Supplement of J. Micropalaeontol., 40, 37–60, 2021
https://doi.org/10.5194/jm-40-37-2021-supplement

Journal of Micropalaeontology
Open Access

Supplement of

Comparative analysis of six common foraminiferal species of the genera *Cassidulina*, *Paracassidulina*, and *Islandiella* from the Arctic–North Atlantic domain

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Supplementary Table S1. Sample details for specimens illustrated in Figs 1-5.

Species	Figure(s)	Sample details	Comments/reference
Cassidulina laevigata	1a, 5 (Holotype original illustration)	Unknown	d'Orbigny (1826), Plate 15, Figs 4-5
	1b, 5 (Aperture, Chamber arrangement, Chamber shape, Proloculus area)	core +56-07/728VE, 0-1 cm (56.81922°N, 6.479233° W, 185 m water depth)	this study
	1c	core +56-07/728VE, 0-1 cm (56.81922°N, 6.479233° W, 185 m water depth)	this study
	1d	core +56-07/728VE, 0-1 cm (56.81922°N, 6.479233° W, 185 m water depth)	this study
	1e	core +56-07/728VE, 0-1 cm (56.81922°N, 6.479233° W, 185 m water depth)	this study
	1f, 5 (Aperture)	core +56-07/728VE, 0-1 cm (56.81922°N, 6.479233° W, 185 m water depth)	this study
	1g	Expedition 93030, core 03l, 3-4 cm (64.28433°N, 24.20700°W, 254 m water depth)	this study
	1h	Expedition 93030, core 03l, 4-5 cm (64.28433°N, 24.20700°W, 254 m water depth)	this study
	1i	Expedition 93030, core 03l, 6-7 cm (64.28433°N, 24.20700°W, 254 m water depth)	this study
Cassidulina neoteretis	2a, 5 (Holotype original illustration)	see Supplementary Table S2	Seidenkrantz (1995), Plate 1, Fig. 1
	2d, 5 (Chamber arrangement, Chamber shape)	Expedition 89200, core A9GC, 0-2 cm (79.66417°N, 104.2375°W, 418 m water depth)	this study
	2e	Expedition 89200, core A9GC, 0-2 cm (79.66417°N, 104.2375°W, 418 m water depth)	this study
	2f, 5 (Proloculus area)	Expedition OD1507, core 009MC, 0-2 cm (81.01101°N, 61.276887°W, 931 water depth)	Jennings et al. (2020)
	2g	Expedition 89200, A9GC, 0-2 cm (79.66417°N, -104.2375°W, 418 m water depth)	this study
	2h	Expedition OD1507, core 023MC, 0-2 cm (81.41148°N, 62.328492°W, 558 m water depth)	this study
	2i	Expedition OD1507, core 023MC, 0-2 cm (81.41148°N, 62.328492°W, 558 m water depth)	this study
	2j	MGUH no. 22211; Upper Weichselian, core 1007 off Faeroe Islands, North Atlantic (60.74483°N, 4.51483°W, 1125 m water depth), sample no. 18	Seidenkrantz (1995), Plate 2, Fig. 5
	2o, 5 (Aperture)	MGUH no. 22212; Upper Weichselian, core 1007 off Faeroe Islands, North Atlantic (60.74483°N, 4.51483°W, 1125 m water depth), sample no. 11	Seidenkrantz (1995), Plate 2, Fig. 6
	5 (Paratype image)	see Supplementary Table S2	this study
Cassidulina teretis	2b, 5 (Holotype original illustration)	see Supplementary Table S2	Tappan (1951), Plate 1, Fig. 30b
	2c, 5 (Holotype image)	see Supplementary Table S2	Paleobiology Collections of the Smithsonian National Museum of Natural History (https://collections.nmnh.si.edu/search/paleo/)
	2k	MGUH no. 22206; Pliocene, Clyde Foreland, Baffin Island, Canada	Seidenkrantz (1995), Plate 1, Fig. 13
	2l, 5 (Chamber arrangement, Chamber shape, Proloculus area)	MGUH no. 22205; Pliocene, Clyde Foreland, Baffin Island, Canada	Seidenkrantz (1995), Plate 1, Fig. 12a
	2m	MGUH no. 22223; OPD Hole 644A, lowermost middle Pleistocene	Seidenkrantz (1995), Plate 2, Fig. 17

	2n, 5 (Aperture)	MGUH no. 22226; Upper Pliocene, Gullfaks Field, North Sea	Seidenkrantz (1995), Plate 4, Fig. 2
Paracassidulina neocarinata	3a, 5 (Holotype original illustration)	see Supplementary Table S2	Cushman (1922), Plate 25, Fig. 6
	3b, 5 (Syntype image)	see Supplementary Table S2	Paleobiology Collections of the Smithsonian National Museum of Natural History (https://collections.nmnh.si.edu/search/paleo/)
	3c	MGUH no. 22203; Recent, Emerald Basin, off Nova Scotia, Canada	Seidenkrantz (1995), Plate 1, Fig. 10a
	3d, 5 (Chamber arrangement, Chamber shape, Proloculus area)	MGUH no. 22203; Recent, Emerald Basin, off Nova Scotia, Canada	Seidenkrantz (1995), Plate 1, Fig. 10b
	3e	MGUH no. 22229; Holocene, Gulf of Maine, USA, sample E-2F-92-C2, 425 m below sea floor; Specimen provided by Prof. Detmar Schnitger, University of Maine, USA	Seidenkrantz (1995), Plate 5, Fig. 9
	3f, 5 (Aperture)	MGUH no. 22229; Holocene, Gulf of Maine, USA, sample E-2F-92-C2, 425 m below sea floor; Specimen provided by Prof. Detmar Schnitger, University of Maine, USA	Seidenkrantz (1995), Plate 4, Fig. 7
Islandiella helenae	4a	Expedition 89200, core A9GC, 0-2 cm (79.66417°N, 104.2375°W, 418 m water depth)	this study
	4b, 5 (Aperture)	Expedition 89200, core A9GC, 0-2 cm (79.66417°N, 104.2375°W, 418 m water depth)	this study
	4c, 5 (Aperture, Chamber arrangement, Chamber shape, Proloculus area)	Expedition 2008029, core 042PC, 800 cm (75.57939°N, 78.629571°W, 580 m water depth)	this study
	4d, 5 (Holotype original illustration)	see Supplementary Table S2	Loeblich and Tappan (1953), Plate 24, Fig. 4b
Islandiella norcrossi	4e, 5 (Holotype original illustration)	see Supplementary Table S2	Cushman (1933), Plate 2, Fig. 7b
	4f, 5 (Holotype image)	see Supplementary Table S2	Paleobiology Collections of the Smithsonian National Museum of Natural History (https://collections.nmnh.si.edu/search/paleo/)
	4g	Expedition PS100, giant boxcore 144, 0-1 cm, (77.12633°N, 10.56983°W, 494 m water depth)	this study
	4h, 5 (Proloculus area)	Expedition 2011804, core 0011BC, 0-1 cm (74.159666°N, 80.600333°W, 779 m water depth)	this study
	4i	Expedition 2011804, core 0002BC, 0-1 cm (69.163833°N, 100.71217°W, 63 m water depth)	this study
	4j, 5 (Chamber arrangement, Chamber shape)	Expedition 2011804, core 0013BC, 0-1 cm (76.329333°N, 71.222666°W, 658 m water depth)	this study
	4k, 5 (Aperture)	Expedition 2011804, core 0013BC, 0-1 cm (76.329333°N, 71.222666°W, 658 m water depth)	this study
	4l, 5 (Aperture)	Expedition 2011804, core 0013BC, 0-1 cm (76.329333°N, 71.222666°W, 658 m water depth)	this study

Abbreviations:

MGUH = Natural History Museum of Denmark Palaeontology Type Collection (https://samlinger.snm.ku.dk/en/dry-and-wet-collections/geology/palaeontology-type-collection/)

References:

Cushman, J.A.: The foraminifera of the Atlantic Ocean, US National Museum Bulletin, 104, pt. 3, 1-149, 1922.

Cushman, J.A.: New arctic foraminifera collected by Captain R.A. Bartlett from Fox Basin and of the northeast coast of Greenland, Smithsonian Miscellaneous Collection, 89, 1-8, 1933.

d'Orbigny, A. D.: Tableau méthodique de la classe des Céphalopodes, Ann. Sci. Nat., 7, 245–314, 1826.

Jennings, A., Andrews, J.T., Reilly, B., Walczak, M., Jakobsson, M., Mix, A., Stoner, J., Nicholls, K.W., Cheseby, M.: Modern foraminiferal assemblages in northern Nares Strait, Petermann Fjord, and beneath Peterman Ice Tongue, NW Greenland, Arct. Antarct. Alp. Res., 51:1, 491-511, 2020.

Loeblich, A.R. and Tappan, H.: Studies of Arctic Foraminifera. Smithsonian Misc. Coll., 121 (7), 1-150, 1953.

Seidenkrantz, M.-S.: Cassidulina teretis Tappan and Cassidulina neoteretis new species (Foraminifera): stratigraphic markers for deep sea and outer shelf areas, J. Micropalaeon., 14, 145-157, 1995.

Tappan, H.: Northern Alaska index Foraminifera, Contr. Cushman Found. Foramin. Res., 2, 1-8, 1951.

Supplementary Table S2. Sample details and information on holotypes, paratypes and syntypes shown in Fig. 5

Cage et al., Supplementary Table 2

Species	Type level	Type locality	Type specimen	Comments/reference
Cassidulina laevigata				
Holotype	Not given	Not given	Not given	d'Orbigny (1826)
Cassidulina neoteretis				
Holotype	Late Weichselian	Boring 1007 off Faeroe Islands (60°44.69'N, 4°30.89'W; 1125 m water depth), sample 19	Dept. of Earth Sciences, Aarhus University; holotype no. MGUH 22189	Seidenkrantz (1995)
Paratype	Late Weichselian	Boring 1007 off Faeroe Islands (60°44.69'N, 4°30.89'W; 1125 m water depth), sample 19	Dept. of Earth Sciences, Aarhus University; holotype no. MGUH 22195	re-imaged for this study
Cassidulina teretis				
Holotype	Pleistocene (Gubik Formation)	Core at 100-105 ft in Point Barrow Core Test 1, N-NE of Barrow village, N Alaska	US National Museum of Natural History, Washington DC; holotype no. USNM 560409	Tappan (1951); re-imaged in the Paleobiology Collections of the Smithsonian National Museum of Natural History (https://collections.nmnh.si.edu/search/paleo/)
Paracassidulina neocarinata				
Holotype	Recent	Ragged Key (75 fathoms water depth), Florida	US National Museum of Natural History, Washington DC; holotype no. USNM 16375a	Cushman (1922)
Syntype	Recent	Ragged Key (75 fathoms water depth), Florida	US National Museum of Natural History, Washington DC; syntype no. USNM PP 16375	Specimen from Cushman (1922) material as *Cassidulina laevigata* var. *carinata*; re-imaged in the Paleobiology Collections of the Smithsonian National Museum of Natural History (https://collections.nmnh.si.edu/search/paleo/)
Islandiella helenae				
Holotype	Recent	3 miles offshore (37 m water depth) btw. Point Barrow Base Camp and Barrow village, N Alaska	US National Museum of Natural History, Washington DC; holotype no. USNM P 2107b	Original illustration by Loeblich and Tappan (1953) as *Cassidulina teretis*; erected as a new species by Feyling-Hanssen and Buzas (1976)
Islandiella norcrossi				
Holotype	Recent	5 miles off (7 fathoms water depth) Cape Borlase Warren, NE Greenland	US National Museum of Natural History, Washington DC; holotype no. USNM 26139	Cushman (1933); re-imaged in the Paleobiology Collections of the Smithsonian National Museum of Natural History (https://collections.nmnh.si.edu/search/paleo/)

References:

Cushman, J.A.: The foraminifera of the Atlantic Ocean, US National Museum Bulletin, 104, pt. 3, 1-149, 1922.

Cushman, J.A.: New arctic foraminifera collected by Captain R.A. Bartlett from Fox Basin and of the northest coast of Greenland, Smithsonian Miscellaneous Collection, 89, 1-8, 1933.

d'Orbigny, A. D.: Tableau méthodique de la classe des Céphalopodes, Ann. Sci. Nat., 7, 245–314, 1826.

Feyling-Hanssen, R.W. and Buzas, M.A.: Emendation of *Cassidulina* and *Islandiella helenae* new species, J. Foramin. Res., 6, 154-158, 1976.

Loeblich, A.R. and Tappan, H.: Studies of Arctic Foraminifera. Smithsonian Misc. Coll., 121 (7), 1-150, 1953.

Seidenkrantz, M.-S.: *Cassidulina teretis* Tappan and *Cassidulina neoteretis* new species (Foraminifera): stratigraphic markers for deep sea and outer shelf areas, J. Micropalaeon., 14, 145-157, 1995.

Tappan, H.: Northern Alaska index Foraminifera, Contr. Cushman Found. Foramin. Res., 2, 1-8, 1951.