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1 **Short title:**

2 *Scotia Illustrata: A faunal baseline for Britain*

3

4 **Full title:**

5 Robert Sibbald's (1684) *Scotia Illustrata: A faunal baseline for Britain*

6

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10

11 **Summary:**

12 This paper examines a pre-industrial Scottish natural history text called *Scotia Illustrata*
13 (Sibbald, 1684). *Scotia Illustrata* is significant for two reasons: (i) it is based on data
14 submitted by correspondents from across Scotland, and (ii) it only includes biological species
15 attested to be present by witnesses or found in previous historical accounts of the country.
16 These facts allow us to adopt a unique methodology: After its introduction, this paper
17 approaches the text as a potential source of biodiversity information, and extracts data on the
18 presence/absence of fauna in the seventeenth century. The extracted species are identified (as
19 far as possible) to species level, and then the gathered information is used as a baseline to
20 discuss later losses from the biodiversity of Scotland during the industrial period.

21

22 **Key phrases:**

23 Robert Sibbald, *Scotia Illustrata*, British wildlife, Animals of Scotland

24

INTRODUCTION

1
2 Robert Sibbald's (1684) *Scotia Illustrata* is an early modern natural history with two key
3 characteristics. It was based on data collected by the author through the circulation of a series
4 of questions ('heads'), and it exclusively focuses on the natural world of a single area
5 (Scotland). These characteristics make the text especially useful as a source for species
6 historians because the text provides presence/absence data for native species from the pre-
7 industrial period. After introducing the text, its genre and its reception, this paper explores the
8 world of animals and plants described, and comments on changes in the national fauna since
9 the seventeenth century.

10 This paper is not the first exploration of the faunal evidence in Sibbald's work. Pennie
11 analysed the bird fauna described in *Scotia Illustrata*,¹ and the fauna of Sibbald's *History,*
12 *Ancient and Modern, of the Sherrifdoms of Fife and Kinross* was identified in the edition by
13 Adamson.² Extracts from facsimile editions of *Scotia Illustrata* have been frequently used
14 alongside extracts from contemporary evidence by species historians able to read Latin.³
15 Contemporary floral lists such as the *Hortus Medicus Edinburgensis* of Sibbald's gardener,
16 James Sutherland, have been examined in the same way.⁴ But this paper has a more
17 ambitious scope. First, it will argue that Sibbald's work has a unique and previously
18 overlooked authority as a source on the seventeenth century environment. Second, the paper
19 looks at Sibbald's natural history in full, without comparing evidence from other texts, or
20 focussing on just one kind of animal. Third, the study goes beyond just identifying the
21 species present to actually commenting on changes between the fauna of Scotland in the
22 seventeenth century and the fauna of Scotland today. This allows us to identify the most
23 surprising and important evidence from the text for modern conservationists.

ROBERT SIBBALD

24
25
26 Robert Sibbald (1641-1722) was born in Edinburgh to a wealthy family. He registered
27 as a student at the University of Edinburgh from 1653 to 1659 and took an MA. He then
28 studied medicine at Leiden for 18 months, and finally graduated with an MD after studying in
29 Paris and Angers for an additional two years. Upon his return to Scotland he set himself up as
30 a physician. By 1667 he had co-founded a botanical garden with his distant cousin Andrew
31 Balfour to furnish pharmaceutical simples. This became the Royal Botanic Garden

1 Edinburgh. Around 1680 he founded a group which became the Royal College of Physicians
2 of Edinburgh. The College published its first pharmacopeia shortly afterwards. In 1682
3 Sibbald was knighted, appointed physician-in-ordinary and made geographer royal for
4 Scotland.⁵

5 But Sibbald was more than an Edinburgh luminary with rich parents. He was a key
6 figure in the Scientific Revolution. His magnum opus *Scotia Illustrata* was the most
7 ambitious and thorough regional natural history completed during the seventeenth century.
8 Unfortunately, biographies of his life have tended to over-emphasise his role as a provincial
9 magnate of Edinburgh society whilst criticising *Scotia Illustrata* for its lack of in-depth
10 species accounts. The former complaint diminishes Sibbald's international reputation as a
11 man of science, and the latter misunderstands the role of *Scotia Illustrata* as a catalogue of
12 Scotland's natural resources rather than a wildlife handbook.⁶

13 Critics have also been misled by two poor contemporary pamphlet reviews of *Scotia*
14 *Illustrata*, one by Archibald Pitcairne and another by James Walkinshaw, probably with help
15 from Pitcairne. These reviews eventually stirred Sibbald into writing *Vindiciae Scotiae*
16 *Illustratae*, a defence of *Scotia Illustrata*, but the reviewers were involved in a dispute with
17 the author. The review printed in the *Philosophical Transactions of the Royal Society of*
18 *London* is positive.⁷ Sibbald was a major nexus of the Republic of Letters, passing data from
19 local Scottish naturalists to London, and publishing them in Latin for an international
20 audience. Sibbald's patron was James Drummond (1648-1716), Earl of Perth, who was
21 responsible for Sibbald's royal appointments. Drummond's sister Anne, Countess of Erroll
22 (1656-1708?) may also have been Sibbald's patron. She herself seems to have been a
23 competent naturalist based on her contributions on the natural resources of Aberdeenshire to
24 *Scotia Illustrata*. Sibbald was further patronised by James, Duke of York, the future James II
25 of England.⁸ Apart from his colleagues at what become the Royal College of Physicians of
26 Edinburgh, Sibbald had several important contacts in scientific circles. He appears to have
27 been a member of an Edinburgh antiquarians' club including James Dalrymple, John Adair,
28 Martin Martin and James Anderson. His good opinion led to James Sutherland (Sibbald's
29 gardener at the Edinburgh Physick Garden at Trinity Hospital) becoming the first professor of
30 botany at the University of Edinburgh. Letters survive between Sibbald and the leading
31 naturalists of the period including Martin Lister, Hans Sloane and Edward Lhuyd. Although
32 Sibbald excerpted descriptions of birds from Willughby and Ray's *Ornithologiae*, Ray in turn
33 borrowed from Sibbald's *Phalainologia Nova* in *Synopsis Methodica Piscium*. Ray also

1 acknowledged *Scotia Illustrata* as the first text to describe one plant (*Potentilla sibbaldi* –
2 this plant was given its own genus and is now *Sibbaldia procumbens*).⁹

3 REGIONAL AND BACONIAN NATURAL HISTORY

4 In 1666, Robert Boyle published a *General heads for the natural history of a country,*
5 *great or small*. This was a lengthened pamphlet version of an article that had appeared in the
6 Royal Society's *Philosophical Transactions* in 1665.¹⁰ The pamphlet called for a new
7 approach to natural history. The new natural history was to follow Bacon's *Novum Organum*,
8 as well as more direct models like Ray's *Catalogus Plantarum* (1660). This Baconian natural
9 history was to be focused on regional areas so that naturalists could ascertain particulars
10 (local facts) about wider topics 'general heads', before attempting to draw inductive
11 conclusions.¹¹ Regional natural histories and particularly county florals had been growing in
12 popularity for some time in Britain alongside chorographies, and the county flora was slowly
13 taking shape between Turner's *New Floral*, Ray's *Catalogus Plantarum circa Cantabrigiam*
14 *nascentium* and Abbot's *Flora Bedfordiensis*, but the Royal Society solidified the regional
15 natural history into its own genre.¹² Naturalists were now no longer supposed to focus on the
16 miraculous, but rather on the ordinary facts of an area, for example what the air and water
17 quality was like, how many people lived in a place, and what kinds of animals and plants
18 could be found there. Where naturalists did detect what appeared to be anomalies, these were
19 to be explained in order to gain a deeper understanding of the world, since no contradictions
20 were possible in the divine order of Christian creation.¹³ There were also particular aspects of
21 the approach which represented a break from Bacon's natural history. Most importantly, the
22 data were to be provided by local informants. The *General Heads* could thus make 'the
23 travels of gentlemen, seamen and others' into productive scientific voyages.¹⁴ The idea was
24 that facts accumulated from responses to the general heads could later fuel conjectures and
25 hypotheses in the hands of naturalists. In Britain, the genre seems to have inspired a number
26 of county natural histories including the *Natural history of Oxford-shire*, the *Natural history*
27 *of Stafford-shire*, and the *Natural history of Northamptonshire*. John Aubrey's incomplete but
28 heavily annotated *Wiltshire Naturall Historie*, and, more importantly, Edward Lhuyd's lost
29 *Natural history of Wales* also fit on this list.¹⁵ The new genre has been studied in some depth
30 by Cooper, who traced the genre's influence on European natural history, and more recently
31 by Fox and Yale.¹⁶

1 It is important to point out that the genre described by *General Heads* was also
2 empirical, naturalistic and utilitarian. Baconian natural historians had a particular interest in
3 ascertaining observable facts and distinguishing them from conjecture, hearsay and popular
4 belief. The naturalists of the Royal Society were generally interested in the everyday
5 observable facts of nature.¹⁷ The act of describing Christian creation had just as many
6 theological implications for early modern naturalists as did the act of describing miracles. The
7 emphasis on the transformation of the natural world and the improvement of human life
8 demonstrates an Episcopalian influence on *Scotia Illustrata*. Like Plot, Aubrey and (later)
9 Ray, Sibbald also occasionally wanders into Latitudinarian physico-theology, as he explains
10 in the prologue to the natural history: ‘we have been sent into this the theatre of the world,
11 most beloved colleagues, so that we may discern God from his works’.¹⁸

12 The object of this study, Robert Sibbald’s (1684) *Scotia Illustrata*, is the most
13 ambitious British work to fit into this genre. The work is based on a questionnaire published
14 by Sibbald and circulated to informants across Scotland. Part 1 describes the natural and
15 human geography of Scotland together with its climate and common diseases. Part 2
16 describes the cultivated and wild flora together with its wildlife and geology. *Scotia Illustrata*
17 is not a monograph by a single-author. It is rather an edited compilation of data from
18 respondents across Scotland, which draws extensively on previous texts (especially
19 Willughby and Ray’s *Ornithologiae* and Schwenckfeld’s *Therio-Tropheum Silesiae*) in order
20 to describe each species. This makes the text an especially trustworthy source for modern
21 historians because it is based on contemporary data from local authorities, rather than being
22 based on the knowledge of a central single author.

23 In some ways, Sibbald’s decision to present *Scotia Illustrata* as his work was a typical
24 reflection of seventeenth century concerns about what Shapin calls ‘knowledgeability’ (the
25 socially accepted ability to create knowledge). If *Scotia Illustrata* had been published as a
26 work with many authors, it would have been rejected; in the early modern period, truth value
27 was only attributed to data vouched for by learned gentlemen. As Shapin points out,
28 testimony given by technicians and observers - no matter how skilled they might be - was
29 unreliable because observers’ accounts could be biased by their lack of financial
30 independence and because they existed outside the gentleman’s honour culture. The same
31 was thought to be true of servants and women more generally. Even Anne Erroll, a
32 noblewoman, was only given credit in *Scotia Illustrata* for producing plates, not for the
33 descriptions of places which she also contributed. Only gentlemen could be trusted to create

1 knowledge. This is one way of understanding Sibbald's purpose with his questionnaire, he is
2 inviting gentlemen scholars to collaborate with him to create a national knowledge of
3 Scotland to rival that of England. In the questionnaire, Sibbald explained that he will record
4 all answers 'that he is assured of the truth and certainty of', and his questions reflect a special
5 interest in social hierarchy. At least 77 responses were returned to Sibbald, mainly from the
6 nobility, gentry and clergy, and made up the basis of his evidence. But this reading is not
7 fully satisfying. Although sections of his questionnaire are only answerable by certain
8 classes, there are a series of general questions which anyone was invited to answer. While
9 Sibbald's treatment of Erroll is objectionable in some respects, I am not aware that Ray or
10 Lister or Lhuyd ever cited women as reliable sources, or even corresponded with women they
11 were not related to. Sibbald regularly cites physicians in his research, who are not gentlemen
12 of leisure but fellow professionals. He also quietly rejected some of the observations that are
13 sent to him by gentlemen; he firmly declares that 'wolves have been extirpated from this
14 island', despite testimony sent to him by gentlemen (probably based in turn on hearsay) that
15 wolves could be found in Sutherland and Caithness. Still, for all of Sibbald's intention to
16 construct a reliable national knowledge, he was at times a careless scholar. Another part of
17 *Scotia Illustrata*, which would have shocked Robert Boyle, is Sibbald's credulous re-telling
18 of a fantastic story, based on the word of a pharmacist from Aberdeen, that a human baby
19 was once taken by an eagle from Houton Head in the Orkney Islands, and later recovered safe
20 and well from Hoy.¹⁹

21 *SCOTIA ILLUSTRATA* AS A MODERN SOURCE

22 The purpose of this article is to use *Scotia Illustrata* as a source on the early modern
23 fauna of Scotland. This use was, in a way, foreseen by Sibbald. Sibbald divided his
24 knowledge of Scotland (for example in the proposed *Atlas of Scotland* and in *Nuncius Scoto-*
25 *Britannus*) into *Scotia antiqua* and *Scotia moderna*. For Sibbald, *Scotia antiqua* included
26 historical facts about Scotland, whereas *Scotia moderna* included facts about Scotland as it
27 was in Sibbald's time. Sibbald's facts about *Scotia moderna* therefore provide us with an
28 ideal dataset to analyse for writing environmental history. Sibbald had a Baconian interest in
29 recording witness-testimony evidence about the place, from which hypotheses could be
30 formed.²⁰ He used unique Latin binomial nomenclature for most species, following the
31 system of Ray and Willughby, except for the gastropods where he gave long descriptive
32 names following Lister. But it is important to realise that although *Scotia Illustrata* is an ideal
33 source for conservationists, it would be anachronistic to treat Sibbald as a conservationist.

1 Sibbald's main purpose in writing *Scotia Illustrata* was to survey the natural resources of
2 Scotland in order to facilitate their exploitation for culinary and medical use. This was a
3 preoccupation of Royal Society naturalists in the time period as modelled in Nehemiah
4 Grew's *The means of a most ample increase*, etc. (1706-7).²¹ Sibbald was especially intent
5 on the improvement of the conditions of ordinary people. He notes in a courageous prologue
6 aimed at Charles II that there was often no medicine accessible to poor people, despite the
7 stockpiles of medicine for the rich.²² His *Provision for the poor in times of dearth and*
8 *scarcity* (1699) later explained to poor people what kind of wild animals and plants could be
9 foraged as food. This book was written during the famines of the 'Seven Ill-Years' in the
10 1690s. There were especially bad harvests in 1695, 1697 and 1698. Sibbald writes strikingly
11 in his preface about seeing poor people (including children) dying of starvation.²³ This
12 humanitarian approach can be traced back to the seventeenth century tradition of producing
13 medical handbooks and cookbooks in English for ordinary people to use to cure themselves,
14 inspired by Culpeper's translation of the *Pharmacopoea Londinensis (A physicall directory)*,
15 as described by Spiller. It forms a contrast to Grew's idea of the poor as idle beggars with too
16 many children.²⁴

17 In *Scotia Illustrata*, Sibbald provides us with baseline presence/absence data for
18 around 400 kinds of animal, 274 of which can be identified to species level. The number
19 which are identifiable is low in part because of the high percentage of animals only given a
20 blanket or local name. These identifications are based on four clues:

- 21 i) The description in the text, particularly where the description quotes from more
22 lengthy descriptions in more detailed handbooks, as for example Willughby and
23 Ray's *Ornithologiae*, Lister's *Historiae Animalium* and Schonevelde's
24 *Ichthyologia*.²⁵ Willughby and Ray is a particularly useful source in this regard,
25 since Linnaeus used *Ornithologiae* extensively, and so it is usually possible to
26 identify a species that can be found there.
- 27 ii) The plates allow the identification of some species (especially Fig. 3 which is the
28 only clue to identify the snake pipefish).
- 29 iii) Previous editors of Sibbald's corpus have sought to identify some of the species
30 he names with modern taxonomic nomenclature.²⁶
- 31 iv) Linnaeus' *Systema Naturae X* (the first volume to include animals) lists synonyms
32 for each species name, so where the name Sibbald uses is listed as a synonym, the
33 identification of a species with a Linnaean name is generally simple.²⁷

34 Where the text includes at least two of the above clues, and nothing in the text is
35 contradictory I have labelled the identification as secure in the accompanying Appendix

1 which provides a list of the wildlife species included in *Scotia Illustrata*. Thus, 218 of the 274
2 identifications are secure (79%).

3 Discussion in this paper is focused on where the data refers to three groups: (i) species
4 known to have become locally extinct or only locally distributed in Scotland in the historical
5 period, (ii) species known to have become introduced into Scotland in the historical period
6 and (iii) species whose native status is not clear.

7

8 DOMESTICATED AND KEPT SPECIES

9 The bred and domesticated species in *Scotia Illustrata* are not separated from the wild species
10 like the cultivated plants are from the wild flora. Sibbald seems to have envisaged some
11 continuity between wild and domesticated animals.²⁸ Pigs (*Sus scrofa domesticus*) are not
12 separated from wild boar (*Sus scrofa*) (p. 9).²⁹ Sibbald also attests that (red?) deer (*Cervus*
13 *elephans*) with forked tails are traded as livestock in the north of Scotland. He does however
14 separate domesticated doves (*Columba livia domestica*) (kept in dovecots and bred by
15 pigeon-fanciers), from wild pigeons (*Columba livia*) (p. 17).

16 As well as dog (*Canis lupus familiaris*), cat (*Felis catus*) and the various farm animals
17 there are some exotic species here. Sibbald attests to the ferret (*Furo furo*) being used by
18 rabbit-hunters (p. 11) which is also known in Ireland for the period and believed to be a much
19 older practice.³⁰ He mentions the peacock (*Pavo cristatus*), and the pheasant (*Phasianus*
20 *colchicus*) which is ‘raised in the estates of certain nobles’ (p. 16). Although this last species
21 is known to have been domesticated in England since the medieval period, this is one of the
22 earliest attestations for Scotland.³¹ Other recent importations mentioned by Sibbald are the
23 turkey (*Meleagris gallopavo*, p. 16) and the garden tortoise (*Testudinadae* sp., p.11 [i.e. 13]).
24 The last reference may be one of the first to the keeping of land tortoises as pets from the
25 whole of Britain and can be compared to the pet tortoise kept by naturalist Gilbert White a
26 century later.³²

27 Some introduced species were so well established in Sibbald’s time that he does not
28 seem to have realised they are imported. This shows that *Scotia Illustrata* describes local
29 rather than native species. For example, Sibbald recognises a domestic [sub]species of the
30 rabbit (*Oryctolagus cuniculus*), but does not distinguish rabbits as non-native. The rabbit is
31 found ‘especially on the shoreline’ (*littore*, p. 11), a statement which agrees with Warry’s

1 suggestion that the rabbit became common along the shorelines long before it was commonly
2 found in inland regions of Britain. The carp (*Cyprinus carpio*) is listed alongside other river
3 dwelling species with no hesitation (p. 25), suggesting that it may have become established in
4 Scotland around the same time as it was established in England (the fifteenth or sixteenth
5 century, despite Lever's scepticism about the early introduction of the species to Scotland.³³

6

7

AMPHIBIANS AND REPTILES

8 Amphibians and reptiles are not considered together in *Scotia Illustrata*. Most are described
9 in the section on egg-bearing quadrupeds (II.3.2.6), but the 'Serpents' are described
10 separately (II.3.6) and the 'ask' (=eft, a newt in paedomorphic aquatic form with gills) is
11 described along with the aquatic insects (p. 34). Between these lists, and not including the eft,
12 Sibbald lists nine species as local (pp. 11 [13], 28). He lists the common frog (*Rana*
13 *temporaria*), one newt (probably to be identified as the smooth newt (*Triturus vulgaris*) to
14 judge from Linnaeus' extant collection of labelled specimens)³⁴ and one toad (*Bufo bufo*),
15 which neglects the natterjack toad (*Bufo calamita*), but lists all native species of reptile.
16 These include the adder (*Vipera berus*), slow worm (*Anguis fragilis* - which he calls the blind
17 worm) and common lizard (*Zootoca vivipara*). Sibbald also includes some species we do not
18 tend to think of as native today. He includes a marine turtle, commonly seen around Orkney
19 (presumably the leatherback (*Dermochelys coriacea*) which is a common visitor),³⁵ and,
20 intriguingly, 'Natrix, the water snake' (the grass snake, *Natrix natrix*). This last species has
21 only recently been identified as a probable native, and this is the earliest record of it in
22 Scotland.³⁶

23

24

MAMMALS

25 Mammals are mainly included in the Quadrupeds section, which is divided in *Scotia*
26 *Illustrata* into those with un-cloven hooves (II.3.2.1), those with cloven hooves (ruminating
27 and non-ruminating – II.3.2.2-3), those with paws (II.3.2.4) and those with toes (II.3.2.5). A
28 few mammals are included elsewhere like the cetaceans among the fish and a generic bat
29 among the birds. Humans are given a section of their own. There are some particularly
30 interesting records among the pawed-quadrupeds. Sibbald manages to distinguish every
31 species of mustelid (weasel (*Mustela nivalis*), stoat (*Mustela erminea*), polecat (*Mustela*

1 *putorius*), pine marten (*Martes martes*), otter (*Lutra lutra*), badger (*Meles meles*)), although
2 the descriptions of the stoat and weasel have been confused. Mink (*Neovision vision*) did not
3 become naturalised in Britain until the twentieth century so are not mentioned here. In
4 contrast to their rarity in the twenty-first century, water voles (*Arvicola amphibious*) are
5 described as ‘common’, (p.10 [12]).³⁷ The modern scarcity of the water vole may be partially
6 due to the link between water vole populations and the modern presence of mink.³⁸ Here,
7 Sibbald also describes another rodent: ‘lavellan, an animal common in Caithness, it stays in
8 water, it has a head similar to the weasel, and is a beast of the same colouring. The breath
9 from these beasts does harm’ (p. 11). Pennant believed this to be the water shrew (*Neomys*
10 *fodiens*) and his view has been generally accepted since.³⁹

11 As well as a single seal (the harbour seal, *Phoca vitulina*, p. 10), Sibbald includes the
12 walrus (*Odobenus rosmarus*) as a local species (p. 10) based mainly on the reference in
13 Boece.⁴⁰ He also classes two species as extinct (‘Wolves (*Canis lupus*) were common once
14 upon a time, and even bears (*Ursus arctos*) are spoken of among the Scottish: but time
15 extinguished the genus and it is extirpated from the island’, p. 9). He also expresses
16 uncertainty about the beaver (*Castor fiber*): ‘I don’t know if they can be found now’ (p. 10).
17 Sibbald is one of the first authors to question the continued presence of these species, and his
18 ambiguous remark about the beaver in particular has generated much discussion.⁴¹ Sibbald’s
19 account demonstrates an acceptance that species could be locally extirpated by direct
20 persecution, a fact that Ray cautiously denied. Sibbald also describes multiple cetaceans as
21 residents of the water around Scotland (pp. 22-23), of which the sperm whale (*Physeter*
22 *macrocephalus*), the porpoise (*Phocoena phocoena*) and one species of dolphin can be
23 distinguished easily. Another species, ‘*Balaena*, the common whale’ (p. 23) is most likely to
24 refer to the right whale (*Eubalaena glacialis*),⁴² especially based on the description of length,
25 and the account of catching 27 on the same day (if true, this is most likely to have been a
26 right whale surface action group (S.A.G., or courting group)), although this species is thought
27 to have been restricted mainly to Greenland and Iceland by the time Sibbald wrote. It is now
28 probably extinct in the east Atlantic.⁴³ Sibbald intended to include more information about
29 the cetaceans in a second volume of *Scotia Illustrata*.⁴⁴ This second volume never
30 materialised, but one of his earlier books on Scotland’s cetaceans, *Phalainologia Nova*,
31 proves him to have been a keen observer of marine mammals.⁴⁵ Sibbald was one of the first
32 naturalists to describe the blue whale (*Balaenoptera musculus*).⁴⁶

1 Confusingly, *Scotia Illustrata* distinguishes three kinds of cat. There is the domestic
2 cat (*Felis – Felis catus*), the wildcat (*Felis sylvestris - Felis silvestris*) with its ‘thicker tail’
3 (p.11/13) and the ‘*Felis Syriaeca*, dappled with many spots. It has a savage and muscular jaw,
4 and a large chest and paws’ (p.11/13). This description is directly borrowed from Aldrovandi,
5 perhaps via Jonston.⁴⁷ Aldrovandi understood the Syrian cat to be a kind of wildcat but
6 Jonston understood it to be an exotic domestic cat. Sibbald’s understanding of the term is not
7 clear, but it is possible that the term here might refer to the lynx (*Lynx lynx*), which may have
8 survived this long in Scotland, because Sibbald otherwise only describes species which are
9 known to be present in the country.⁴⁸

10 Of course, the red squirrel (*Sciurus vulgaris*) is described here, not the grey (*Sciurus*
11 *carolinensis*), which was only introduced to Britain in 1876 and to Scotland in 1892.⁴⁹
12 Sibbald does not technically distinguish the two species of hare, but describes a variety in
13 Orkney ‘with its hair returning to white in winter’ (p.11) which is a characteristic that
14 distinguishes the mountain hare (*Lepus timidus*) from the more common European hare
15 (*Lepus europaeus*). Sibbald does oddly distinguish two species of hedgehog (*Erinaceus*
16 *europaeus*), ‘one with the head of a dog, the other of a pig’ (p.11).

17

18

BIRDS

19 It should be noted that several of the species Sibbald mentions are certainly not natives
20 (especially among the raptors – for example, black eagle (*Ictinaetus malaiensis*), saker falcon
21 (*Falco cherrug*), gyrfalcon (*Falco rusticolus*), marsh kite (?)). There are two possible reasons
22 for this. First, most of the names and background information from this section is drawn
23 directly from Willughby and Ray’s *Ornithologiae Libri Tres*, which of course describes all
24 birds internationally. Unlike Willughby and Ray, Sibbald does not seem to have been
25 interested in keeping birds himself. It is possible that Sibbald was confused by the volume of
26 species included by his contemporaries, and therefore incorporated some bird species into
27 *Scotia Illustrata* that were not found in Scotland. Second, with the raptor records in
28 particular, it is also possible that some of these species were kept in menageries and by
29 falconers, since if we discount the birds of prey, the records of other kinds of bird are much
30 more believable. This is probably also how we should interpret Sibbald’s references to the
31 little owl (*Athene noctua*) and eagle owl (*Bubo bubo* - p.15) which came centuries earlier than
32 the first introductions.⁵⁰ Sibbald even incorporates a degree of anatomical description for

1 some of the rarer birds elsewhere in the text, especially those which had not been well-
2 described before like the black-winged stilt (*Himantopus himantopus* - pp.18-19) barnacle
3 goose (*Branta leucopsis* - p.21) and eider duck (*Somateria mollissima* - p.21), which
4 encouraged Fleming to cast him as an anatomist like English contemporaries Willughby, Ray
5 and Lister.⁵¹

6 We can pull out some important records from this section. Sibbald discusses most of
7 the birds which went locally extinct due to over-exploitation and direct persecution from
8 game-keepers over the next 250 years. For example, the crane (*Grus grus*) was culturally one
9 of the most important birds in the medieval period. It is the most frequently found bird at
10 early medieval excavations.⁵² It is the most depicted bird in illustrated manuscripts apart from
11 the dove and the eagle (birds with religious significance).⁵³ It is also the bird which places
12 were most commonly named after, and was important in secular literature.⁵⁴ In *Scotia*
13 *Illustrata* the bird is included as a species sometimes seen in the Orkney Islands. The
14 reference here is probably to occasional migrating flocks. The last reference to cranes
15 breeding in Britain is in the *Description of Pembrokeshire* from 1603,⁵⁵ but most breeding
16 references are much earlier than this. Sibbald actually provides one of the final references to
17 this species from Britain since apart from occasional migrants, cranes are rarely seen after the
18 seventeenth century.⁵⁶

19 Sibbald also gives evidence for other important locally-extinct species. The bird
20 called the 'auk' in *Scotia Illustrata* (p.20) is actually the razorbill (*Alca torda*).⁵⁷ What is
21 more probably a great auk (*Pinguinus impennis*) is included in the section on 'Birds of an
22 uncertain class' (p.22). This suggests that although Sibbald had heard of the species he had
23 not seen it and could not obtain a reliable description, which agrees with the standard view
24 that the auk was rare in Scotland (and indeed, throughout Europe) throughout the historical
25 period, especially from the end of the first millennium CE.⁵⁸ For the bustard (*Otis tarda*)
26 meanwhile, Sibbald relies mainly on Boece's testimony, suggesting they were not commonly
27 seen,⁵⁹ and records only a single bustard in east Lothian since Boece wrote (pp.16-17). This is
28 the final record of the species before it became extinct in Britain.⁶⁰ *Scotia Illustrata* also
29 attests to the presence of sea eagle (*Haliaeetus albicilla*) and osprey (*Pandion haliaetus* -
30 these two are confused), golden eagle (*Aquila chrysaetos*), hen harrier (*Circus cyaneus*),
31 goshawk (*Accipiter gentilis*) and red kite (*Milvus milvus* - pp.14-15), as well as the bittern
32 (*Botaurus stellaris* - p.18) which were either completely extirpated or reduced to only local
33 populations in the modern period.

1 Sibbald was familiar with other species which are in decline today. He reports on the
2 taste of the gamebirds, including the capercaillie (*Tetrao urogallus*), quail (*Coturnix*
3 *coturnix*), corncrake (*Crex crex*), black grouse (*Tetrao tetrix*) and ptarmigan (*Lagopus mutus*
4 - p.16). The chough appears to be mentioned under two separate names ('*Cornix*; the
5 chough'... '*Coracias*, the Cornwall kae' (*Pyrrhocorax pyrrhocorax*) p.15). This suggests it
6 was not familiar to Sibbald, but he does record a contemporary belief about the species: 'The
7 frequent croaking of choughs foretells rain' (p.15) suggesting that at least one of his
8 informants lived alongside the bird. He also describes the dotterel (*Charadrius morinellus* -
9 'common in Berwickshire' (p.19)) and possibly the yellowhammer (*Emberiza citrinella* -
10 p.18). The dotterel is now confined to upland regions in Scotland, especially the Grampians
11 and north-west Highland area. In the past it was a common migrant in the Scottish Borders
12 region. It was extirpated from the area due to over-exploitation for food in the mid-nineteenth
13 century, a fact sadly anticipated in Sibbald: 'It is in demand as food because of its pre-
14 eminent taste' (p.19). The barn owl is included as the 'white owl or church owl' (*Tyto alba* -
15 p.15).⁶¹

16 The UK's only endemic bird, the Scottish crossbill (*Loxia scotica*), may be
17 referenced, '*Loxia*, or *curvirostra*; with a beak curved from both ends, the cross-bill. Its use is
18 praised by those suffering from kidney stones and those suffering from swollen joints' (p.18),
19 although this may alternatively be a reference to the common crossbill (*Loxia curvirostra*)
20 which is also found in Scotland. We also find the Manx shearwater (*Puffinus puffinus*), which
21 Sibbald calls '*Puffinus Anglorum*... common on the shores of Galloway'. This is
22 distinguished from the puffin (Sibbald's '*Anas arctica of Clusius*', modern *Fratercula*
23 *arctica*). Other rare species described are also drawn for the Plates including the redwing
24 (*Turdus iliacus* - p.17, Fig. 2); the gannet (*Morus bassanus*), described in depth (p.20); the
25 curlew (*Numenius arquata* - p.18). Sibbald indicates that the great northern diver (*Gavia*
26 *immer*) was found in Inchkeith, but also gives this bird the name *Stellatus*, which indicates he
27 might have confused it with the red-throated diver (our *Gavia stellata*). *Scotia Illustrata* also
28 gives two very detailed accounts of the barnacle goose (*Branta leucopsis* - p.20; 36-7),
29 especially criticising the medieval idea that this species is spontaneously generated from
30 marine barnacles.⁶² Sibbald also mentions some vagrants including the spoonbill (*Platalea*
31 *leucorodia* - p.18) and possibly the smew (*Mergellus albellus* - p.22), the crested lark
32 (*Galerida cristata*) and wood lark (*Lullula arborea* - p.17).⁶³

1 Finally, *Scotia Illustrata* distinguishes some species which have since become more
2 common. Among others Sibbald distinguishes the great black-backed gull (*Larus marinus*),
3 the herring gull (*Larus argentatus*), the common gull (*Larus canus*) and the black-headed gull
4 (*Larus ridibundus* - p.20), the last two of which were confused by Sibbald. The gulls only
5 moved inland in the early twentieth century, so these would have been purely coastal species
6 in Sibbald's time.⁶⁴

7 **[INSERT figs 1,2 HERE]**

8 FISH

9 Sibbald was especially excited about Scotland's freshwater fish and cetaceans for their
10 potential economic value. He incorporates lengthy quotations from Schwenckfelt's *Therio-*
11 *Tropheum Silesiae* about the taste of some freshwater-caught fish (e.g. salmon (*Salmo salar*),
12 sturgeon (*Acipenser sturio*), eel (*Anguilla anguilla*), trout (*Salmo trutta*), pike (*Esox lucius*);
13 pp.24-5). Salmon in particular are spoken of as though very common: 'such a great number
14 are captured in our rivers that they may be considered a revenue' (p.24).

15 Marine fishes are included in *Scotia Illustrata*, but unlike the river- and loch-caught
16 fish, no comment is made about their taste, with the exception of the herring (*Clupea*
17 *harengus* - p.23), perch (*Perca fluviatilis* - p.24) and sole (*Solea solea* - p.24). Cod (*Gadus*
18 *morhua*) seems to have been intensively fished by British people by the time Sibbald wrote,
19 but is only mentioned with no description here,⁶⁶ and the reference to tuna (*Thunnus*
20 *thynnus*), haddock (*Melanogrammus aeglefinus*) and cod alongside whiting (*Merlangius*
21 *merlangus*), pollock (*Pollachius pollachius*), saithe (*Pollachius virens*), and ling (*Molva*
22 *molva* - p.23) in Scottish marine waters, suggests the fishing had not yet had an impact on
23 these species' local abundance, as Parker has suggested.⁶⁷

24 Sibbald also describes several in-shore species like conger eel (*Conger conger*),
25 eelpout (*Zoarces viviparus*) and sand eel (*Ammodytes tobianus*). *Scotia Illustrata* even
26 includes some species of fish which were less common in the seventeenth century. In Britain,
27 the European vendace (*Coregonus albula*) is only known to have survived from the last
28 glacial period in four lakes, and was formerly believed to have become a separate species
29 based on its long isolation.⁶⁸ Sibbald provides the first British reference to this fish: 'A fish in
30 Lochmaben; *Vandesius*' (p.26). Similarly, Sibbald also (badly) describes the powan
31 (*Coregonus lavaretus*): 'Poana; a species of eel in Loch Lomond' (p.26). The powan is not a
32 kind of eel, but the population at Loch Lomond remains important as the species has only

1 seven native populations in Britain and only two in Scotland.⁶⁹ Sibbald's inclusion of the
2 sturgeon (*Acipenser sturio*) here (p.25), as mentioned above, suggests it was still common in
3 seventeenth- century Scotland, although most of its description is paraphrased from
4 Schwenckfeld.⁷⁰

5 Some of the fish described in *Scotia Illustrata* defy easy identification. For example,
6 Sibbald distinguishes four species of *Acus* (needle-fish). As suggested in Adamson two of
7 these species are probably those still called needlefish today: the garfish (*Belone belone*) and
8 short-beaked garfish (*Belone svetovidovi*), until recently believed to be a single species.⁷¹ One
9 of the others is almost certainly the snake pipefish (*Entelurus aequoreus*), based on the
10 length, and the lack of tail-frill in both text and the image Sibbald provides (Fig. 3).

11 Most dubiously, Sibbald includes three fish which are not usually thought to be found
12 in Scotland. I have classed these as uncertain identifications. These include the bream
13 (*Abramis brama*), which is usually associated with southern waters, and the tentative
14 identification of the bleak (*Alburnus alburnus* - p.25), which is believed to have been
15 confined to south east England.⁷² Sibbald also indicates that '*Silurus*, or *Glanis*' (seemingly
16 referring to the wels catfish (*Silurus glanis*) – p.25) is established in Scottish rivers on the
17 authority of Blaeu's *Atlas Novus*, vol. 5.⁷³ This reference points to part of the 'New
18 Description of Shetland' which discusses marine fishes found around the island:

19 The fish, which abound here are: the white fish or calariae, big and small, the goby,
20 the sturgeon, the mackerel, the sword fish, the ray, the turbot, the herring, the smallest
21 catfish, the bigger catfish, the biggest catfish, the conger eel, the sole, and molluscs...
22 ⁷⁴

23 The fish intended by Blaeu when referring to the various catfish are uncertain, but
24 Sibbald's identification of the fish as a wels catfish is impossible because the wels catfish is a
25 freshwater species, and, as far as we know, was first introduced to Britain in the nineteenth
26 century. Sibbald's citation here is therefore of no value. On the other hand, Sibbald does
27 include the wels catfish in the freshwater section of *Scotia Illustrata*, suggesting his
28 knowledge of the species is not limited to this misunderstanding of *Atlas Novus*. Fleming
29 takes Sibbald's dubious suggestion at face value and posits the wels catfish as an early
30 extirpated native species. Lever's suggestion that Sibbald might have been referring to the
31 burbot or sturgeon here is possible, but I am not aware of any other evidence that the burbot
32 was ever native to Scotland, and Sibbald describes the sturgeon elsewhere (p.25).⁷⁵

1 *Atlas Novus* is presumably also one source of Sibbald's idea that 'Xiphias, or Gladius;
2 the sword-fish' (*Xiphias gladius*) is native to the Scottish coast-lines (p.23). Since Sibbald
3 does not cite Blaeu here, he may also be basing his statement on additional sources.
4 Swordfish are occasionally found by fishers in the eastern Atlantic including around
5 Britain.⁷⁶ This is therefore a more plausible reference.

6 Some of the fish populations referred to by *Scotia Illustrata* have declined since
7 Sibbald's time. For example, Sibbald distinguishes twelve cartilaginous fishes as found in
8 Scottish coastal waters (p.23-4): of which eight can be identified to species level: the
9 common stingray (*Dasyatis pastinaca* - data deficient), the thornback ray (*Raja clavate* - least
10 concern), the skate (*Dipturus* sp. - critically endangered), the angel shark (*Squatina squatina* -
11 critically endangered, extinct in North Sea), the lumpsucker (*Cyclopterus lumpus* - near
12 threatened), the angler fish (*Lophius piscatorius* - least concern), and the sunfish (*Mola mola*
13 - vulnerable). With the exception of the skate, the angler fish and the thornback ray,⁷⁷ all
14 these fish are frequently caught accidentally, as by-catch and are in decline. Their inclusion in
15 *Scotia Illustrata* as ordinary residents of Scotland's marine landscape suggests they were
16 formerly more common.

17 **[INSERT fig 3 HERE]**

18 INVERTEBRATES

19 *Scotia Illustrata* considers most of its invertebrates under 'Insects', although some, like the
20 squid are included as fish, and others are included elsewhere (e.g. the anemone is in the very
21 short 'Zoophytes' section – p.28). Even within the 'Insects' we find a wide range: aquatic and
22 terrestrial species, and several classes besides what we would call insects today (e.g.
23 molluscs, echinoderms, cnidarians). It is possible to securely identify only 17 of the 67
24 creatures identified by Sibbald to species level.

25 Just like with the fish and birds, Sibbald is especially interested in Scotland's
26 invertebrates for their utilitarian value. For example, *Scotia Illustrata* refers to the ink of the
27 cuttlefish (*Sepia officinalis* - this animal gives its name to the ink colour sepia), and also its
28 bone which was used by goldsmiths (p.26). Sibbald devotes three quarters of a page to the
29 use of beeswax, glue and honey (pp.29-30), and also passages to the medicinal uses of the
30 stone supposedly carried in the head of the leopard slug (*Limax maximus* - p.33), and the
31 epiphragm of the common garden snail (*Cornu aspersum* - p.34) among others.

1 Sibbald's gastropods can be identified as familiar species in some cases. Among these
2 the most secure are the common garden snail and the black arion (*Arion ater*). Despite
3 quoting from Lister's list of species in *Historiae Animalium Angliae* (1678), Sibbald
4 occasionally departs from Lister and invents several species names using a long description,
5 which follows the tradition of Lister, without using his names. This makes the species names
6 here some of the longest in the book, and at times it is difficult to distinguish name from
7 description, for example: '*Cochlea terrestris minor concha lineis nigris, fuscis & albis*
8 *tenuibus distincta*' (the smaller terrestrial gastropod with thin black, brown and white lines on
9 its distinctive shell – p.34). This is a fair description of the banded snails, modern *Cepaea*
10 *nemoralis* and *Cepaea hortensis*. With the species which are not given Lister's names, I have
11 only been able to identify the more common species, but a Scottish conchologist may be able
12 to identify some of the rarer species which Sibbald gives here by the description. Sibbald also
13 quotes from Lister's spiders in this section (p.32), but the names he gives are all at genus or
14 family level, and therefore not useful for identifying animals to species level.⁷⁸

15 The molluscs described in the fish section are generally more exactly described and
16 named, especially those which are caught and collected by humans. These include most
17 obviously the edible crab (*Cancer pagurus*), shore crab (*Carcinus maenas*), hermit crab
18 (*Pagurus bernhardus*) among other unidentifiable crabs; crayfish (*Austropotamobius*
19 *pallipes*), brown shrimp (*Crangon crangon*), pearl oyster (*Margaritifera margaritifera*), and
20 dog whelk (*Nucella lapillus* - pp.26-28). This last is the most difficult of the species to
21 identify. It is only included among the 'Fishes of Uncertain Class'. Sibbald calls it the
22 *Purpura* on the authority of Boece. This name usually refers to the Mediterranean species
23 which produces purple dye – *Purpura persica*, but since this species would not survive in
24 British waters, this reference is more probably to the dog whelk, which also produces purple
25 dye, and which Lister calls the *Purpura*⁷⁹

26 Perhaps the most important species reference which Sibbald gives here is to the great
27 capricorn beetle (*Cerambyx cerdo* - p.31; Fig. 4) '*Capricornus*; the goat-chaffer. Its picture is
28 held in the plates'. This species is also discussed by Lister and Oldenberg, and it is known to
29 have been present earlier in the Holocene, and occasional specimens (accidentally shipped in
30 timber?) are still found and sighted. But the illustration in *Scotia Illustrata* (Fig. 4) does not
31 resemble a great capricorn beetle because of the length of the antennae (double the size of the
32 beetle's body) and the way the abdomen protrudes beyond the wing casings. This is also the
33 only long-horned beetle included. This means, comparing the illustration, that Sibbald may

1 be referring to other more common long-horned beetles, as for example the house longhorn
2 (*Hylotrupes bajulus*) or even the timberman (*Acanthocinus aedilis*).⁸⁰

3 The description of the house cricket (*Acheta domesticus*) in *Scotia Illustrata* is
4 actually contained in the Appendix to the book (p.37). The reference is provided by
5 Archibald [Stephenson], who was the first person to whom *Scotia Illustrata* was dedicated,
6 and Sibbald's predecessor in the post of President of the Royal College of Physicians of
7 Edinburgh. Archibald's additions are generally less useful than the rest of Sibbald's work,
8 since he usually only gives a vernacular name, and some of the species he lists were already
9 present in *Scotia Illustrata* just under a Latin name or different vernacular name (e.g. slow
10 worm (*Anguis fragilis*), squirrel (*Sciurus vulgaris*)). The house cricket is an exception and
11 was not in Sibbald's original text. This is the first reference to the species from Britain, and
12 provides a *terminus ante quem* for its introduction. The species is confirmed to be present in
13 Britain a century later in Gilbert White's *Natural History of Selborne*.⁸¹ The mole cricket
14 (*Gryllotalpa gryllotalpa*) is mentioned in the main part of the text, and is also important given
15 its current rarity in the country.

16 Sibbald also describes some less well-known invertebrates such as the sea mouse
17 (*Aphrodita aculeate*) and common sunstar (*Crossaster papposus* - p.26). Likewise, *Scotia*
18 *Illustrata* adds a reference to a species of squid (*Loligo vulgaris?*): 'The squid is called the
19 hose-fish by our people after the trap which it is caught in, apart from its dark ink, it also has
20 a purple juice' (p.26). The squid is not normally thought of as a species found around
21 Scotland, although some squid, like the veined squid, hatch in the English Channel.⁸² Finally,
22 *Scotia Illustrata* also describes the horse leech (*Haemopsis sanguisuga* - p.34), but does not
23 describe the medicinal leech (*Hirundo medicinalis*). Could this species already have been
24 locally absent in the seventeenth century, a century before it is said to have declined in
25 England?⁸³ It seems unlikely, but Sibbald was a royal physician, and his lack of reference to a
26 species with such important medical utility is otherwise hard to explain.

27 **[INSERT fig. 4 HERE]**

28

29 Overall, the data explored here offers some points of interest for modern
30 conservationists. Most importantly, the great auk, bustard, right whale, angel shark, and
31 possibly lynx and great capricorn beetle are attested in 1684 but are not ordinarily found in
32 Scotland today (the bustard has been reintroduced at low levels on Salisbury Plain in
33 England). The angel shark and lynx are the most likely future candidates for reintroduction.

1 The crane, capercaillie, osprey, red kite, goshawk and white-tailed eagle also all went extinct,
2 but have begun to recolonise naturally or have been reintroduced already. The wolf, bear and
3 probably the beaver went locally extinct before Sibbald's time, meaning that they were not
4 driven to extinction by the environmental impacts of industrialisation. Their extirpation was
5 due to direct persecution, and was, in the case of the wolf at least, intentional.⁸⁵ Most
6 intriguingly, the grass snake is listed as a resident by *Scotia Illustrata*, but today its native
7 status is questioned. *Scotia Illustrata* also provides a *terminus ante quem* for the introduction
8 of species including the importation of garden tortoises, pheasants, peacocks, and the
9 (presumably accidental) introduction of the house cricket.

APPENDIX – THE DATASET

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The project to translate *Scotia Illustrata* is, at the time of writing, on hold due to lack of funding, but an interim translation of the part of the text describing Scotland’s wildlife (*Scotia Illustrata* II:3) has been published as *Animals of Scotland* and that will have identifications added to the text.⁸⁶ The dataset given here is a list of every identifiable species from this text, divided into domesticated species, amphibians, reptiles, mammals, birds, fish and invertebrates. The dataset gives (as far as possible) species-level identifications of the fauna Sibbald identified as living in Scotland. The ‘Identified by Linnaeus’ column indicates where the name Sibbald uses for each species was either adopted by Linnaeus, or where Linnaeus lists the name as an accepted alternative – in either of these cases, the identification of species is more secure. I also have a column to indicate whether the name in Sibbald has been previously identified – either in Mullens’ translation, in Adamson’s notes on Sibbald’s *History of Fife & Kinross*, or in the *Dictionary of the Scottish Language* (DSL). The criteria for an identification to be labelled as ‘Secure’ are described in the article above.⁹¹

The dataset can be accessed online:

LINK TO DATASET GOES HERE

NOTES

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- 1 Pennie, *op. cit.*
- 2 Adamson, *op. cit.*
- 3 Examples of the most influential uses of Sibbald include: James Edmund Harting,
4 *British animals extinct within historic times: with some account of British wild white*
5 *cattle* (Trübner and Company, Boston, 1880), p. 40; John Henry Gurney, *Early annals*
6 *of ornithology* (H. F. and G. Witherby, London, 1921), p. 105; James Ritchie, *The*
7 *influence of man on animal life in Scotland* (Cambridge University Press, 1920), p. 142;
8 Derek Yalden, *The history of British mammals* (T & A. D. Poyser Natural History,
9 Cambridge, 1999), p. 168. Some of these authors could only gain access to Sibbald via
10 the examples provided by other commentators.
- 11 Forbes W Robertson, ‘James Sutherland’s ‘Hortus Medicus Edinburgensis’(1683)’,
12 *Garden History* **29**, 121–51 (2001).
- 13 Roger L Emerson’, ‘Sir Robert Sibbald, Kt, the Royal Society of Scotland and the
14 Origins of the Scottish Enlightenment’, *Annals of Science* **45**, 41–72 (1988); Charles W.
15 J. Withers, ‘Sibbald, Sir Robert (1641-1722)’, *Oxford Dictionary of National*
16 *Biography*, 2006, <http://www.oxforddnb.com/view/article/25496> accessed: 7th Dec
17 2017.; A. D. C. Simpson, ‘Sir Robert Sibbald: the founder of the College’, in Passmore,
18 R. (ed.) *Proceedings of the Royal College of Physicians of Edinburgh Tercentenary*
19 *Congress 1981*. The Royal College of Physicians of Edinburgh, Edinburgh, pp. 59–91.
- 20 For example see: I. D. Pennie, ‘Scottish Ornithologists. I. Sir Robert Sibbald 1641-
21 1722’. *Scot. Birds* **3**, 159–66 (1964); W. H. Mullens, ‘Robert Sibbald and his
22 Prodrromus’, *British Birds* **6**, 34–57 (1912); *op. cit.* Withers, ‘Sibbald, Sir Robert (1641-
23 1722)’ *op. cit.*; Harold R. Fletcher and William H. Brown, *The Royal Botanic Garden*
24 *Edinburgh 1670-1970* (Her Majesty’s Stationary Office, Edinburgh, 1970). Notable
25 exceptions are: Emerson, *op. cit.*; Charles W. J. Withers, ‘Geography, science and
26 national identity in early modern Britain: the case of Scotland and the work of Sir
27 Robert Sibbald (1641–1722)’, *Annals of Science* **53**, 29–73 (1996). Charles W. J.
28 Withers, *Geography, science and national identity: Scotland since 1520* (Cambridge
29 University Press, 2001), pp. 71-72.
- 30 Archibald Pitcairne, *Dissertatio de Legibus Historiae Naturalis* (Joannis Reid,
31 Edinburgh, 1696); James Walkinshaw, *A Letter from James Walkinshaw to Sir Robert*

1 Sibbald pers. correspondence (London, 1709); ‘An account of a book’, *Philosophical*
2 *Transactions of the Royal Society of London* **14**, 795-798 (1684),
3 doi:10.1098/rstl.1684.0075; Sibbald’s text was sought after by readers. See for
4 example: John Edgington, ‘Natural history books in the library of Dr Richard
5 Richardson’, *Archives of Natural History* **43**, 57-75 (2016), at p. 62; Mullens, *op. cit.*,
6 35; Pennie, *op. cit.*, p. 163; David Irving, *Lives of Scottish writers, vol. 2* (Adam and
7 Charles Black, Edinburgh, 1839), pp. 200–205; Simpson, *op. cit.*

8 8 Withers, ‘Sibbald, Sir Robert (1641-1722)’ *op. cit.*; Emerson, *op. cit.*; Charles W. J.
9 Withers, ‘How Scotland came to know itself: Geography, national identity and the
10 making of a nation, 1680–1790’, *op.cit.* (1995); Joseph Robertson, *Collections for a*
11 *history of the shires of Aberdeen and Banff* (The Spalding Club, Aberdeen, 1843), pp.
12 94–97, 416–418.

13 9 R. Sibbald, ‘Part of a Letter from Robert Sibbald, Knight, to Dr Hans Sloane, R. S.
14 Secr. Concerning a Second Volume of His Prodrumus Historiae Naturalis Scotiae; With
15 a Description of the Pediculus Caeti, Etc.’, *Philosophical Transactions of the Royal*
16 *Society of London* **25**, 2314–2317(1706): doi:10.1098/rstl.1706.0026; R. Sibbald, ‘A
17 Letter from Sir Robert Sibbald to Dr. Martin Lister Coll. Med. Lond. & S. R. S.
18 Containing an Account of Several Shells Observed by Him in Scotland’, *Philosophical*
19 *Transactions of the Royal Society of London* **19**, 321–325 (1695),
20 doi:10.1098/rstl.1695.0052; John Nichols (ed.), *Letters on various subjects, literary,*
21 *political, and ecclesiastical, to and from William Nicolson, D.D, vol. 1* (*supply
22 publisher*, London, 1809), pp. 339–340, no. 136. John Ray, *Synopsis Methodica,*
23 *Volume 2: Piscium* (W. Innys, London, 1713), pp. 13-15. Charles E. Raven, *John Ray:*
24 *naturalist: his life and works*, 1950 ed. (Cambridge University Press, 1942), p. 366.

25 10 Robert Boyle, *General Heads for the Natural History of a Country, Great Or Small:*
26 *Drawn Out for the Use of Travellers and Navigators* (*supply publisher*, London,
27 1666). Robert Boyle, ‘General Heads for a Natural History of a Country, Great or
28 Small, Imparted Likewise by Mr. Boyle’, *Philosophical Transactions of the Royal*
29 *Society of London* **1**, 186–189 (1665); Richard Yeo, ‘Loose notes and capacious
30 memory: Robert Boyle’s note-taking and its rationale’, *Intellectual History Review* **20**,
31 335–354 (2010); Richard Yeo, *Notebooks, English virtuosi, and early modern science*
32 (University of Chicago Press, 2014), p. 164. Boyle’s method of taking copious notes
33 and keeping them on loose pieces of paper rather than binding them in books reminds

1 us that Baconian natural historians were often interested in gathering data rather than
2 informing a particular subject.

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20 grains, herbs (garden and wild) flowers, fruit-trees, timber-trees (especially any trees,
21 whose wood is considerable) coppices, groves, woods, forests, etc. the country has or
22 wants ... What animals the country has or wants, both as to wild beasts, hawks, and
23 other birds of prey; and as to poultry and cattle of all sorts, and particularly, whether it
24 have any animals that are not common, or any thing, that is peculiar in those, that are
25 so.' Boyle, *op. cit* (note *), pp. 188–189). This represents one of the earliest
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16 the twenty-first. The most well-known examples of foraged food are game-birds,
17 although Sibbald goes further and suggests that all birds (not just game birds) could be
18 and were regularly eaten (*Provision for the poor...* p.18). Wild leafy vegetables were
19 also regularly foraged. John Evelyn describes a leafy-green plant called Jack-by-the-
20 Hedge which is 'eaten as other Sallets, especially by Country People, growing wild
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31

32

FIGURE CAPTIONS

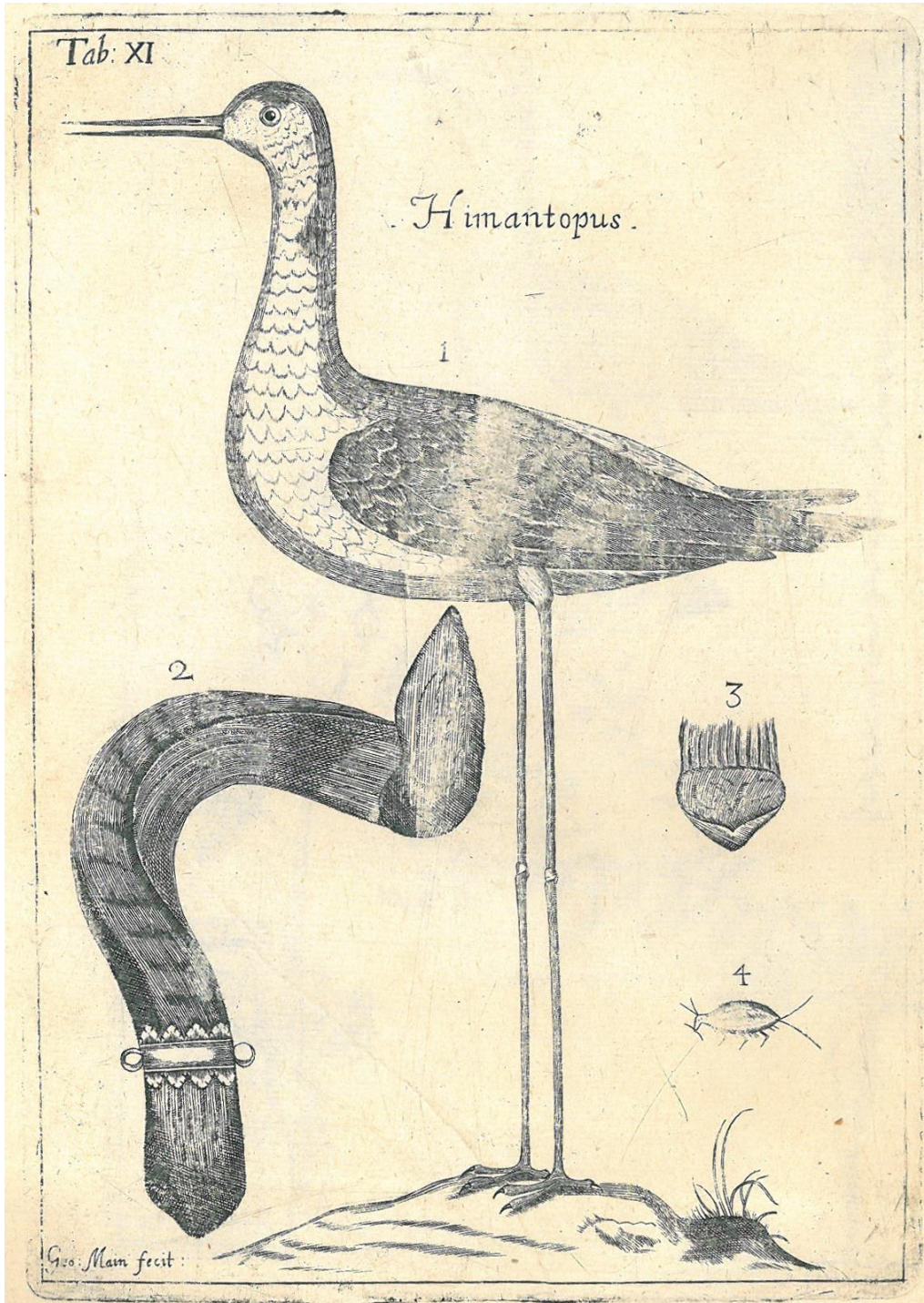
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2

All figures were scanned from a copy of Robert Sibbald's *Scotia Illustrata* (1684) in the

3

author's possession:

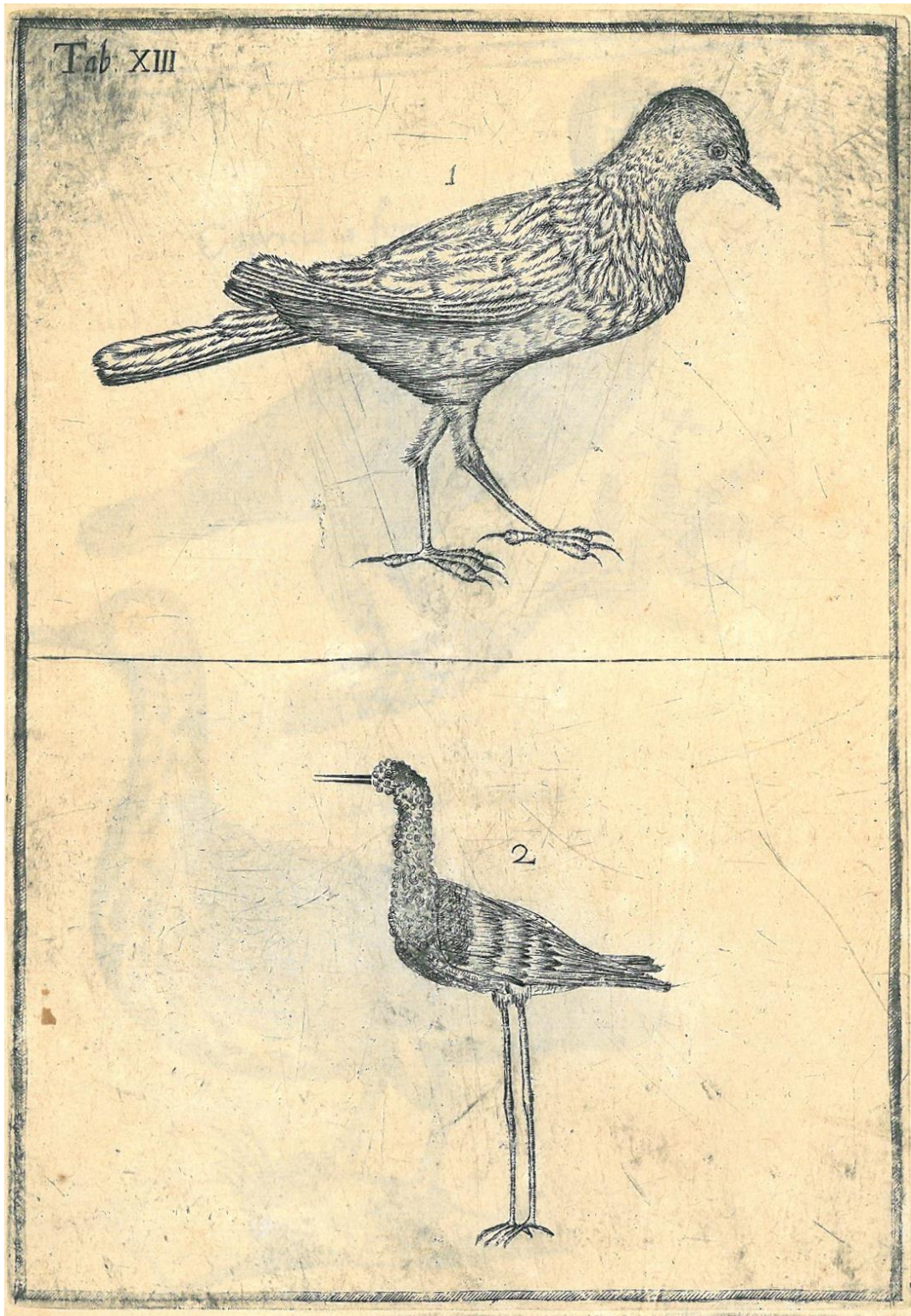


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5

Fig. 1 shows the black-winged stilt, a piece of horn, and a mite.

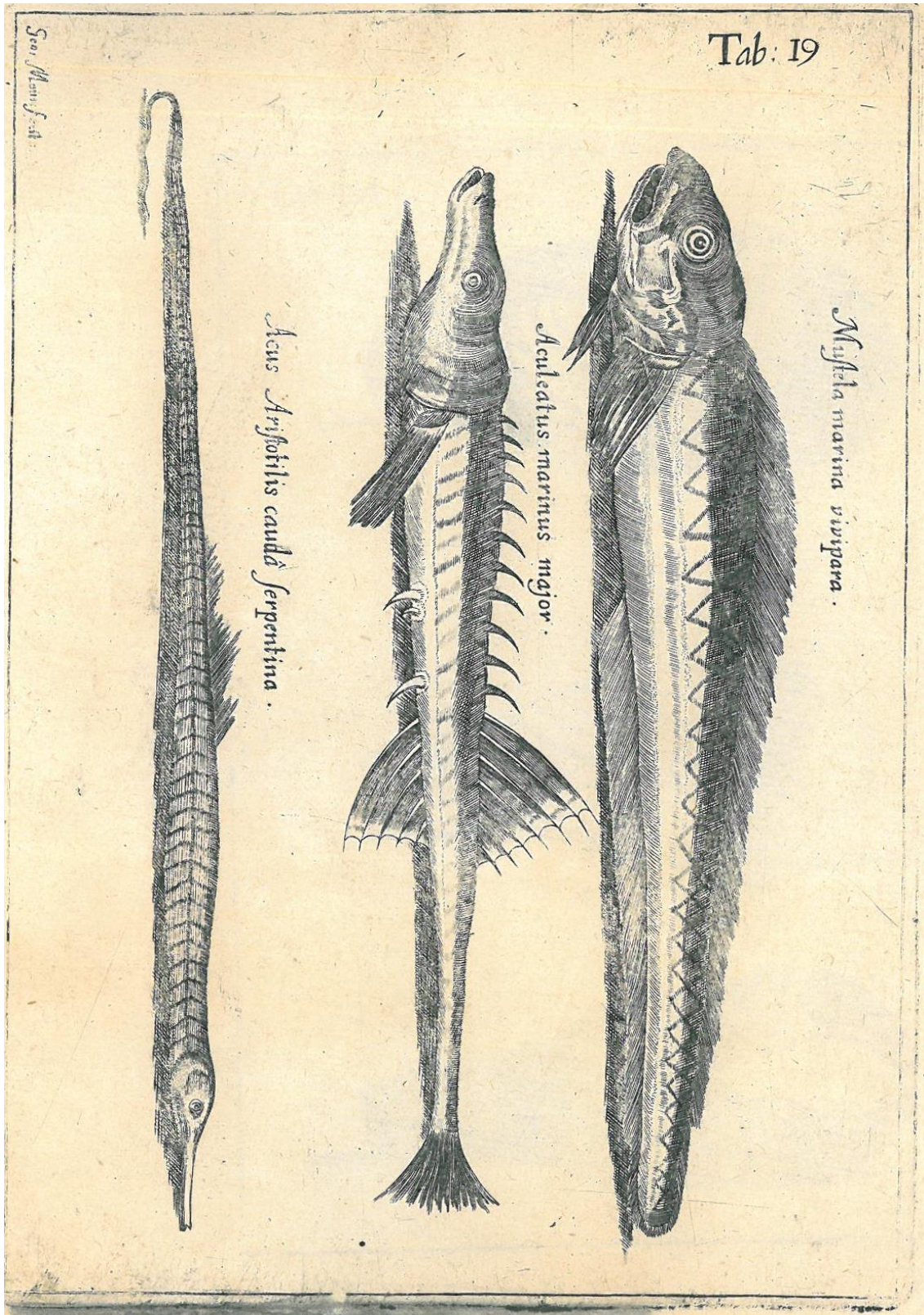
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1

2 Fig. 2 shows the redwing and the black-winged stilt.

3



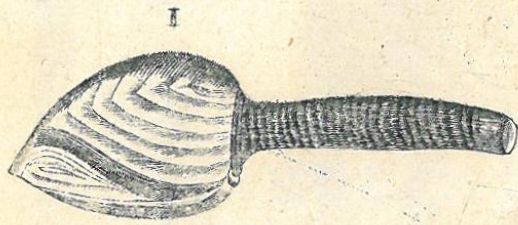
1

2 Fig. 3 shows the eelpout, the fifteen-spined stickleback and the snake pipefish.

3

Tab: 18

Capricorca mas



1

2 Fig. 4 shows a capercaillie, what Sibbald calls the 'capricorn beetle' (actually possibly
3 another long-horned beetle), and the goose-neck barnacle.