

## The identity of the enigmatic “Black Shrew” (*Sorex niger* Ord, 1815)

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*Abstract.*—The scientific name *Sorex niger* Ord, 1815 (Mammalia, Soricidae) was originally applied to a North American species that George Ord called the “Black Shrew.” The origin of the name “Black Shrew,” however, was obscure, and Samuel Rhoads subsequently wrote that the species represented by this name could not be determined. The names *Sorex niger* Ord and Black Shrew have since been mostly forgotten. Two of Ord’s contemporaries, however, noted that Ord’s use of these names probably alluded to Benjamin Smith Barton’s Black Shrew, whose discovery near Philadelphia was announced by Barton in 1806. Examination of two unpublished illustrations of the Black Shrew made by Barton indicates that the animal depicted is *Blarina brevicauda* (Say, 1822). Had the connection between Ord’s and Barton’s names been made more clearly, one of the most common mammals in eastern North America would bear a different scientific name today. This connection also would have affected the validity of *Sorex niger* Horsfield, 1851. While *Sorex niger* Ord remains a nomen nudum, the animal it referenced can now be identified.

**Keywords:** Eulipotyphla, *Guthrie’s Geography*, nomenclature, Soricidae, Soricomorpha, *Suncus montanus*, taxonomy, Zoology of North America

As part of my continuing study of the taxonomy and systematics of American shrews (Mammalia, Soricidae), I undertook to determine the nature and status of the holotypes of two of the earliest species of shrews originally documented by preserved specimens from North America—*Sorex brevicaudus* Say, 1822 (= *Blarina brevicauda*) and *Sorex parvus* Say, 1822 (= *Cryptotis parvus*)—and to correct bibliographic information associated with the publication of these names (Woodman 2009, 2010). During that work, I came across several enigmatic references to the “Black Shrew,” the basis for which was potentially relevant to the systematic status of *Sorex brevicaudus*, but “Black Shrew” is not a name that clearly corresponds to any species of North American soricid recognized today. As I document

herein, the Black Shrew was described by one natural historian (Barton 1806) and provided with a scientific name—*Sorex niger* Ord (1815)—by another, but the two names were insufficiently linked for subsequent generations of biologists to appreciate their connection, and both names fell out of use. Had the relationships between the two names been more clearly expressed in print, one of the most common small mammals in eastern North America—the Northern Short-tailed Shrew, *Blarina brevicauda*—would have a different scientific name today. By examining the short history of the Black Shrew and providing a connection between the name and the living animal, this paper makes sense of the confusion surrounding the Black Shrew.

## Materials and Methods

Archives and printed collections of materials used for this study are under the care of the Joseph F. Cullman 3rd Library of Natural History, National Museum of Natural History, Washington, D.C.; the Dibner Library of the History of Science and Technology, National Museum of American History, Washington, D.C.; the Special Collections Research Center, Georgetown University Library, Washington, D.C.; the American Philosophical Society Library, Philadelphia, Pennsylvania; and the Library Company of Philadelphia, Pennsylvania.

### Ord's (1815) *Zoology of North America* and the Black Shrew

The first systematic accounting of the terrestrial vertebrates of North America by an American natural historian was published anonymously in 1815 by the Philadelphia naturalist George Ord (b. 1781, d.1866) in the second volume of what is generally, but incorrectly, referenced as the second American edition of "*Guthrie's Geography*" (Guthrie 1815). Ord's (1815) contribution, entitled "Zoology of North America," consists in part of three systematic listings of 816 animals he recognized, organized into three taxonomic classes: 170 mammals, 572 birds, and 74 amphibians and reptiles (both groups under "Class *Amphibia*"). Although the species inventories were compiled from a variety of other systematic works, primarily Turton (1806), they also included new material, such as animals described in the official account of Lewis and Clark's expedition through the Louisiana Territory (Lewis et al. 1814). In a section following each list, Ord presented short descriptions and natural history accounts for selected species, many of which are quoted directly from Lewis et al. (1814), Pennant (1784–1785), Wilson (1808–1814),

and other printed works. Ord also provided one short paragraph each for fish and insects, "noting a few of the most interesting species." He did not, however, provide comprehensive systematic lists for these two taxa, because, "the latter is of course impossible, and a list of the fish would not be sufficiently interesting to compensate for the room it would occupy" (Ord 1815:360). Most of Ord's "Zoology of North America" was reprinted in the last American edition of *Guthrie's Geography* (Guthrie 1820), although that work lacks the three lists of vertebrate species, rendering it of limited taxonomic value.

Each species listed in the 1815 "Zoology of North America" is represented by a common name followed by a scientific name. While Ord compiled most of the scientific names from other sources, he also coined a number of unique combinations (Baird 1857, Rhoads 1894b). Among his new mammal names, for example, are such iconic North American species as the Pronghorn, *Antilope Americanus* Ord, 1815 (= *Antilocapra americana*); Black-tailed Prairie Dog, *Arctomys Ludoviciana* Ord, 1815 (= *Cynomys ludovicianus*); and Meadow Vole, *Mus Pennsylvania* Ord, 1815 (= *Microtus pennsylvanicus*). Samuel N. Rhoads (1894a, b) recognized the taxonomic importance of Ord's (1815) contribution, and, citing the scarcity of original copies of the 1815 edition of *Guthrie's Geography*, he reprinted the "Zoology of North America" based on Ord's personal annotated copy (Rhoads 1894b). He added an introduction as well as an appendix in which he provided critical commentary and elaborated on the identities and synonymies of the animals Ord listed. In a paper in *The American Naturalist*, Rhoads (1894a) summarized the proposed taxonomic changes for mammals based on his study of Ord (1815). Unfortunately, Rhoads (1894b) consistently referred to Ord's "Zoology of North America" as the "North American Zoology," thereby confusing genera-

tions of taxonomists regarding the real title of Ord's work, which appears on page 291 of both the original and the reprinted editions (Ord 1815, Rhoads 1894b).

One of the mammals listed in "Zoology of North America" is the "Black Shrew," to which Ord (1815:291) gave the scientific name *Sorex niger*. No further reference, footnote, description, or other explanation accompanies this name, and Ord (1815) did not mention this animal in the natural history section that follows the list. Subsequent to Ord's (1815) "Zoology of North America," there are only three explicit references to the Black Shrew and *S. niger* Ord in the systematic literature, after which these names disappear. The first two occur in James's (1822) *Account of an Expedition from Pittsburgh to the Rocky Mountains* and Godman's (1826) *American Natural History*. In both cases, the Black Shrew is briefly mentioned in a description of *Sorex brevicaudus* Say, 1822, which is tentatively compared to the Black Shrew. Neither Harlan (1825) nor Bachman (1837) nor Baird (1857) took any notice of the Black Shrew. The third, and last, reference is Rhoads's (1894b) annotated reprinting of "Zoology of North America." Apparently unaware of the earlier mentions in Barton (1806), James (1822), and Godman (1826), Rhoads (1894b: appendix, p. 15) was unable to determine the origin of the name "Black Shrew," although he speculated that Ord was referring to a pre-Linnean description of an Eastern Mole (*Scalopus aquaticus*) or a Star-nosed Mole (*Condylura cristata*):

**"Black Shrew, *Sorex niger*."** Not mentioned in Turton nor in Pennant, nor elsewhere that I can find, unless it refers to the "*Talpa Virginianus niger supinus*" of Seba (Thes., II, p. 51) quoted in the synonymy of *Scalops* ("*Sorex*") *aquaticus* of earlier authors, and which originated, perhaps, in a specimen of *Condylura cristata*.

Although the lack of any reference to the Black Shrew and *S. niger* Ord from 1826 to 1894 suggests that the name had already been disregarded, Rhoads' inability

to trace the source of the name effectively determined the nomenclatural fate of *Sorex niger*, and the Black Shrew was subsequently forgotten. There the matter rested, even after information regarding the origin of the name and the identity of the species resurfaced (Woodman 2009). In fact, early nineteenth century Philadelphia naturalists probably knew exactly to what Ord (1815) was referring. Had Ord clarified his reference or provided his own description of the Black Shrew, his *Sorex niger* would be in common use today.

### Barton's Black Shrew

After returning to Philadelphia, some primary participants in the 1819–1820 Stephen H. Long Expedition to the Rocky Mountains met to compile a comprehensive narrative of their journey for publication. Within the two volumes they eventually published (James 1822), 54 new species of animals and fossil organisms that had been discovered during the expedition were formally named and described by the Philadelphia naturalist Thomas Say (b. 1787, d. 1834), either in footnotes or in a combination of text and footnotes (Woodman 2010). These accounts include the descriptions of two new species of shrews—*Sorex brevicaudus* and *Sorex parvus*—from Engineer Cantonment along the Missouri River in modern Nebraska. Say's report of the discovery of these two shrews was important at the time because it doubled (Harlan 1825) or tripled (Godman 1826) the number of documented species of North American soricids. Within his description of the Short-tailed Shrew, *Sorex brevicaudus*, Say (1822:164, footnote) wrote:

May not this be the animal mentioned by the late professor Barton in his Medical and Physical Journal, for March 1816 [sic], which, he says, 'may be called the black shrew?' I do not know that the black shrew has ever received any further

notice, unless it is the same species to which Mr. Ord has applied the name of *Sorex niger*.

Four years later, Godman (1826:80) reiterated the connection between *S. brevicaudus* and Barton's Black Shrew in his *American Natural History*, stating,

Mr. Say inclines to the opinion that this is the same species as that mentioned by Barton as "the black shrew."

The report to which Say (1822) was referring consists in its entirety of five lines of text written by Benjamin Smith Barton (b. 1766, d. 1815) and published in the March 1806 issue of his *First Supplement to the Philadelphia Medical and Physical Journal* (Barton 1806:67):

A new species of *Sorex* has been discovered in the vicinity of Philadelphia. It may be called the Black Shrew, and, like some of the other species of the genus, emits an extremely fetid odour from its body.

By itself, this brief description appears to do little to clarify the identity of the animal that Barton called the Black Shrew. Combined with what is now known about soricids from this region, however, Barton's account provides some compelling clues.

Currently, five species of shrews are known to occur in the "vicinity of Philadelphia," defined herein as Philadelphia County and adjacent portions of Chester, Delaware, and Montgomery Counties, Pennsylvania, and of Camden County, New Jersey (Roberts & Early 1952, Whitaker & Hamilton 1998): *Sorex cinereus* Kerr, 1792; *S. fontinalis* Hollister, 1911; *S. fumeus* Miller, 1895; *Blarina brevicauda*, and *Cryptotis parvus*. *Sorex fontinalis* is difficult to distinguish from its close relative *S. cinereus*, and it was the last of the five species to be named and described, so I consider the two species in combination for further discussion. Although both *S. cinereus*/*S. fontinalis* and *B. brevicauda* are now known to be fairly common around Philadelphia (Roberts & Early

1952), Rhoads (1903:193) described all shrews as rare in the region, with the exception of *B. brevicauda*, about which he stated,

This species stands pre-eminent above all others of our mammals in its combined abundance and universality of distribution in all conceivable situations. Not a place have I trapped over in the two states [Pennsylvania and New Jersey] but what it was among the first species to be caught.

Rhoads (1903:193) further noted "the fetid odor emitted by certain glands of this species," a characteristic not remarked for other species of shrews, despite their possession of similar glands. The most likely species of shrew that Barton would have encountered, therefore, was *B. brevicauda*, which is also the species most likely to be noticed for its odor.

Having died in 1815, the same year Ord (1815) published his "Zoology of North America" and well before Say set out for Engineer Cantonment in 1819 (see Woodman 2009), Barton was no longer around to confirm the similarity of his Black Shrew to Say's (1822) *Sorex brevicaudus*. Ord similarly was unlikely to be helpful for determining the relationship of *S. brevicaudus* with *S. niger*, because he had, in all likelihood, named the latter species based entirely on Barton's (1806) published account of the Black Shrew without ever actually seeing the specimen. What is surprising is that Say (1822) could not state with greater certainty that Ord's (1815) *Sorex niger* referred to Barton's (1806) Black Shrew. Although the early nineteenth-century Philadelphia community of physicians and natural historians was often factious, fractious, and competitive (Harlan et al. 1974), Ord and Say were both members of the Academy of Natural Sciences of Philadelphia, and they were on sufficiently friendly terms to travel and publish together (Say & Ord 1825). It would seem a simple step for Say to ask Ord to confirm that his *S. niger* was based on Barton's Black Shrew—if that were the

real issue. In fact, Say's (1822) remark ("I do not know that the black shrew has ever received any further notice ...") appears to be a subtle postmortem jab at Barton, critiquing the often minor works that resulted from Barton's intellectual pretensions, his unacknowledged use of the results of others' labors, and his often ungenerous practices with regard to his fellow natural historians (Caldwell & Warner 1855, Graustein 1961).

Both Ord and Barton were eminent members of the early nineteenth-century scientific establishment in Philadelphia, and common collegiality would suggest that it should have been a simple matter for Ord to see Barton's example of his Black Shrew. Barton's unwillingness to share specimens, ideas, or credit in his scientific endeavors, however, has been definitively documented by his students, biographers, and contemporaries (Caldwell & Warner 1855, Pennell 1942, Graustein 1961, Peale & Miller 1988), suggesting the unlikelihood of Barton making this specimen available for study by others. Moreover, Ord and Barton were not members of the same scientific "clique." Ord was a strong supporter of the ornithologist Alexander Wilson (Harlan et al. 1974), whereas Wilson "did not admire Barton" (Graustein 1961:429). Ord, Say, and Wilson also were friendly with Charles Wilson Peale and his family, while Barton's relationship with the Peales had been damaged (Graustein 1961, Steinberg 2001).

I have uncovered no indication that any specimen of the Black Shrew was permanently preserved, or, if one were preserved, that it became available to Say and the scientific establishment even after Barton's death in 1815. Although the primary repository for natural history specimens in Philadelphia and the United States in the early nineteenth century was Peale's Philadelphia Museum (Woodman 2009), I doubt that the specimen would have been deposited there. Despite the fact that

Barton had been asked by Peale to serve on the museum's "Society of Visitors or Directors," the two men soon had a falling out, in part because Peale believed that Barton was actively discouraging potential donors from giving items to the museum (Graustein 1961, Peale et al. 2000). Peale also begrudged Barton for publishing (Barton 1793, 1799) the results of experiments performed by him and by his son Rubens without acknowledging them by name (Peale & Miller 1988, Steinberg 2001).

Fortunately, Barton was a skilled illustrator (Pennell 1942). Among his papers preserved in the library of the American Philosophical Society, I located two unpublished illustrations of the same dark, short-tailed shrew: one is an original pencil and ink drawing of the animal in a landscape featuring a house in the background (Fig. 1); the second is an engraving, apparently made from the sketch, but with a different foreground and lacking the background (Fig. 2). Specimens of North American shrews were rare in the early 1800s (Bachman 1837), and Barton, whose primary interest in natural history was botany, never mentioned any other shrew in any context. These long ignored illustrations almost certainly represent his Black Shrew. Based on the uniformly dark coloration; the length, breadth, and hairiness of the tail; and the large paws of the individual pictured, the animal represented is *Blarina brevicauda* (Say, 1822). The three species of *Sorex* from the Philadelphia region all possess much longer tails. *Cryptotis parva* has a similarly short tail, but it has a paler dorsal pelage with a distinctly paler ventrum. Neither engraving is dated, but they necessarily predate Barton's death in December 1815 and were probably produced about the time he announced his discovery of this animal (Barton 1806), perhaps in anticipation of publishing a more detailed manuscript describing it. In a similar instance in 1803, Barton proposed to publish a work



Fig. 1. Detail of a pencil, ink, and watercolor illustration of a shrew (with a house in the background) by Benjamin Smith Barton (Benjamin Smith Barton Papers, American Philosophical Society, Philadelphia, Pennsylvania). The total length of the shrew in the original image is 66 mm from the tip of the nose to the tip of the tail.

on the anatomy and physiology of the rattlesnake but finished only some elaborate colored drawings for this work (Pennell 1942). As with so many of his ambitious undertakings (Graustein 1961), these projects were left unrealized, and the Black Shrew remained an enigmatic reference in an obscure supplement to a short-lived journal (Barton 1806).

#### Taxonomic Relevance and Implications of the Black Shrew

*Sorex niger* Ord, 1815 clearly predates *Sorex brevicauda* Say, 1822. Had Ord (1815) provided his own description of Barton's Black Shrew, or at least provided a clear reference to Barton's publication, the Northern Short-tailed Shrew would

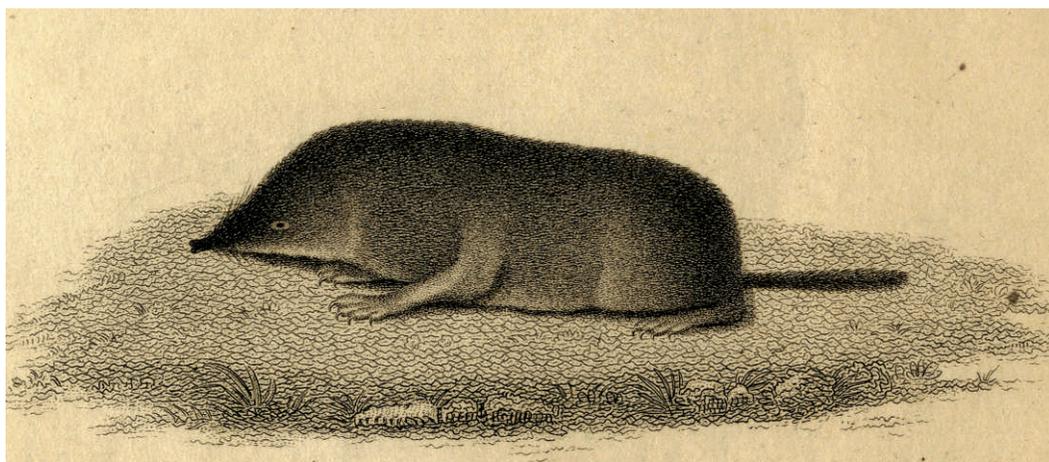


Fig. 2. Engraving of a shrew by Benjamin Smith Barton (Benjamin Smith Barton Papers, American Philosophical Society [APS], Philadelphia, Pennsylvania). The APS also owns the copperplate from which this image was printed. The total length of the shrew in the original image is 66 mm from the tip of the nose to the tip of the tail.

have a different scientific name, and possibly a different common name. This difference in scientific nomenclature would, in turn, have affected the name of another shrew, *Sorex niger* Horsfield, 1851 (= *Suncus montanus niger*) from Madras (= Chennai), Tamil Nadu, India. Coincidentally, Thomas Horsfield, who described *Suncus montanus niger*, received his M.D. in 1798 from the University of Pennsylvania, where he had been Barton's student (Carson 1869, Pennell 1942). Instead, *Sorex niger* Ord, 1815 remains a nomen nudum, a nomenclatural stature that my research corroborates, and it has been almost entirely forgotten, interpreted as an undecipherable reference to an unknown or illusory beast (Rhoads 1894b). The knowledge that Ord (1815) was referring to a tangible, previously unnamed North American species vindicates the inclusion of the species in his compilation, adding one more verifiable species to the mammal fauna known to early nineteenth century naturalists. Moreover, the sequence of events and the resultant confusion regarding the Black Shrew contribute to our understanding of the difficulties inherent in the early development of the fields of natural history and taxonomy in the United States.

#### The American editions of *Guthrie's Geography*

Because of its relevance to the publication of Ord's (1815) "Zoology of North America," a short explanation of the correct numbering of the American editions of *Guthrie's Geography* is warranted. The original British work (Guthrie 1770) on which these editions were ultimately based was ostensibly written by the prolific Scottish writer William Guthrie (b. 1708, d. 1770) and published the year that he died (Bayne 1890). Watt (1824:452) noted, however, that "Of this popular Grammar, [John] Knox, the bookseller, is said to be

the real compiler." Whoever was responsible, *Guthrie's Geography* proved popular. It appeared in multiple British editions, a French edition (1801), and several American editions and under a variety of sometimes subtly different titles.

The 1815 American edition, in which Ord's "Zoology of North America" was first published, is often referred to as the second American edition, as it states on its title page. In reality, this work is only the second of three editions (Guthrie 1809, 1815, 1820) published by the firm of Johnson and Warner, which later became Benjamin Warner (Guthrie 1820). In fact, the publishing history of this work in the United States is much more complicated. Two previous American editions were produced between 1793 and 1802 (see Online Computer Library Catalog [OCLC] record number 30549665) by the publisher Mathew Carey of Philadelphia, both of which state on their title pages that they are "the first American edition" (Guthrie 1793–1795, 1802; see also Evans 1942, Clarkin 1984). The first Carey edition (Guthrie 1793–1795) was originally planned to appear in 48 weekly issues of 24 pages each, beginning in May 1793. Publication was interrupted, however, by an epidemic of yellow fever in Philadelphia (Caldwell & Warner 1855, Evans 1942), and contemporary newspapers indicate that the last issue was not published until early in 1795. There are two distinct typesettings (technically two editions) of Volume I that correspond to Clarkin's (1984) "standard" and "variant" versions. In my experience, however, both typesettings of Volume I are paired with the same "standard" typesetting (Clarkin 1984) of Volume II. For taxonomic purposes, and because Ord's "Zoology of North America" occurs in Volume II, it is simplest to consider these two pairings as variants of one edition.

The third Carey typesetting of Volume I was not recognized by Clarkin (1984). My inspection of library copies and available

online versions indicates that this version of Volume I is typically paired with his "variant" version of Volume II. According to information in OCLC record number 30549665, correspondence from the publisher in the archives of the Historical Society of Pennsylvania establishes the year of publication for these as 1802, despite the year 1795 printed on the title pages of both volumes.

For taxonomic purposes, it is simplest to consider the 1815 American edition of *Guthrie's Geography* as either the fourth American edition or the second Johnson and Warner edition.

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names is for descriptive purposes only and does not imply endorsement by the U. S. government.

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