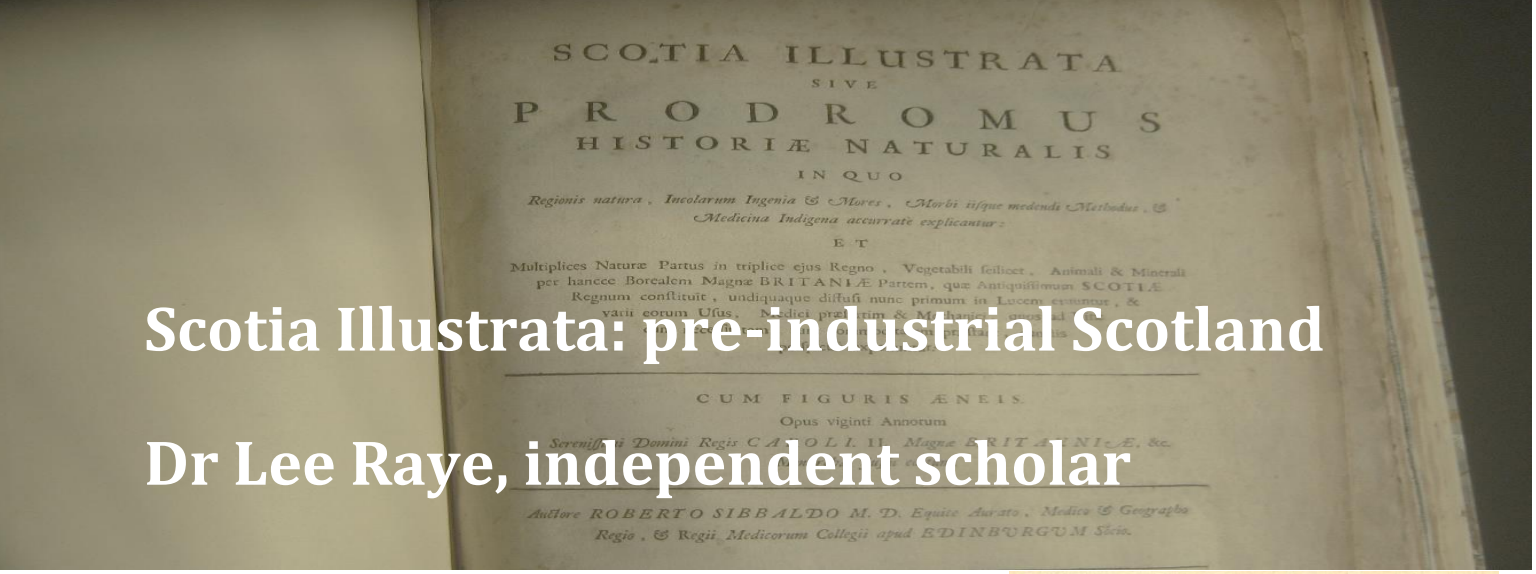


# Scotia Illustrata: pre-industrial Scotland

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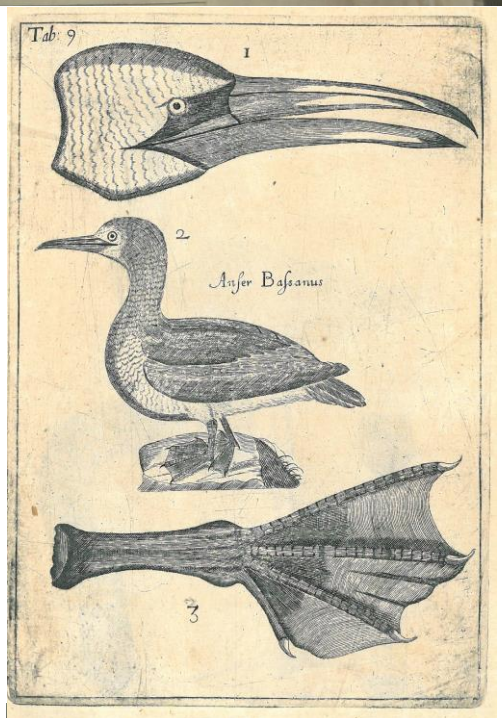
## Introduction

*Scotia Illustrata* is a Latin natural history written in the early modern period by Robert Sibbald (1684). The text has two unusual features: (i) it crowd-sourced its data from questionnaires sent to people around Scotland (Withers, 2002), and (ii) it focuses exclusively on the geography, medicine, flora and fauna found in Scotland (compare: Cooper, 2007).

These features mean that the text is important for modern conservation science because environments across the world have gone through considerable changes over the last two to three centuries. This has led scientists to argue that we are in a new era called the Anthropocene (Steffen, Crutzen and McNeill, 2007; Zalasiewicz *et al.*, 2008), and one of the most important marks of the Anthropocene has been a world-wide decline in biodiversity (Steffen *et al.*, 2011). *Scotia Illustrata* gives us information about Scotland's biodiversity before the Anthropocene began, and can act as a baseline to show us the changes which have occurred across Scotland through the period.




## Results

The grant from the Alice McCosh Trust was used to fund the end of the first phase of the study. After translating the section of *Scotia Illustrata* (II:3) on wildlife in the main part of the phase, I wanted to compare the results with modern day conservation data to work out how the fauna of Scotland has changed between the seventeenth and twenty-first centuries. This comparison has now been submitted as an article to *The Antiquaries Journal.* The following is a summary of the findings from there:

In all, we have national level conservation data for only the best-known 174 of the species from *Scotia Illustrata* today: Seven species have become locally extinct since Sibbald wrote (see fig. overleaf). Two are now critically endangered. Five are

endangered in Britain and five are vulnerable. That makes nineteen species (11%) at high risk of extinction or already extinct in Scotland. Thirty-seven further species are listed on the OSPAR list of *Threatened and Declining Marine Species* in the north east Atlantic, and on the *Birds of Conservation Concern Red List* (Eaton *et al.*, 2015). Altogether these assessments include fifty-six (32%) of all the identifiable wild species from *Scotia Illustrata.* This is a much higher number than could be expected naturally, and show that Scotland is facing a biodiversity-loss crisis. The data is also especially worrying since, presumably, *Scotia Illustrata* had a bias towards recording the most high-profile and common species, and there are at least a hundred additional identifiable species in *Scotia Illustrata* which we do not yet have national conservation data for.

## What can we do?

The evidence of *Scotia Illustrata* suggests that the Anthropocene has had a dramatic effect on Scotland's natural heritage. However, the evidence could also be used in a proactive way. *Scotia Illustrata* could be used in the future by conservationists as a guide to re-wild Scotland's biodiversity to a state comparable to its 1700 levels - before the Anthropocene began. We know that Scotland's biodiversity in the Holocene (when Sibbald wrote) was a safe operating space (Rockström *et al.*, 2009), but with so many species becoming extinct and rare since then, it is possible that the country's biodiversity has become less resilient, which might mean that the ecosystem is more susceptible to cascade damage from invasive species and diseases. Reintroducing species would strengthen the ecosystem. For example, the reintroduction of the lynx would prevent muntjac and roe deer from doing so much damage (White *et al.*, 2015). In areas where pine martens are still thriving, grey squirrels are less likely take over red squirrel territories (Sheehy and Lawton, 2014).

In the future I am hoping to continue my translation of *Scotia Illustrata*, as well as perhaps comparing the data extracted to data from other contemporary natural history texts from elsewhere in Britain, for example Merrett's (1667) *Pinax rerum natualium Britannica* and Lhuyd's *Parochalia* (ed. Morris, 1909).

### Changes to the Biodiversity of Scotland in the Anthropocene According to *Scotia Illustrata* (1684)

**Extinct in Scotland**
- bustard (*Otis tarda*)
- crane (*Grus grus*)
- great auk (*Pinguinus impennis*)
- angel shark (*Squatina squatina*)
- great capricorn beetle (*Cerambyx cerdo*)
- lynx (*Lynx lynx*)
- right whale (*Eubalaena glacialis*)

**Critically Endangered**
- eel (*Anguilla anguilla*)
- sturgeon (*Acipenser sturio*)

**Endangered**
- tuna (*Thunnus thynnus*)
- vendace (*Coregonus albula*)
- crayfish (*Austropotamobius pallipes*)
- freshwater pearl mussel (*Margaritifera margaritifera*)
- mole cricket (*Gryllotalpa gryllotalpa*)

**Vulnerable**
- leatherback turtle (*Dermochelys coriacea*)
- cod (*Gadus morhua*)
- haddock (*Melanogrammus aeglefinus*)
- spiny dog-fish (*Squalus acanthias*)
- sperm whale (*Physeter macrocephalus*)

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