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FIGURE CAPTIONS

Figure DR1. Locality information. (A) Map of the southern Mackenzie Mountains of northwestern Canada. Star shows location of the Ravens Throat River Lagerstätte. (B) Topographic map of the Lagerstätte region. (C) Generalized stratigraphic section of the lower and middle Cambrian showing the two, ~1 m thick fossiliferous intervals in the Rockslide Formation in green. (Their thickness is exaggerated in the diagram).

Figure DR2. A) Successive laminae with oblique burrows 1–2 mm wide, overlain in turn by laminae without (upper part) and with burrows (at top). TMP 2013.101.0252. (B) Laminae penetrated by a U-shaped burrow originating from an overlying lamina (oriented obliquely across the middle) which contains millimeter-sized vertical to oblique burrows and a vertical to oblique backfilled burrow. Overlying this layer are laminae without burrows. TMP 2013.101.0254. (C) Two laminae penetrated by numerous millimeter-sized vertical burrows, several oblique burrows 2–5 mm wide, and horizontal lined burrows 4 mm wide (lower left and upper right). TMP 2013.101.0262. (D) Mostly non-burrowed laminae with several laminae (lower middle) containing horizontal burrows 1–3 mm wide, and U-shaped burrows (right). TMP 2013.101.0253. (E) Lower laminae with a large backfilled burrow, overlain in turn by non-burrowed laminae, one with a lime mudstone nodule, and laminae (at top) with oblique burrows 1–2 mm wide. TMP 2013.101.296a. (F) Laminae penetrated by vertical (and U-shaped?) burrows 3–5 mm wide, some containing carbonaceous flecks (on right); surface is 5 mm below E. TMP 2013.101.296b. (G) Two light-colored laminae penetrated by partly lined horizontal burrows 2–3 mm wide, oblique burrows ~5 mm wide, and larger oblique burrows 10 mm wide; pair of vertical burrows (lower left) may be U-shaped. All backfilled with darker mud containing carbonaceous flecks. TMP 2013.101.0240. Scanned surfaces cut parallel to almost parallel to bedding. Scale bars = 10 mm.

Figure DR3. (A) Laminae with horizontal and vertical burrows 2–5 mm wide, erosively overlain by dark-colored mud followed by light-colored mud with vertical and oblique burrows. TMP 2013.101.0213. (B) Laminae with variable numbers of vertical and oblique burrows, including many ~1 mm wide. TMP 2013.101.0255. (C) Laminae (middle) with vertical burrows 1–2 mm wide and larger oblique burrows ~6 mm wide that have been partly scoured. TMP 2013.101.0238. (D) Laminae with variable numbers of vertical burrows 1–2 mm wide and horizontal ones 4–5 mm wide. TMP 2013.101.0233. (E) Laminae with horizontal to oblique burrows 1–2 mm and about 4 mm wide along with bioturbation. TMP 2013.101.0214. (F) Laminae with horizontal burrows 4–7 mm wide and U-shaped burrows. TMP 2013.101.0209. (G) Lamina (lower half) with U-shaped burrows, and oblique burrows, overlain by lamina containing numerous small oblique burrows and several U-shaped burrows; horizontal backfilled burrow (right side) cuts both laminae, as

do the ones with light-colored haloes (left side). (TMP 2013.101.0230. (H) Laminae with various oblique burrows. TMP 2013.101.0266. Scanned surfaces cut parallel to almost parallel to bedding. Scale bars = 10 mm.

Figure DR4. (A) Laminae penetrated by vertical burrows, some exhibiting light-colored haloes, oblique burrows (lower left of center), and a backfilled horizontal burrow (lower right), overlain by bioturbated laminae with carbonaceous flecks; lower area with several overlapping burrows. TMP 2013.101.0247. (B) Laminae with millimeter-sized burrows (lower left) and larger horizontal, oblique, and vertical burrows. TMP 2013.101.0479. (C) Laminae with variably distinct small vertical burrows 1–2 mm wide. Squiggly black lines in lower left are a trilobite meraspide. TMP 2013.101.0478. (D) Laminae with millimeter-sized vertical burrows, larger horizontal burrows (middle) and U-shaped burrow with backfill (middle-bottom). TMP 2013.101.0323. (E) Lamina with vertical burrows (lower left) overlain by laminae with just a few millimeter-sized vertical burrows. TMP 2013.101.0073. (F) Bioturbated laminae with abundant vertical burrows 2–3 mm wide and several horizontal burrows 1 mm wide (lower half), overlain by laminae dominated by millimeter-sized vertical burrows. TMP 2013.101.0343. Scanned surfaces cut parallel to almost parallel to bedding. Scale bars = 10 mm.

Figure DR5. (A) Laminae with variable numbers of millimeter-sized and larger vertical, oblique, and horizontal burrows (at top), including those in one laminae with light-colored linings (below middle). TMP 2013.101.0464. (B) Laminae with numerous, locally cross-cutting burrows to churned. TMP 2013.101.0291a. (C) Bioturbated lamina with indistinct burrows, including partly obliterated large (14 mm wide) spreiten-burrow (lower right), probably made by coprolite-producing predator (Kimmig and Pratt, 2018). TMP 2013.101.0291b. (D) Laminae cut by horizontal and vertical burrows (lower half) overlain by bioturbated laminae with various vertical burrows up to 7 mm wide. TMP 2013.101.0229. (E) Laminae cut by vertical and oblique millimeter-sized burrows and burrows 3 mm wide. TMP 2013.101.0267. (F) Gently domical laminae cut by millimeter-sized vertical and horizontal burrows and several vertical burrows 3 mm wide; laminae at right contain only a few millimeter-sized burrows. TMP 2013.101.0227. Scanned surfaces cut parallel to almost parallel to bedding. Scale bars = 10 mm.