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Scissurella nesbittae, new species, from the Gries Ranch Formation, Lewis County, Washington State (Gastropoda: Vetigastropoda: Scissurellidae)

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Recent and fossil global scissurellids were monographed by Geiger (2012) and additional species were recently described from Brazil (Pimenta & Geiger 2015). Here, we describe an additional fossil species from shallow water strata of the late Eocene Gries Ranch Formation in Lewis County, Washington State, USA.

Marine molluscan fossils were first described from exposures of the Gries Ranch Formation along the Cowlitz River more than 100 years ago (Dickerson 1917; Van Winkle 1918) and monographed 80 years ago by Effinger (1938). Since then, many studies have included molluscan taxa from the Gries Ranch fauna (e.g., Dell'Angelo et al. 2011; Goedert & Raines 2016, and references therein). Deposition of the Gries Ranch Formation likely occurred under subtropical conditions (Dickerson 1917; Van Winkle 1918) at depths of less than 100 m according to Effinger (1938), although Hickman (1984) has suggested that the Gries Ranch fauna may have been transported into deep water. A verrucid barnacle recently described (Perreault & Buckeridge 2019) from the Gries Ranch fauna might support Hickman's suggestion; living verrucids can be found from 0–620 m (Buckeridge 1997) and most living species are found in the deeper end of that range. The age of the Gries Ranch Formation has been considered to be either late Eocene (Lindberg 1987) or early Oligocene (e.g., Van Winkle 1918; Effinger 1938) based on biostratigraphy, and Prothero & Burns (2001) recently concluded that the Gries Ranch Formation is latest Eocene.

Institutional abbreviations used are: LACMIP, Natural History Museum of Los Angeles County, Invertebrate Paleontology, Los Angeles, California; SBMNH, Santa Barbara Museum of Natural History, Santa Barbara, California; UCMP, University of California, Museum of Paleontology, Berkeley, California; UWBM, University of Washington, Burke Museum, Seattle, Washington.

Scissurellidae Gray, 1847

Scissurella d'Orbigny, 1824

Type species. *Scissurella laevigata* d'Orbigny, 1824 (subsequent designation Gray 1847).

Scissurella nesbittae n. sp.

(Fig. 1)

ZooBank LSID [According to Richard Pyle of ZooBank, Zootaxa arranges for ZooBank registrations].

Type material. Holotype SBMNH 467092. Paratypes SBMNH 637694 (11 specimens), UWBM 112001–112005, from type locality. An additional 10 specimens UWBM 112006–112015.

Type locality. LACMIP locality 41621 (= UCMP loc. 3607); Gries Ranch Formation, latest Eocene or earliest Oligocene, 33–34 Ma (latest Priabonian or earliest Rupelian) (Prothero & Burns 2001). South bank of Cowlitz River at the bend, east half of the SW ¼ of Sec. 24, T. 11 N. R. 2 W., at site of the old Gries Ranch, Lewis County, Washington. The scissurellid fossils are from silty sandstone directly below the thick oyster bed in the eastern part of the outcrop. GPS coordinates: 46.4188º N, 122.8788º W.

Etymology. Named for Elizabeth A. Nesbitt for her contributions to stratigraphy and paleontology of the Pacific Northwest.

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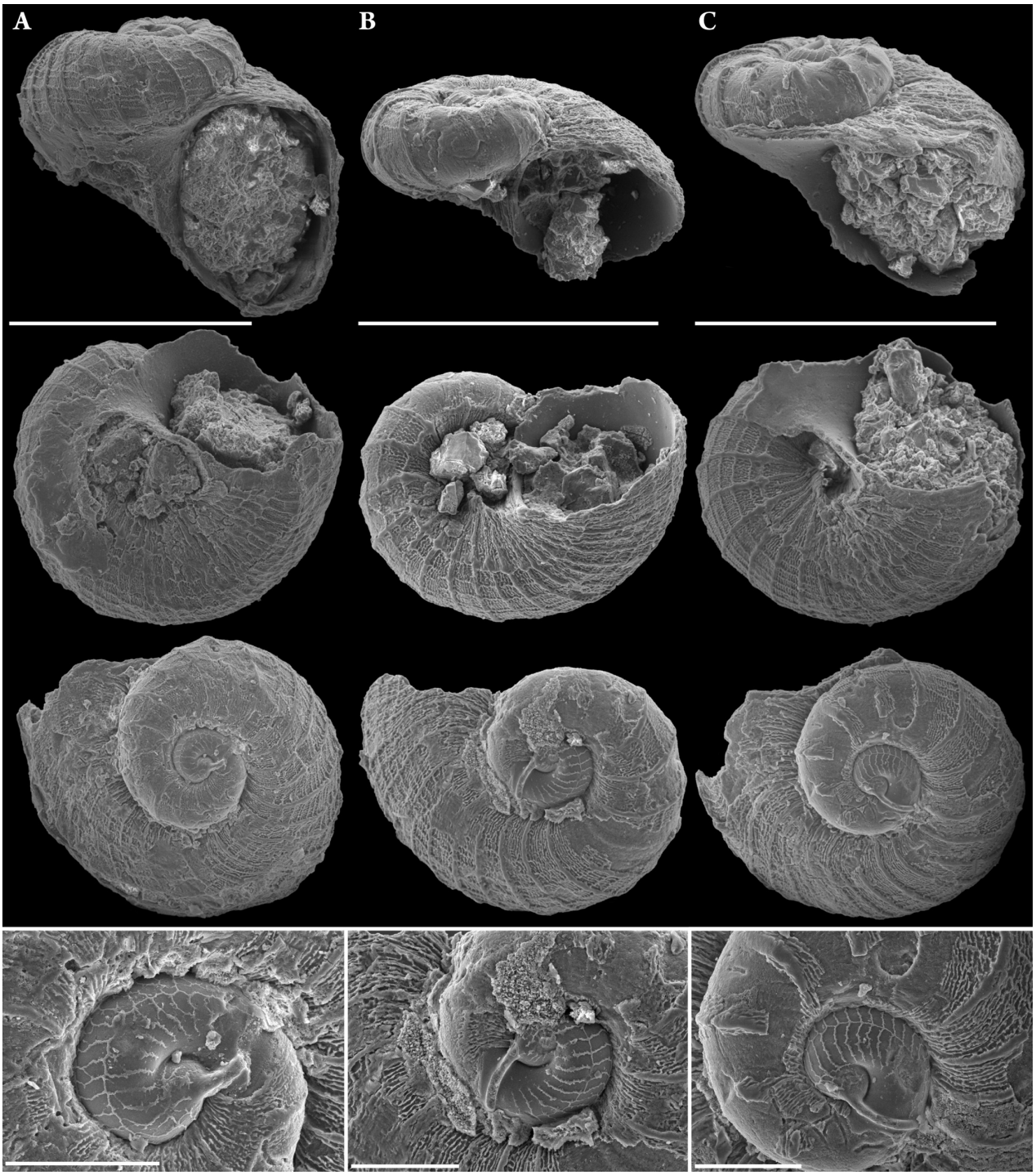

FIGURE 1. *Scisurella nesbittae* new species, from type locality. A. Holotype SBMNH 467092. B–C. Paratypes SBMNH 637694. Scale bars shells = 1 mm. Scale bar protoconchs = 100 μm.

Description. Shell to at least 1 mm (based on shell remnants on base of holotype), trochiform, suture below periphery of previous whorl. Protoconch of 0.75 whorls, fine axials, apertural varix connected to embryonic cap, apertural margin sinusoid. Teleoconch I of 1.125 whorls, about 22 axial cords, interstices with finest lamellar growth lines; first fine spiral thread after 1–2 axial cords, five at onset of selenizone. Teleoconch II of at least 1.75 whorls (based on shell remnants on base of holotype), shoulder with similar sculpture as on teleoconch I, about five spiral lines irregularly spaced between suture and selenizone. Selenizone slightly above periphery; keels of moderate strength, elevation. Base without constriction below selenizone, with axial cords similar to shoulder, spiral lines increasing in strength towards umbilicus, in vicinity of umbilicus forming small nodes at intersection with axial cords. Umbilicus narrow, distinct funiculus.

Comparisons. *Sinezona malloryi* (Squires & Goedert, 1996) from middle early Eocene rocks in Washington has a distinct constriction of the base below the selenizone, and the suture is above the periphery of the previous whorl. *Sinezona cupelliformis* (Amitrov, 1996) from Eocene strata of Ukraine has many more axials. *Scissurella aliceae* Schnetler, Lozouet & Pacaud, 2001, from Paleocene rocks in Denmark has a sunken protoconch, a much wider selenizone, and stronger spiral sculpture on the shoulder. *Scissurella bituminata* Beets, 1942, from Oligocene (or late Miocene, see Janssen 1999) deposits in Indonesia has a distinct constriction below the selenizone, and more distinct and regular spiral sculpture. *Scissurella depontailleri* Cossmann, 1879, including its various synonyms (Geiger 2012), of Paleocene through Miocene age from Europe has regular spiral sculpture on the base. *Scissurella marchmontensis* Sohl, 1992, from Late Cretaceous rocks of the Caribbean has a distinct constriction on the base below the selenizone and prosocline axials.

Remarks. The generic assignment to *Scissurella* is tentative because no complete mature specimens are known. Protoconch sculpture had been considered a means to diagnose scissurellid genera, but it has been shown to be highly variable (Geiger 2003, 2012).

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References

Amitrov, O.V. (1996) Scissurellids (Gastropoda, Scissurellidae) from the upper Eocene of Ukraine. *Ruthenica*, 5, 93–104.

Beets, C. (1942) Beiträge zur Kenntnis der angeblich oberoligocänen Mollusken-Fauna der Insel Buton, Niederländisch-Ostindien. *Leidsche Geologische Mededeelingen*, 13, 255–328.

Buckeridge, J.S. (1997) Cirripedia: Thoracica. New ranges and species of Verrucomorpha from the Indian and Southwest Pacific Oceans. *In*: Crosnier, A. (Ed.), Résultats des Campagnes MUSORSTOM. Vol. 18. *Mémoires du Muséum national d'Histoire naturelle*, 176, pp. 125–149.

Cossmann, M. (1879) Description de deux espèces Nouvelles du tongrien des environs d'Etampes. *Journal de Conchyliologie*, Series 3, 27, 346–348, pl. 13.

Dell'Angelo, B., Bonfitto, A. & Taviani, M. (2011) Chitons (Polyplacophora) from Paleogene strata in western Washington State, U.S.A. *Journal of Paleontology*, 85, 936–954.
https://doi.org/10.1666/10-114.1

Dickerson, R.E. (1917) Climate and its influence upon the Oligocene faunas of the Pacific Coast, with descriptions of some new species from the *Molopophorous lincolnensis* Zone. *Proceedings of the California Academy of Sciences*, 7, 157–192, pls. 27–31.

Effinger, W.L. (1938) The Gries Ranch fauna (Oligocene) of western Washington. *Journal of Paleontology*, 12, 355–390.

Geiger, D.L. (2003) Phylogenetic assessment of characters proposed for the generic classification of Recent Scissurellidae (Gastropoda: Vetigastropoda) with description of one new genus and six new species from Easter Island and Australia. *Molluscan Research*, 23, 21–83.
https://doi.org/10.1071/MR02017

Geiger, D.L. (2012) *Monograph of the Little Slit Shells*. Santa Barbara Museum of Natural History, Santa Barbara, California, 1291 pp., 1042 figs., 5 color pls., 11 identification cards.

Goedert, J.L. & Raines, B.K. (2016) First Paleogene Caecidae (Gastropoda: Truncatelloidea) from the northeastern Pacific Ocean and the earliest record for the genus *Caecum* Fleming, 1813. *Proceedings of the Biological Society of Washington*, 129, 38–47.

Gray, J.E. (1847) A list of the genera of Recent Mollusca, their synonyms and types. *Proceedings of the Zoological Society of London*, 15, 129–219.
https://doi.org/10.2988/0006-324X-129.Q1.38

Hickman, C.S. (1984) Composition, structure, ecology, and evolution of six Cenozoic deep-water mollusk communities. *Journal of Paleontology*, 58, 1215–1234.

Janssen, A.W. (1999) Euthecosomatous gastropods (Mollusca: Heterobranchia) from Buton (SE Sulawesi, Indonesia), with notes on species from Viti Levu, Fiji; systematics, biostratigraphy. *Geologie en Mijnbouw*, 78, 179–189.
https://doi.org/10.1023/A:1003791217555

Lindberg, D.R. (1987) Recent and fossil species of the genus *Erginus* from the North Pacific Ocean (Patellogastropoda: Mollusca). *PaleoBios*, 12, 1–8.

Pimenta, A.D. & Geiger, D.L. (2015) Taxonomic revision of the Anatomidae (Mollusca: Gastropoda: Vetigastropoda) from Brazil, with description of four new species. *Malacologia*, 59, 135–175.
https://doi.org/10.4002/040.059.0109

Perreault, R.T. & Buckeridge, J.S. (2019) Paleogene Verrucidae (Cirripedia: Verrucomorpha) of North America, with descriptions of three new species. *Zootaxa*, 4712, 34–50.
https://doi.org/10.11646/zootaxa.4712.1.2

Prothero, D.R. & Burns, C. (2001) Paleomagnetism of the upper Eocene Gries Ranch Formation, Grays Harbor [sic] County, Washington. *In*: Prothero, D.R. (Ed.), *Magnetic Stratigraphy of the Pacific Coast Cenozoic. Society for Sedimentary Geology (SEPM) Book 91*. Society for Sedimentary Geology, Tulsa, Oklahoma, pp. 179–183.

Schnetler, K.I., Lozouet, P. & Pacaud, J.-M. (2001) Revision of the gastropod family Scissurellidae from the Middle Danian (Paleocene) of Denmark. *Bulletin of the Geological Society of Denmark*, 48, 79–90.

Sohl, N.F. (1992) Upper Cretaceous gastropods (Fissurellidae, Haliotidae, Scissurellidae) from Puerto Rico and Jamaica. *Journal of Paleontology*, 66, 414–434.
https://doi.org/10.1017/S0022336000033977

Squires, R.L. & Goedert, J.L. (1996) New species of small to minute gastropods of early Eocene age from the Crescent Formation, Black Hills, southwest Washington. *The Veliger*, 39, 226–240.

Van Winkle, K. (1918) Paleontology of the Oligocene of the Chehalis Valley, Washington. *University of Washington, Publication in Geology*, 1, 69–97.