments in green technologies, sustainable solutions and new businesses [...] The European Green Deal is our new growth strategy. It will help us cut emissions while creating jobs” (European Commission, 2019). Typical of all these ‘deals’ are claims of coordinating and organizing stakeholders, having civil society and government work with – or more accurately *for* – ‘industry’, with promises of economic growth, jobs and climate stability. Similar ideas are touted under the term ‘stakeholder capitalism’, the theme of Davos 2020. In this ‘new’ era of Green corporate capitalism the ENGO continues to play its passive role.

The corporate green strategy

The corporations have a well-established game plan to control potential revolutionary force from the top down. They long ago developed a strategy to address ENGOs, which can be summarized as: isolate the radicals, buy off the opportunists, cultivate the idealists and co-opt the pragmatists. Public relations firms advised them not to oppose but ‘work with’ their opponents and employ their language – divide and conquer, in other words. ENGOs have been deliberately targeted by corporate strategists, and in several cases they have been captured at management level. Some US ENGOs have governing boards where

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60–70% of the members are current or former directors of major transnational corporations (*e.g.* The Nature Conservancy, Conservation International, WWF-USA). Others, including the National Wildlife Federation, Sierra Club and the Natural Resources Defense Council, suffer from corporate capture and conformity to the basic tenets of neoliberalism (Spash, 2017). The inroads into conservation by corporate interests are deep (Adams, 2017).

Foremost amongst the neoliberal ENGOs has been The Nature Conservancy, with revenues of US\$1.3 billion. Its President and CEO until 2019 was Mark Tercek, previously a managing director at Goldman Sachs. Tercek worked with former Nature Conservancy Vice President Peter Kareiva to promote capitalism as ‘natural’ and berated conservation biologists for not allying with corporations. Kareiva has been key to Stanford University’s flagship ‘natural capital’ project. In a revival of social Darwinism, Kareiva and Marvier (2012) have even claimed corporations are a keystone species!

That the WWF was also captured by corporate capitalism became evident when Pavan Sukdev became its President in 2017. In cooperation with the UN Environment Programme Finance Initiative, the WWF recently launched ‘The Net Zero Asset Alliance’ to claim that GHGs can be offset and corporations become carbon neutral and environmentally responsible. This boast was led by asset owners representing more than US\$2 trillion, in a network controlling US\$4 trillion (UN Environment Programme Finance Initiative, 2020). Joining Sukdev in fronting the ‘Alliance’ is Christiana Figueres, former Executive Secretary of the UN Framework Convention on Climate Change. She is now part of the B-Team, run by corporate billionaire Richard Branson of Virgin Group, an organization including Yolanda Kakabadse, former President of the WWF.

Corporations and their billionaire owners are marketing the growth economy as green, circular, inclusive, sustainable and smart. The think tank InfluenceMap (2019) has reported that since the Paris Agreement

the world’s five largest oil companies have spent US\$1 billion on green rebranding. This has not stopped them simultaneously working to undermine environmental legislation and establish new oil supplies. Indeed, soft policies are combined with lobbying and sponsoring politicians, media control, funding of denialism and anti-environmental think tanks and personal attacks on scientists (Oreskes and Conway, 2010; Spash 2010b, 2014, 2018; Hoggett and Randall, 2018). The even harder line seeks cooperation of government security forces to directly target environmental protestors and activists who are subject to police harassment and brutality, surveillance, infiltration, repression and branding as ‘terrorists’. In some countries, activists are even subject to assassination, especially where they oppose economic growth and ‘development’.

The contradictions and cynicism of capitalists and financiers is rife, and evident in the US\$2.66 trillion the world’s largest investment banks have funnelled into fossil fuels since the Paris agreement (Greenfield and Makortoff, 2020). The latest rhetoric is the oxymoron of ‘sustainable finance’ for capitalism and the growth economy. Financialization even extends to the sale of catastrophe bonds. Insurers profit from catastrophes by increasing premiums annually, spreading risk and pushing costs onto government, the ultimate insurer of last resort. For ‘sustainable financiers’, more harm means making more money. As Hache (2020: 52) notes, “climate change will enable insurers to increase their future profits through increases in the damages covered.”

A prevalent claim is that ‘the system’ can be ‘adjusted’ to address social, ecological and economic crises without removing corporate or capitalist structures, let alone the global imperialism they have created under the guise of ‘free trade’ and unregulated financialization. Environmental destruction can be made into a tradable financial asset. In a strange, twisted logic, the dominance of humanity and our destruction of the environment via technology and industrialization is

changed from a negative to a positive. The capital-accumulating growth economy is no longer the cause of social-ecological crises but their solution!

Social-ecological transformation of economies

Ecological activists must ask and answer the following question: *Under what conditions can radically alternative social-ecological economies be actualized?* This requires understanding how current social and economic structures are maintained and reproduced – not just physically but also mentally. Imaginaries of the consumer society, equating economic growth to development and progress, have been forged in the minds of billions while almost all political leaders accept the orthodox economists' mantra that 'growth is good, and more is better'. Ideas reinforcing the economic structure include defining work as waged labour, success as financial wealth, value as money, freedom as market choice and ethics as hedonism. Ideas of social solidarity and community are undermined by a political philosophy of individualism and limiting ethical responsibility to personal preferences expressed in the market place. Organizations produce social institutions that normalize these messages – reducing the potential for alternative systems to be imagined, let alone actualized.

The science upon which the environmental movement is based requires opposition to the dominant imaginary and its promoters (*e.g.* bankers, financiers, speculators, profiteers, billionaires, the Davos elite, multi-national corporations, international trade organizations). If the science is correct – exponential economic growth is unsustainable, dilution is not the solution to pollution, global warming is human induced – then those who have an opposite explanation must be wrong. For example, to propound truth about human-induced climate change is to undermine the institutions of fossil fuel capitalism – something climate scientists have been slow and unwilling to recognize or act upon. In contrast to the modernist dogma of value-free science, there is no

ethically or politically neutral position here. If a researcher finds that some institution causes false beliefs then their finding is to criticize that institution and initiate its change or subversion. Social-ecological transformation sets the ecological citizen against institutions making false claims for emission trading, offsetting, monetary valuation, price-making markets, decoupling, trickle down, circular economies and sustainable inclusive green growth. The prospect seems daunting.

However, as Bob Brown, former Australian Green Party senator, says: "Don't get depressed, get active!" Political activism is part of responding ethically to false claims. This does not necessitate joining a political party. Actions include empowering communication (art, education, media, self-expression), organizing solidarity with the oppressed, protecting the innocent from harm (both human and non-human), and making silent voices heard (*e.g.* future generations, children, non-humans). Social solidarity and political acts can take many forms, extending from direct action and civil disobedience, to participation in social movements and civil protest, to speaking freely and communicating with others in daily life, to leading by example through daily practices. Social-ecological transformation requires simultaneously deactivating the causal mechanisms supporting the current system and activating those allowing different systems to be actualized.

There is no single 'solution' and certainly not a technical one. Replacing the dominant idea of 'the economy' means recognizing the potential for different economies, understood as social provisioning systems, embedded in and constituted by different institutions and structures. Social-ecological transformation aims for a future with a different set of values giving different meaning to human-human, human-nature and nature-nature relations. Breaking free from existing structures means reimagining what constitutes a meaningful and worthwhile life. Exploring forms of economies involving sharing, cooperation, caring and life without money has long been part of the aims and practices of alternative

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forms of social organization (e.g. eco-social enterprises, communes, squats, protest camps, transition towns and eco-villages). *Systemic transformation* means just that.

Modern environmentalists use natural science to criticize government inaction, but then appeal to the good will of systemically captured politicians in a world of corporate capitalism they fail to address. Society exists on the basis of human agents acting, reproducing and transforming social structures. Environmentalists need to be aware of the political economy within which they are operating, the role of different actors (e.g. corporations, elites, financiers) and ideas (e.g. growthmania, productivism, market mechanisms). If the new environmentalists are to reverse the losses and avoid another passive capitalist revolution in response to the latest crisis, they will need to recognize with whom their knowledge makes them politically allied and opposed. They might then begin to clearly specify detailed proposals aimed at defeating the opposition, and create the necessary structural change in the dominant economic systems to achieve a social-ecological transformation for the better. ■

References

- Adams B (2017) Sleeping with the enemy? Biodiversity conservation, corporations and the green economy. *Journal of Political Ecology* **24**: 243–57.
- Aronoff K (2019) Don't be fooled by fossil fuel companies' green exterior. *Rolling Stone*, 20 June. Available at <https://is.gd/3A2CHB> (accessed July 2020).
- Calderon F, Oppenheim J and Stern N (2014) *Better Growth Better Climate: The new climate economy report; the synthesis report*. The Global Commission on the Economy and Climate, Washington, DC, USA.
- Calderon F, Oppenheim J and Stern N (2018) *Unlocking the Inclusive Growth Story of the 21st Century: Accelerating climate action in urgent times*. The Global Commission on the Economy and Climate, Washington, DC, USA.
- Economics of Ecosystems and Biodiversity (2010) *The Economics of Ecosystems and Biodiversity: Mainstreaming the economics of nature: A synthesis of the approach*. UN Environment Programme, Bonn, Germany.
- European Commission (2019) *A European Green Deal*. Available at <https://is.gd/Vwa6rs> (accessed July 2020).
- Grasso M and Vladimirova K (2020) A moral analysis of carbon majors' role in climate change. *Environmental Values* **29**: 175–95.
- Greenfield P and Makortoff K (2020) Study: Global banks 'failing miserably' on climate crisis by funneling trillions into fossil fuels. *The Guardian*, 18 March. Available at <https://is.gd/iW4qLQ> (accessed July 2020).
- Hache F (2020) *50 Shades of Green Part III: Sustainable finance 2.0. The securitization of climate and biodiversity policies*. Green Finance Observatory, Brussels, Belgium.
- Hoggett P and Randall R (2018) Engaging with climate change: Comparing the cultures of science and activism. *Environmental Values* **27**: 223–43.
- InfluenceMap (2019) *Big Oil's real agenda on climate change*. Available at <https://is.gd/3c3doj> (accessed January 2020).
- Kareiva P and Marvier M (2012) What is conservation science? *BioScience* **62**: 962–9.
- Laville S (2019) 'Greta Thunberg effect' driving growth in carbon offsetting. *The Guardian*, 8 November. Available at <https://is.gd/yYDMwB> (accessed July 2020).
- Oreskes N and Conway E (2010) *Merchants of Doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global warming*. Bloomsbury Press, New York, New York, USA.
- Spash CL (2007) The economics of climate change impacts à la Stern: Novel and nuanced or rhetorically restricted? *Ecological Economics* **63**: 706–13.
- Spash CL (2009) The new environmental pragmatists, pluralism and sustainability. *Environmental Values* **18**: 253–6.
- Spash CL (2010a) The brave new world of carbon trading. *New Political Economy* **15**: 169–95.
- Spash CL (2010b) Censoring science in research officially. *Environmental Values* **19**: 141–6.
- Spash CL (2012) New foundations for ecological economics. *Ecological Economics* **77**: 36–47.
- Spash CL (2014) The politics of researching carbon trading in Australia. In: Stephan B and Lane R, eds. *The Politics of Carbon Markets*. Routledge, London, UK: 191–211.
- Spash CL (2015a) The dying planet index: Life, death and man's domination of Nature. *Environmental Values* **24**: 1–7.
- Spash CL (2015b) Bulldozing biodiversity: The economics of offsets and trading-in Nature. *Biological Conservation* **192**: 541–51.
- Spash CL (2016) This changes nothing: The Paris Agreement to ignore reality. *Globalizations* **13**: 928–33.
- Spash CL (2017) Environmentalism and democracy in the age of nationalism and corporate capitalism. *Environmental Values* **26**: 403–12.
- Spash CL (2018) Facing the truth or living a lie: Conformity, radicalism and activism. *Environmental Values* **27**: 215–22.
- Spash CL (2020) The revolution will not be corporatised! *Environmental Values* **29**: 121–30.

Spash CL and Theine H (2018) Voluntary individual carbon trading: Friend or foe? In: Lewis A, ed. *Handbook of Psychology and Economic Behaviour*. Cambridge University Press, Cambridge, UK: 595–624.

Stern NH, Peters S, Bakhshi V et al. (2006) *Stern Review on the Economics of Climate Change*. UK Government Economic Service, London, UK.

Stockholm Environment Institute, International Institute for Sustainable Development, Overseas Development Institute et al. (2019) *The Production Gap: The discrepancy between countries' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C*. Stockholm Environment Institute, Stockholm, Sweden.

Thunberg G (2020) *Davos Forum speech transcript*, 21 January. Available at <https://is.gd/L9sDZp> (accessed July 2020).

UN Environment Programme Finance Initiative (2010) *Demystifying Materiality: Hardwiring biodiversity and ecosystem services into finance*. UN Environment Programme, Geneva, Switzerland.

UN Environment Programme Finance Initiative (2020) *The Net-Zero Asset Owner Alliance*. UN Environment Programme, Geneva, Switzerland.

UN Economic Commission for Europe, Organisation for Economic Cooperation and Development and Eurostat (2008) *Report on Measuring Sustainable Development: Statistics for sustainable development, commonalities between current practice and theory*. UN Economic and Social Council, New York, NY, USA.

World Commission on Environment and Development (1991) *Our Common Future*. Oxford University Press, Oxford, UK.



Monotype and embossing on paper (6 April 2020; 36 x 46 cm)

Series (selected images)

by **Ben Sanderson**

About the artworks: Ben made these paintings in response to spending time with the subtropical plants of Trebah Garden in Cornwall, UK. They reflect on the space between the felt sentience of plants and conversations in the garden with people including gardeners, plant specialists and a psychiatrist. The paintings are presented with specific dates, marking calendrical and diaristic time in relation to the non-linear cyclical time of the garden. The longer he has spent in the garden, the more Ben has been attracted to the wild spaces around the edge inhabited by rogue, uninvited species.

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