

Contributions

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CATALOG OF TYPE SPECIMENS FOR UPPER MICHIGAN BLACK RIVER AND TRENTON (UPPER ORDOVICIAN) INVERTEBRATE SPECIES NAMED BY RUSSELL C. HUSSEY

BY

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Abstract — Russell C. Hussey, in his 1952 monograph on the Middle–Upper Ordovician fossil record of Michigan’s Upper Peninsula, erected multiple new species of brachiopods, gastropods, pelecypods, and trilobites. Unfortunately, he failed to designate holotypes, type series, type localities, or a specimen repository in his text. We consulted with staff at the University of Michigan Museum of Paleontology and located many of these specimens. In this contribution, we review the Black River and Trenton-aged name-bearing specimens collected by Hussey from Upper Michigan. In reviewing each species, we find that they are not used in scientific literature. Further, we discovered that four of these species were previously erected by Hussey in an earlier paper (1941). Considering these factors, we move that all species named by Hussey (1941, 1952) be regarded as provisionally valid until they can be subjected to a detailed systematic treatment compared with other established species from coeval deposits elsewhere in eastern North America.

INTRODUCTION

Russell C. Hussey (1888–1970) was a professor of geology at the University of Michigan. His work focused primarily on the Ordovician rocks of Michigan’s Upper Peninsula (see Hussey, 1926, 1928, 1936, 1941, 1950, 1952). Hussey was awarded his doctoral degree in 1924 and completed his long-awaited review of the Middle and Upper Ordovician rocks (Hussey, 1952) later in his academic career (he retired in 1958). His 1952 monograph described ten new fossil species from the Black River and Trenton formations, including brachiopods, gastropods, bivalves, and trilobites. Hussey did not publish the details of where the name-bearing specimens were repositied, did not note which specimens were the type specimen or series, and typically reported no type localities (even though some species were recognized as being from multiple localities he had described in his 1952

paper and his prior works). Additionally, Hussey erected four of these “new” species in an earlier paper (Hussey, 1941), including the pelecypod *Vanuxemia calveri*, the gastropods *Bucania buckwalteri* and *Liospira bachmanni*, and the trilobite *Amphilichas/Tetralichas staeblersi*. He did not cite his 1941 paper in Hussey (1952). We provide an overview of his named taxa, the associated specimens, and what locality details we could resolve to aid future researchers. Evaluation of the taxonomic status of these species is outside the scope of this study.

MATERIAL AND METHODS

Most—if not all—specimens collected and reported by Hussey (1941, 1952) appear to have been deposited into the collections at the University of Michigan Museum of

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Paleontology. Dr. Jennifer Bauer and her collection team, Paloma Calvin and David Thompson, surveyed the collection and identified for us specimens with relevant catalog entries that visually matched specimens figured in Hussey (1941, 1952). They photographed each of the specimens that could be found. We provide those photographs for comparison to the original material, which allow for verification that these are identical specimens. Specimens figured in Hussey's various papers (1941, 1950, 1952), if recovered, were designated as part of the type series for their respective species. This is not intended to imply that these species are valid, but to help specialists locate this material for future studies. A cursory description of each locality is provided below after Hussey (1936) along with his locality numbers. Readers should consult Hussey (1936) for additional details on each locality, including stratigraphic sections:

- Locality 5. "Exposure at Cornell, southwestern Delta County" (pp. 6–7);
- Locality 8. "Dam No. 2 on Escanaba River, 3 miles north of Escanaba, Delta County" (pp. 7–8);
- Locality 10. "Groos Quarry, Wells Township, five miles north of Escanaba, Delta County" (pp. 9);
- Locality 12. "About ¼ mile northeast of the Groos Quarry, in Delta County" (pp. 10);
- Locality 13. "Rapid River, Delta County" (pp. 9–10);
- Locality 26. "Exposure at Trenary, Alger County" (pp. 4–5).

INSTITUTIONAL ABBREVIATIONS

UMMP — University of Michigan Museum of Paleontology, Ann Arbor, Michigan, U.S.A.

SYSTEMATIC PALEONTOLOGY

Phylum BRACHIOPODA Duméril, 1806
 Class RHYNCHONELLATA Williams et al., 1996
 Order ORTHIDA Schuchert and Cooper, 1932
 Family PLATYSTROPHIIDAE Schuchert and
 Le Vene, 1929
Platystrophia King, 1850
 Fig. 1A–D

Type Species.— *Porambonites costatus* Pander, 1830.

Note.— We recognize *Platystrophia costata* (Pander, 1830) as the type species for this genus (Zuykov, 1999; Zuykov and Harper, 2004; Zuykov and Harper, 2007, pp. 13–15), rather than *Terebratulites biforatus* Schlotheim, 1820 as Hussey did.

Referred Species.— *Platystrophia bowlesi* Hussey, 1952 = "*Platystrophia duchainei*" Hussey, 1952. The latter name appears on pp. 58–59 in Hussey (1952). It likely reflects a typographical error for *P. bowlesi*, substituting the specific epithet of another brachiopod species that was newly named in the same manuscript (*Trigrammaria duchainei*). Given that

P. bowlesi repeatedly appears in the text and with the figure legend for the plates, it is clearly the intended name for this species (Hussey, 1952: pl. 7). As such, "*Platystrophia duchainei*" is currently unavailable but could be utilized by future authors per ICZN 13.1.

Holotype.— UMMP 30123 (Hussey, 1952, pp. 58–59, pl. 7, figs. 6, 8, 9).

Locality.— Specimen is from Locality 8 (inferred from Hussey, 1952, pl. 7). Hussey (1952, p. 59) reported *P. bowlesi* from Locality 5 and Locality 8, and the catalog card for UMMP IP 30123 offers both as possible localities for its origin, suggesting Hussey could not remember at the time of accessioning. Additionally, he suggests *P. bowlesi* is also present from exposures near the West Neebish Channel (Hussey, 1952: p. 81, pl. 7). Still, he doesn't report this species in the fauna list for that locality (Hussey, 1952: p. 46).

Class STROPHOMENATA Williams et al., 1996
 Order STROPHOMENIDA Öpik, 1934
 Family STROPHOMENIDAE King, 1846
Trigrammaria Wilson, 1945
 Fig. 1E–N

Type Species.— *Trigrammaria trigonalis* Wilson, 1945.

Referred species.— *Trigrammaria duchainei* Hussey, 1952.

Syntype.— UMMP 30145 (Hussey, 1952, p. 55, pl. 3, figs. 1, 2, 14)—Locality 8 (Hussey, 1952, p. 55; catalog card). *T. duchainei* is also reported from Locality 5 (Hussey, 1952, p. 18).

Referred species.— *Trigrammaria stummi* Hussey, 1952.

Holotype.— UMMP 30168 (Hussey, 1952, p. 56, pl. 10, figs. 6, 7).

Locality.— Locality 10 (Hussey, 1952, p. 56; catalog card). Purportedly common at other unspecified localities (Hussey, 1952, p. 18).

Referred Species.— *Microtrypa warmingtoni* Hussey, 1952.

Syntypes.— UMMP 30156, 30157, 30159 (Hussey, 1952: p. 55, pl. 4, figs. 8, 10, 11).

Locality.— Specimen is from Locality 8 (Hussey, 1952, pp. 55, 77; catalog card).

Note.— Wilson (1945) erected new genera for two Ordovician brachiopods, *Microtrypa* from the Ordovician of Europe (type species *Microtrypa cassata*) and *Trigrammaria* from the Ordovician of North America (type species *Trigrammaria trigonalis*). Hussey (1952) referred his new species to the former genus. Williams et al. (2000) regarded *Microtrypa* Wilson, 1945 as a synonym of *Trigrammaria*. As such, we also refer Hussey's *Microtrypa warmingtoni* to *Trigrammaria*.

Phylum MOLLUSCA Linnaeus, 1758
 Class GASTROPODA Cuvier, 1795
 Order BELLEROPHONTIDA Ulrich and Scofield, 1897
 Family BUCANIIDAE Ulrich and Scofield, 1897
Bucania Hall, 1847

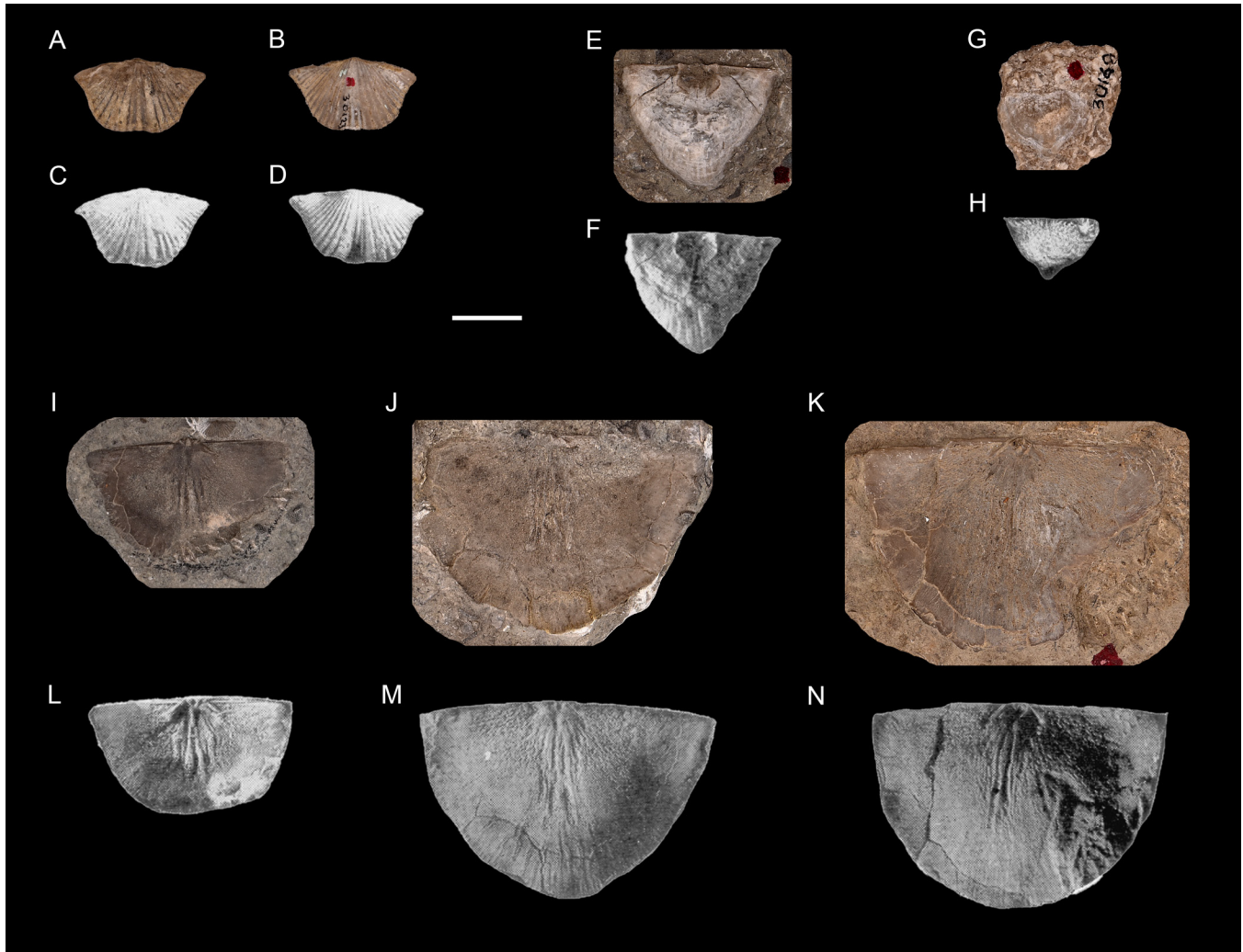


FIGURE 1 — Comparison of brachiopod figures from Hussey (1952) with modern photos of specimens from the University of Michigan Museum of Paleontology. Scale bar equals 1 cm. **A–D**, syntype of *Platystrophia bowlesi* Hussey, 1952, UMMP 30123 in dorsal (**A**) and ventral (**B**) views; Hussey, 1952, plate 7, fig. 9 (**C**), fig. 8 (**D**). **E–F**, Syntype of *Trigrammaria duchainei* Hussey, 1952, UMMP 30145 ventral valve (**E**); Hussey, 1952, plate 3, fig. 14 (**F**). **G–H**, holotype of *Trigrammaria stummi* Hussey, 1952, UMMP 30168 dorsal valve (**G**), Hussey, 1952, plate 10, fig. 6 (**H**). **I–N**, syntypes of *Trigrammaria warmingtoni* (Hussey, 1952), brachial valves, UMMP 30157 (**I**), UMMP 30159 (**J**), UMMP 30156 (**K**), Hussey, 1952, plate 4, fig. 10 (**L**), fig. 11 (**M**), fig. 8 (**N**).

Type Species.— *Bellerophon sulcatus* Emmons, 1842.

Referred Species.— *Bucania buckwalteri* Hussey, 1941.

Holotype.— UMMP 26395 (Hussey, 1952, p. 62, pl. 7, figs. 10–11). This specimen was listed in the UMMP catalog but not located in the collection.

Locality.— Specimen is from Locality 5 (Hussey, 1941, p. 447; Hussey, 1950, p. 21; Hussey, 1952, p. 21). Hussey (1952, pl. 7) described the specimen as being from Locality 8 but did not do so anywhere else.

Order EUOMPHALINA de Koninck, 1881

Family HOLOPEIDAE Wenz, 1938

Holopea Hall, 1847

Fig. 2A–D

Type Species.— *Holopea symmetrica* Hall, 1847.

Referred Species.— *Holopea weaveri* Hussey, 1941.

Holotype.— UMMP IP 26418 (Hussey, 1941, p. 446, pl. 1, figs. 9–10).

Locality.— Specimen is from Locality 26 (Hussey, 1941, p. 446; Hussey, 1952, p. 21; catalog card).

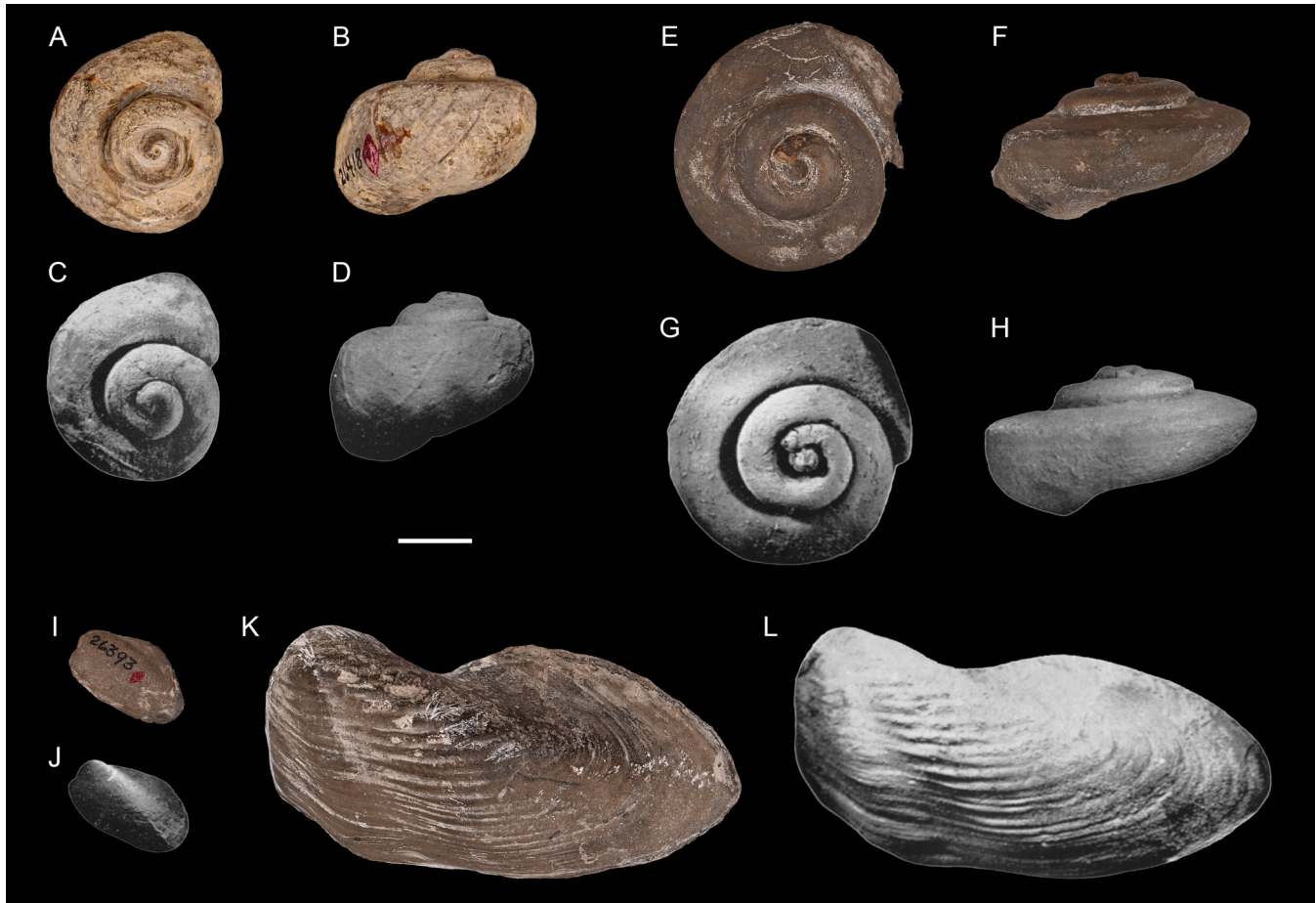


FIGURE 2 — Comparison of gastropod and bivalve figures from Hussey (1941) with modern photos of specimens from the University of Michigan Museum of Paleontology. Scale bar equals 1 cm. **A–D**, holotype of *Holoepa weaveri* Hussey, 1941; UMMP 26418 in apical (**A**) and abapertural (**B**) views; Hussey, 1941, plate 1, fig. 9 (**C**) and fig. 10 (**D**). **E–H**, holotype of *Liospira bachmanni* Hussey, 1941, UMMP 26396 in apical (**E**) and abapertural (**F**) views; Hussey, 1941, plate 1, fig. 16 (**G**) and fig. 14 (**H**). **I–J**, holotype of *Cyrtodontula eardleyi* (Hussey, 1941), UMMP 26393 left valve (**I**), Hussey, 1941, plate 1, fig. 4 (**J**). **K–L**, holotype of *Cuneameya childsi* Hussey, 1941, UMMP 26392 left valve (**K**), Hussey, 1941, plate 1, fig. 15 (**L**).

Order MURCHISONIINA Cox and Knight, 1960

Family EOTOMARIIDAE Wenz, 1938

Liospira Ulrich and Scofield, 1897

Fig. 2E–H

Type Species.— *Pleurotomaria micula* Hall and Whitney, 1862.

Referred Species.— *Liospira bachmanni* Hussey, 1941.

Holotype.— UMMP 26396 (Hussey, 1941, p. 447, pl. 1, figs. 14, 16; Hussey, 1952, p. 61, pl. 7, figs. 16, 19).

Locality.— Specimen is from Locality 10 (Hussey, 1941; Hussey, 1952; catalog card).

Class BIVALVIA Linnaeus, 1758

Order CYRTODONTIDA Scarlato and Starobogov in Nevesskaya et al., 1971

Family CYRTODONTIDAE Ulrich, 1894

Cyrtodontula Tomlin, 1931

Synonym. *Whitella* Ulrich, 1890

Fig. 2I–J

Type Species.— *Whitella obliquata* Ulrich, 1890.

Referred Species.— *Whitella eardleyi* Hussey, 1941.

Holotype.— UMMP 26393 (Hussey, 1941, p. 445, pl. 1, figs. 4, 8; Hussey, 1950, pl. 2, fig. 17; Hussey, 1952, pl. 7, figs. 4, 5).

Locality.— Specimen is from Locality 10 (Hussey, 1952, pl. VII). It is possibly also found at Localities 12 and 13 (Hussey, 1941, p. 445; Hussey, 1952, pp. 20, 35).

Vanuxemia Billings, 1858

Type Species.— *Vanuxemia inconstans* Billings, 1858.

Referred Species.— *Vanuxemia calveri* Hussey, 1941.

Holotype.— UMMP 26394 (Hussey 1941, p. 446, pl. 1, figs. 11–13; Hussey, 1952, p. 61, pl. 7, figs. 18, 20, 21). Listed in the UMMP catalog but not located in the collection.

Locality.— Specimen is from Locality 5 (Hussey, 1941, p. 446; Hussey, 1952, p. 20).

Order PHOLADOMYIDA Newell, 1965

Family GRAMMYSIIDAE Miller, 1877

Cuneamya Hall and Whitfield 1875

Fig. 2K–L

Type Species.— *Cuneamya miamiensis* Hall and Whitfield, 1875.

Referred Species.— *Cuneamya childsi* Hussey, 1941.

Holotype.— UMMP 26392 (Hussey 1941, p. 446, pl. 1, fig. 15; Hussey, 1952, pl. 10, fig. 22).

Locality.— Specimen is from Locality 10 (Hussey, 1941, p. 446; Hussey, 1952).

Phylum ARTHROPODA Gravenhorst, 1843

Note.— Recent historical research by Martínez-Muñoz (2023: p. 4) has revised the authorship of Arthropoda to Dr. Johann Ludwig Christian Gravenhorst.

Class TRILOBITA Walch, 1771

Order LICHIDA Moore, 1959

Family LICHIDAE Hawle and Corda, 1847

Amphilichas Raymond, 1905

Type Species.— *Platymetopus lineatus* Angelin, 1854.

Referred Species.— *Amphilichas staebleri* Hussey, 1941.

Holotype.— UMMP 26397 (Hussey, 1941, pp. 447–448, pl. 1, figs. 1–3; and as *Tetralichas staebleri* Hussey, 1952, p. 65, pl. 7, figs. 1–3). Specimen is listed in the UMMP catalog but not located in the collection.

Locality.— Specimen is from Locality 26 (Hussey, 1941, p. 448; Hussey, 1952, p. 65).

Note.— Hussey (1941) originally referred this species to *Amphilichas*, yet Hussey (1952) consistently placed this species within *Tetralichas* Phegler, 1936 based on his use of the combination *Tetralichas staebleri* in the text (pp. 22, 26) and the plate captions (pl. 7, figs. 1–3) as well as his usage of it in a faunal list in Hussey (1950, p. 10) except for a typographical error placing it within genus *Amphilichas* (p. 65). Hussey (1950) also reported *Tetralichas* sp. at Bony Falls. By 1952, he updated this occurrence as *Tetralichas staebleri* in a faunal list for this locality (p. 22), despite failing to mention this horizon in his description of *T. staebleri* (p. 65). Hussey (1941, pp. 5–6) also reported *Tetralichas* sp. from Cornell and Chandler Falls. We follow Carlucci et al. (2010) in treating *Tetralichas* as a synonym of *Amphilichas*, thus referring *T. staebleri* to *Amphilichas*, as Hussey originally did in 1941.

CONCLUSION

Here, we have reported the recovery of numerous specimens described by Hussey (1941, 1952) otherwise thought to have been lost to science. Hussey's work has largely gone unnoticed by other researchers outside those working on the Upper Ordovician of the Michigan Basin. The information provided in this short note will aid future researchers in comparing Hussey's species with other contemporaneous taxa of the North American continent and determine their taxonomic status.

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AUTHOR CONTRIBUTIONS

Each of the authors contributed intellectually to the work above. Their CRediT roles are defined here. Nicholas Gardner: Conceptualization, Investigation, Project administration, Writing - Original draft preparation, review, & editing. Ryan Shell: Conceptualization, Investigation, Project administration, Supervision, Writing - Original draft preparation, review, & editing. Clinton Godlesky: Investigation, Writing - Reviewing & editing, Visualization.

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