Surveying the Anthropocene: Endangered wildlife: the threats to seabirds, and the use of rephotography

by **Patricia Macdonald**, in conversation with **Pete Moore**, **Des Thompson** and **Adam Nicolson**

This is the second of a series of blogs featuring themes and participants from the book *Surveying the Anthropocene: Environment and photography now*, edited by Patricia Macdonald (for an introduction to the book, see Q & A blog with the editor; and for the first thematic blog, concerning the worldwide threats to forests, see here).

It is a discussion between Dr Pete Moore, rephotography scholar and Wildlife Management team member at government's adviser NatureScot; the eminent writer Adam Nicolson (two of the contributors to the book); Professor Des Thompson, Principal Adviser on Biodiversity and Science to NatureScot; and the book's editor, Dr Patricia Macdonald.

Surveying the Anthropocene*: *left: Front cover image [Chris Jordan]; *right*: back cover image [J J Harrison].

Patricia Macdonald:

A seabird's cry is one of the wildest and most evocative sounds in the natural world. But for how much longer will it continue to be the keynote voice of our coasts, in this present Anthropocene epoch of massive, human-caused destruction of the web of life?

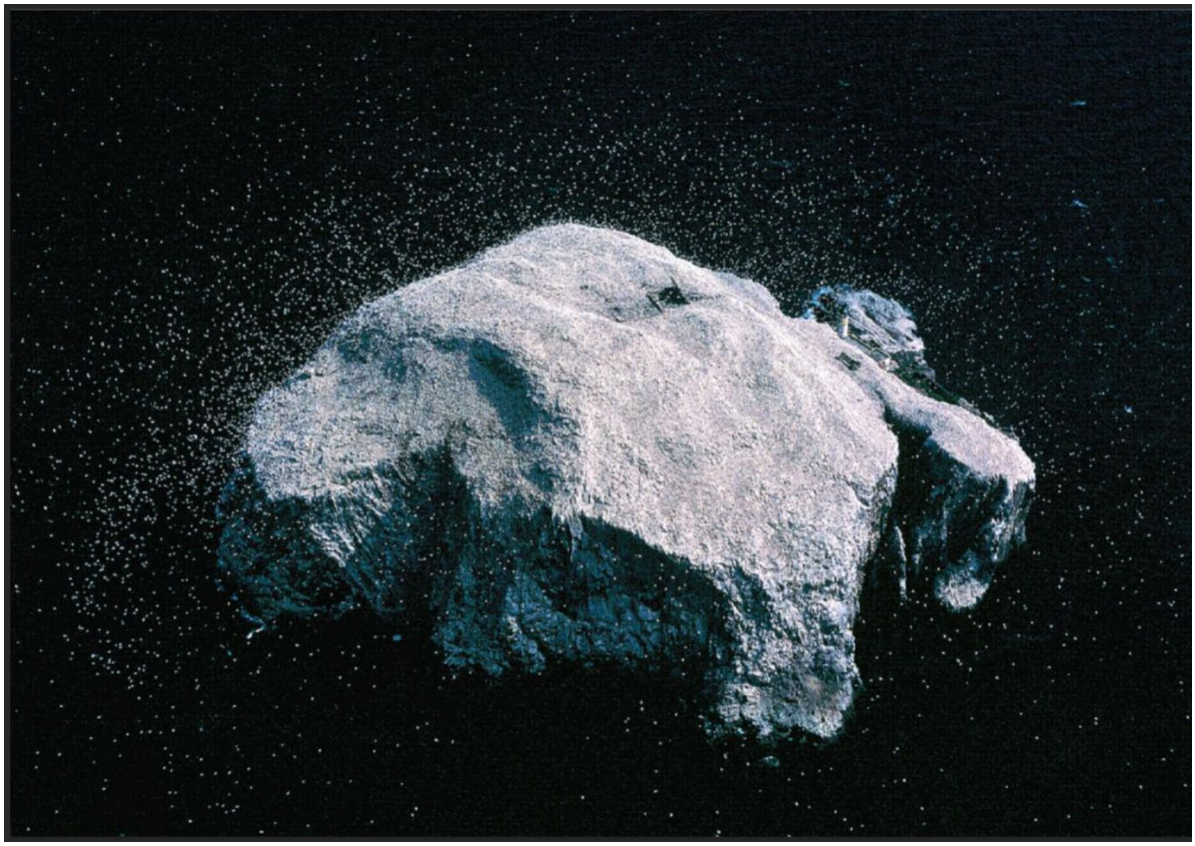
Might this brief geological moment act as a transition to a future time which 'has at its heart the belief that all living beings have a right to life and to the recognition that they have forms of understanding we have never shared and probably never will' – as Adam Nicolson so eloquently puts it in his concluding essay in this book?

Above: Gannets in flight near the Bass Rock, Firth of Forth, Scotland [Matthew Dalziel + Louise Scullion];

Below: Corpse of a gannet from the Bass Rock colony on a nearby beach, 2022 [Patricia Macdonald].

The 2021-22 pandemic of 'bird flu' or Highly Pathogenic Avian Influenza (HPAI – another lethal pandemic acronym to remember alongside Covid-19), is an unprecedented, largely anthropogenic, globalised threat that is bringing about the deaths of enormous numbers of the familiar seabirds nesting this summer on coasts and offshore islands. HPAI outbreaks regularly occur in the winter months in Europe, but never before have we seen a peak of cases during summer. Seabirds have been unaffected in previous outbreaks.

The breeding birds gather in their traditional sites in large, closely spaced colonies in which the disease is easily spread – the density reminding us of the likely origin of the infection in densely packed poultry farms, first in east Asia, and later spread in various ways to the rest of the world (as strongly suggested by genetic studies of recent outbreaks of its cause, the H5N1 virus[1]).



The largest colony of the northern gannet, on the Bass Rock, Firth of Forth, Scotland, in *left*:1986; and *right and main image*: 2015 [Patricia & Angus Macdonald / *Aerographica*].

When the book Surveying the Anthropocene went to press in 2021, the northern gannet was one of the seabirds considered by the International Union for Conservation of Nature (IUCN) as being of 'least conservation concern' – a 'survivor species' – many of its colonies having expanded over the past four decades, in contrast to those of other seabirds such as the Atlantic puffin, whose numbers have recently been in decline, and which is currently categorised on the IUCN Red List of Threatened Species as being 'vulnerable' to extinction (the IUCN scale of threat of extinction runs from 'Extinct' at the dark end to 'Least concern' at the brighter end, with the following categories in between: 'Extinct in the wild'; 'Threatened' (broken down into 'Critically endangered', 'Endangered', and 'Vulnerable'); and 'Near threatened'). To give the terrifying overall context, 25% of all species so far assessed on this scientifically highly reliable scale are classed as 'threatened'.

And as a measure of the seriousness of the current avian flu pandemic, this has caused, as of August 2022, the deaths of 5000 gannets on the Bass Rock alone (not counting beached birds) out of a normal total of 150,000 birds in the colony – about one bird in 30. This mortality rate is more than forty times higher than that in the worldwide human population due to the Covid-19 pandemic.

Rephotography can be very useful in documenting environmental change and several examples are featured in the book. In terms of seabird colonies, both increases and decreases in numbers of birds are shown: at the Bass Rock** (as seen above)**, and at Boreray in St Kilda** (as below)**, islands on the east and west coasts of Scotland, respectively.

I asked Pete, Des and Adam to focus, in the context of their wider work, on the avian flu situation, as an example of the many current anthropogenic threats to biodiversity.

***Pete Moore**, you visited some of the Atlantic outlier islands west and north of the Western Isles of Scotland – the Flannans, North Rona and Sula Sgeir – in June this year, to assess the state of the seabird colonies, mid-epidemic. Could you tell us what you found and what you would expect to happen there in the near future?*

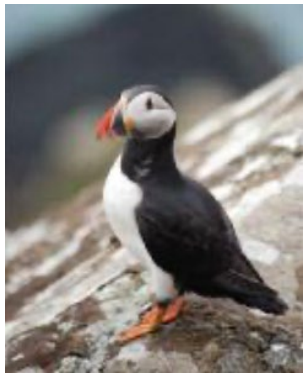
Pete Moore:

At the time of that visit, the situation was not as bad as we feared it might be. HPAI was present at all sites, but we noted only a small numbers of carcasses. We did find several great skua carcasses and also noted that there were fewer breeding. In the future? HPAI is already approaching pandemic proportions, having been found in the major northern hemisphere breeding locations. The hope would be that as many of this cohort of breeders as possible have survived and gone to sea. With luck, there will be some that are resilient enough to survive the winter and return to breed next year.

PMacd:

And what about the situation on the islands of the St Kilda group, where you have carried out rephotography of historic images of the puffin colony on Boreray, as described in your article in this book? And clearly, other factors than 'bird flu' were involved in the decline of nesting puffin numbers, relative to those in 1896, of which your image of 2019 provides visual evidence – could you identify these other threats?

Above: Rephotography composite image of the puffin colony on Boreray, St Kilda:
Finlay Macquien catching puffins, 1896 [Cherry Kearton]; and the same slope in 2019 [Pete Moore];
Below left: Puffin, Boreray, St Kilda, 1896 [Cherry Kearton]; and *below right*: 2019 [Pete Moore].



PMo:

Yes, when considering the population changes in 2019, ‘bird flu’ was a very distant presence in the world and our thoughts about threats to seabird populations were focused on the impacts of climate change and some behavioral changes in other seabirds. Ironically, one of the factors that may have been affecting puffins back then, was adaptation and specialism apparent in the behaviour of great skuas.

Forty years ago, great black backed gulls were active predators in the breeding season and generally, the skuas were feeding through klepto-parasitic activity. In 2019, it was clear that the gulls had declined in numbers, their territories were occupied by skuas and their feeding strategy was much more reliant on direct predation.

Boreray and the stacs from above Hirta, St Kilda [Patricia & Angus Macdonald / *Aerographica*].

PMacd:

Could you also touch upon the effects that the HPAI epidemic may have on seabird research, on eco-tourism, and on people's experience of birds in the wild?

PMo:

Scientific research at seabird colonies was suspended this year as a precaution and a number of seabird islands closed to public access. The decisions to restrict were not taken lightly; the natural transmission rate of the virus is high and it's important not to

compound that by any anthropogenic transmission. HPAI is unpredictable and situations with direct human interactions with birds are likely to be under review for some time. At the least, awareness-raising of the risks and rigorous biosecurity protocols will be necessary in the future.

PMacd:
Thanks, Pete, for that sobering account of the situation.

***Des Thompson**, you have also visited St Kilda recently. Could you perhaps report on the current situation there and its implications for the future?*

Des Thompson:
On 6th June we made a family visit to St Kilda, with three previous years' of booked travel thwarted by bad weather and Covid adversity. It was a 'lifer' – an experience that will live with us forever. A relatively calm sea crossing from Leverburgh was enlivened by the company of a couple destined within hours to be married on Hirta. We, and they, made it, and after an informative welcoming talk from the National Trust for Scotland ranger we headed north east up to the 'Gap' above Village Bay. Buzzed by a pair of great skuas, and distracted by the myriad cleits [drystone storage shelters], some with nesting fulmars, we got to the top. My God, what a sight! A couple of paces beyond where the path gave out we would have plunged 150 m into the sea. Massive cliffs festooned with seabirds – a cacophony of sounds, frenzied activity, and tantalising views of Boreray - held us spellbound. We hauled ourselves north-westwards towards Conachair, enjoying the rare sound of the church bell acclaiming the newlyweds, and were again assaulted – literally - by skuas. Everywhere there were birds – intoxicating sounds, scents and frenzied flights.

And yet, when we alighted on Hirta, there was a fleeting reference from our NTS host regarding dead skuas – some corpses were colour sprayed to alert us to their presence, having succumbed to avian flu (around 60 birds had died last year with this disease). Unbeknown to us the tally of dead skuas had already reached 104 birds, reported by the BBC the following day![2] By the end of June the number had risen to 120, and is still rising. A report from my seabird colleagues dated 9th August read starkly: 'Dead and sick great skuas continue to be reported at colonies. Over 1400 dead birds have been recorded on Foula (more than 4% of the world population). At other key colonies such as St Kilda, Handa, Fair Isle, Noss and Hermaness the numbers of dead birds are over 100 individuals with estimated reductions at these colonies of between 64-85% (adults on territories) since last counts.' These are catastrophic figures. Scotland holds almost 60% of the global population of great skuas, and there is a real possibility they will go extinct.

PMacd:
Thanks, Des, for that evocative account of an amazing place – although what you report of the situation 'below the surface' of the immediate dramatic experience of the still-rich ecology of the islands is tragic and terrifying.

***Adam Nicolson**, from your intimate experience of another important group of islands off the Western Isles, the Shiants, is the present situation there similar to that on the other outlier islands?*

Adam Nicolson:
A great skua, one or two puffins and a gannet (the last of which does not breed on the Shiants) have been found there this summer dead from HPAI. The numbers are small but inevitably do not embrace the full scale of the disease.

PMacd:

And in the light of all the above concerning reports, echoed as they are elsewhere in the UK and globally, and from your extensive knowledge – as the author of the important books Sea Room*,* The Seabird's Cry *and* The Sea is Not Made of Water / Life Between the Tides [3] *– of the other significant threats experienced by seabirds worldwide, could you extend briefly the speculation you offered in your essay that concludes this book, on their possible futures in the Anthropocene (and perhaps beyond)?*

AN:

There is no nature. Everything now lives in the anthropogenic envelope and everything is the recipient of our actions, good, bad or more usually and literally careless and thoughtless. We are ushering the world into an inadvertent future.

Buller's albatross at sea east of the Tasman Peninsula, Tasmania, Australia [J J Harrison].

PMacd:

Your books give intensely empathetic glimpses into the realities and significance of the very different lives of a wonderful spectrum of creatures of sea and shore. You tell us how an albatross navigates its world; how a minute creature like a sand-hopper on the beach knows

which way it is to the sea; how a crab becomes the boss of a rockpool – and much more, and a great deal deeper. You say: 'Be amazed. It is the fizz of life itself.' And we are amazed.

Humans today may inhabit a paradox. We are part of the natural world and, like other living things, we have a strongly 'selfish' species-centred view. We live in 'human world' just as a puffin inhabits 'puffin world'. But with the knowledge and power that we have today in the Anthropocene epoch, we are also capable of a global overview, probably unique to our species, of Earth's systems, their deep-time history and possible futures. Humans are therefore capable of living in both of these worlds rather than only inhabiting 'human world'. Do you think we may be able to resolve or overcome this paradox? How can we work towards the best possible outcomes for the living world of which we are a part?

AN:

I believe in systems analysis, in understanding that in any system the links are more significant than the nodes they connect. The networking of consciousness is the only way humanity can do well by other creatures. And along those links meaning does and must travel both ways. So, not only 'How to look after a puffin?' but 'How would a puffin look after us?' What would the puffin strategy be for the North Atlantic? What would the sand-eel have to say? Or the *Calanus finmarchicus*? Consciousness is not a human preserve. We are not managers but participants in and co-habitants of this world. If we want to escape the egotism of eco-managerialism, we must ask how 'nature' might look to itself.

There is another more apocalyptic version of this thought. The life of this planet has no need of us and will outlast us. The events at the end of the Permian period were far more catastrophic than anything we have achieved so far and yet, from an astonishingly low base, life persisted and proliferated. There is a pastoral illusion in virtually all

environmental policy, that life, if not polluted or disrupted, should flow along in a state of calm as easy as an English chalk stream. That is not what the geological record shows. It may simply be that the disaster that is happening now is the sort of thing that happens quite often.

PMacd:

Thank you, Adam, for those important overviews, both in terms of the web of life and of the deep time of the planet. Although the activity of our species may now have global-scale consequences, these are still clearly minor, as you remind us, in relation to the geological catastrophes of the deep past. We are certainly not 'eco-managers', but perhaps there may still be a small chance that we may draw back from being eco-mismanagers on the present-day scale. [4]

And many thanks once again to you all for your incisive reports and far-reaching insights.

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[1] https://www.researchgate.net/profile/Thijs-Kuiken; https://www.researchgate.net/publication/359721406_Avian_influenza_overview_December_2021_-_March_2022

[2] visit:https://www.bbc.co.uk/news/uk-scotland-highlands-islands-61719011

[3] Nicolson, Adam: *Sea Room*, HarperCollins, 2002; *The Seabird's Cry*, William Collins, 2018; *The Sea is Not Made of Water* / *Life Between the Tides*, William Collins, 2021 / 2022.

[4] Updates on the important forthcoming UN Conference on Biodiversity, COP15, may be found here: https://www.unep.org/events/conference/un-biodiversity-conference-cop-15