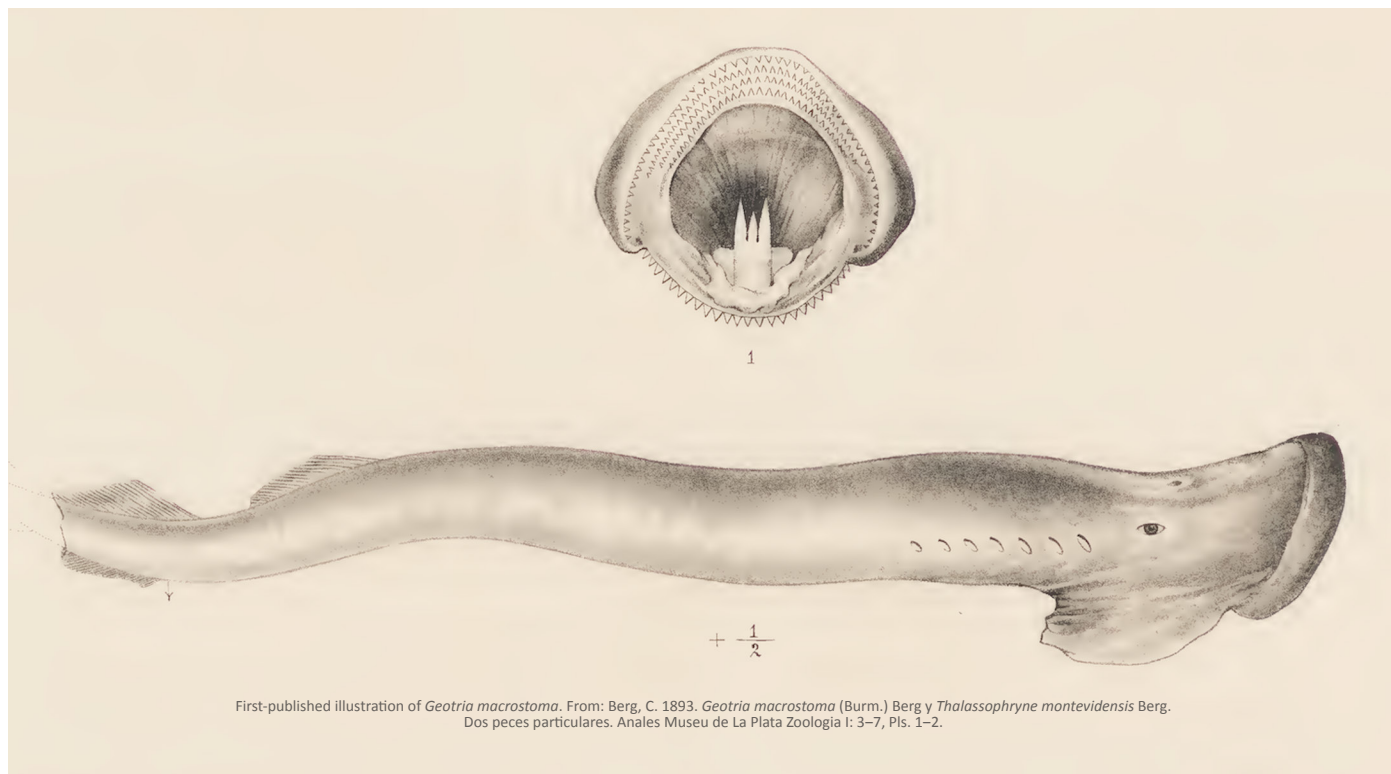


Order PETROMYZONTIFORMES

Southern (Pouched) Lampreys

Family **GEOTRIIDAE**

Gill 1893



First-published illustration of *Geotria macrostoma*. From: Berg, C. 1893. *Geotria macrostoma* (Burm.) Berg y *Thalassophryne montevidensis* Berg. Dos peces particulares. Anales Museu de La Plata Zoología I: 3-7, Pls. 1-2.

Geotria¹
Gray 1851

etymology not explained nor evident; see essay below

***Geotria australis* Gray 1851** Latin for southern, referring to South Australia, type locality

***Geotria macrostoma* (Burmeister 1868)** *macro-*, from *makrós* (Gr. μακρός), long or large; *stóma* (Gr. στόμα), mouth, presumably referring to greatly expanded oral disc of spawning adults

¹ Some authorities recognize a separate genus for *G. macrostoma*, *Exomegas* Gill 1883, *exo-*, from *ex-* or *ec-*, (Gr. ἐξ or ἐξ), out of (i.e., outer); *mégas* (Gr. μέγας), large, presumably referring to its teeth arranged in a concentric series, the outer series containing the largest teeth, and an additional species, *Exomegas gallegensis* (Smitt 1901), *-ensis*, Latin suffix denoting place: Río Gallegos drainage, southeastern Argentina, where type locality (Río Turbios) is situated. See:

Lacoste, F. F., L. Fernández and C. Scioscia. 2021. On an unknown lamprey holotype (*Petromyzon macrostomus* Burmeister 1868) and the genus *Exomegas* Gill 1883 from South America. *Journal of Fish Biology* 99 (4): 1507-1512.

Riva-Rossi, C., C. B. Renaud, F. J. Neira, C. Baigún, C. F. Baker, P. Quiroga and I. Potter. 2022. On the invalid resurrection of the lamprey genus *Exomegas* Gill, 1883. *Journal of Fish Biology*. In press. doi.org/10.1111/jfb.14975

The etymological enigma of *Geotria*

In 1851, British zoologist John Edward Gray (1800-1875) described and named a peculiar-looking lamprey from Adelaide, South Australia. He called it the Pouched Lamprey because of the “extraordinary development” of a “very large dilatable pouch” hanging from its throat. He called the genus *Geotria* but did not explain the meaning behind this name, leaving it to us to make an “educated guess” as to his intent.

Our “educated guess” process usually entails two steps: (1) correctly translating the meaning of the word by tracing its Latin or Greek etymological origin, and (2) applying this meaning to a character or attribute that was mentioned in the original description or, failing that, at least a character or attribute generally known about the taxon at the time.

According to Wiktionary, *Geotria* is from the Greek γεωτραγία, or *geōtragía*, “eating of earth-like substances.” Was Gray referring to how this lamprey, like other lampreys, uses its suctorial mouth to attach itself to submerged rocks and stones, thus creating the impression that it partakes in the “eating of earth-like substances”? This interpreta-

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tion fits nicely with the meaning of “lamprey,” derived from *lampetra* (“rock licker”), and the type genus of the family Petromyzontidae, *Petromyzon*, meaning “stone sucker.”

Bryologist and science writer David Meagher offered a different explanation. In an article entitled “An Etymology of the Names of Victorian Native Freshwater Fish” in the June 2010 issue of *Victorian Naturalist*, Meagher posits

that *Geotria* is derived “presumably from *geo-* (earth) + Latin *atrium* (room),” alluding to the discovery of *G. australis* “in underground chambers, in which it survives dry periods.”

Meagher’s claim surprised us. The Pouched Lamprey lives underground? It aestivates like African lungfishes? How did we miss this in Gray’s description?

Returning to Gray’s 1851 original description, we found that Gray said nothing about underground chambers (nor did he in a more detailed description of the lamprey he published in 1853). But we did see

a sentence that we had initially overlooked or dismissed as irrelevant: “This development of the pouch, is perhaps to adapt the animal to the long drought of the Australian rivers.” Meagher apparently connected Gray’s speculation about the pouch to his translation of *Geotria*: *geo-* (earth) + Latin *atrium* (room), thus creating, in our assessment, an erroneous explanation for the name. And, it should be noted, we have found nothing in the literature to substantiate Gray’s suggestion that the lamprey’s pouch helps it survive droughts, nor Meagher’s claim that it sequesters in underground chambers (although lamprey ammocoetes live in mud burrows). In fact, *G. australis*, like other river lampreys, is anadromous. Born in freshwater, it migrates to the ocean where it feeds and matures, and then returns to fresh water to spawn and eventually die.

Although we easily dismissed Meagher’s explanation of the name, we could not dismiss his etymological breakdown of *geo* + *atrium*. And so we asked our friend Holger Funk to weigh in on the matter. Dr. Funk is a scholar of Greek and Latin who is researching the emergence of modern ichthyology in the 16th century and translated Hippolito Salviani’s *Aquatilium Animalium Historiae* (1558) into German. He said the Wiktionary translation of *geōtragía*, “eating of earth-like substances,” was inaccurate. The problem is the phrase “earth-like.” This adjective does not mean “earthy,” as in rocks and minerals, but instead means “products of the earth,” such as grains and vegetables. (*Geotria australis*, like other parasitic lampreys, is definitely not a vegan!) And even if Gray had based the Pouched Lamprey’s name on *geōtragía*, Funk asked, why shorten it to the etymologically vague *Geotria*?

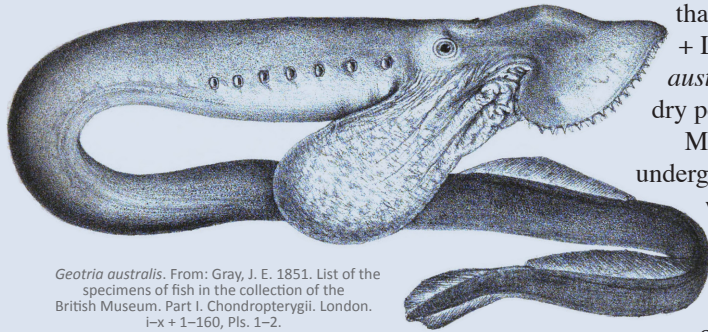
Dr. Funk did find value in Meagher’s *geo* + *atrium* etymology, but he suggested that *atrium*, instead of meaning “room,” might mean “house,” and, by extension, “nest.” Was Gray referring to how spawning *Geotria*, like other lampreys, carry stones to build a nest?

This explanation is unlikely considering that nest-building among *G. australis* has never observed, or at least recorded in the scientific literature. In fact, the first and only *in situ* observations of the lamprey’s spawning behavior did not occur until 2014–2015, reported by Baker et al. (2017).² According to this paper, *G. australis* spawns under submerged boulders, with the eggs forming a coagulated cluster adhered to the underside of the boulder. Their observations strongly suggest that while *G. australis* does indeed use a nest, it does not build a nest from stones and pebbles like their lamprey counterparts in the North Hemisphere.

Baker et al. (2017) also provide the first viable explanation for the lamprey’s pouch, termed a gular pouch, which only adult males possess. According to their observations, the male uses his pouch to “groom” the eggs and “vigorously” rub against them while they are hatching, perhaps to ventilate them, increase oxygenation, and remove metabolic wastes.

So what does *Geotria* mean? We don’t know. The name remains an enigma. The best we can do is summarize the possibilities and address their flaws.

A final question: There are plenty of Greek and Latin words that mean pouch and bag. Why didn’t Gray select one and name the lamprey after its most conspicuous and “extraordinary” (his word) feature? If he had, that would have saved us a lot of etymological trouble.



Geotria australis. From: Gray, J. E. 1851. List of the specimens of fish in the collection of the British Museum. Part I. Chondropterygii. London. i-x + 1–160, Pls. 1–2.

² Baker, C. F., D. J. Jellyman, K. Reeve, S. Crow, M. Stewart, T. Buchinger, and W. Li. 2017. First observations of spawning nests in the pouched lamprey (*Geotria australis*). *Canadian Journal of Fisheries and Aquatic Sciences* 74 (10): 1603–1611.