Electronic Supplementary Appendix

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Taxonomical group	Escuminac Formation	Lode Formation
Anaspida	*Euphanerops longaevus* Woodward 1900	
	Endeiolepis aneri Stensiö 1939	
Heterostracan		*Psammolepis alata* Mark-Kurik
		Psammolepis paradoxa Agassiz
		? *Psammolepis undulata* (Agassiz)
Osteostraci	*Escuminaspis laticeps* (Traquair 1890)	
	Levesquaspis patteni (Robertson 1937)	
Placodermi	*Bothriolepis canadensis* (Whiteaves 1880)	*Asterolepis ornata* Eichwald *sensu*
	Plourdosteus canadensis (Woodward 1892)	Agassiz 1840
Acanthodi	*Triazeugacanthus affinis* (Whiteaves 1887)	*Lodeacanthus gaujicus* Upeniece 1996
	Homalacanthus concinnus (Whiteaves 1887)	
	Diplacanthus ellsi Gagnier 1996	
	Diplacanthus horridus Woodward 1892	
Actinopterygii	*Cheirolepis canadensis* Whiteaves 1881	*Cheirolepis* sp.
Actinistia	*Miguashaia bureaui* Schultze 1973	*Miguashaia grossi* Forey *et al.* 2000
Dipnoiformes	*Fleurantia denticulata* Graham-Smith & Westoll 1937	
	Scaumenacia curta (Whiteaves 1881)	
Onychodontida		*Strunius* sp. nov.
Porolepiformes	*Holoptychius jarviki* Cloutier & Schultze 1996	*Glyptolepis baltica* Gross
	Quebecius quebecensis (Whiteaves 1889)	*Laccognathus panderi* Gross 1941
	Holoptychiidae sp. indet. Cloutier & Schultze 1996	*Latvius* sp. nov.
Osteolepiformes	*Eusthenopteron foordi* Whiteaves 1881	Osteolepididae gen. et sp. indet.
	Callistiopterus clappi Romer 1945	*Eusthenopteron kurshi* Zupiņš 2008
Elpistostegalia	*Elpistostege watsoni* Westoll 1938	*Panderichthys rhombolepis* (Gross 1941)

Annex I. Observed taxa in Escuminac and Lode Formations (Cloutier *et al.* 2011, Upeniece 2011).

Species	**Estimated maximum bodysize (mm)**	**Source**
Euphanerops longaevus	330	(Janvier 1996a, Janvier & Arsenault 2007, Cloutier *et al.* 2009)
Endeiolepis aneri	170	(Janvier 1996a, Cloutier *et al.* 2009)
Escuminaspis laticeps	400	(Janvier & Arsenault 1996, Cloutier *et al.* 2009)
Levesquaspis patteni	400	(Janvier & Arsenault 1996, Cloutier *et al.* 2009)
Bothriolepis canadensis	573	(Béchard *et al.* 2014)
Plourdosteus canadensis	860	(Vézina 1996, Cloutier *et al.* 2009)
Diplacanthus horridus	136	(Gagnier 1996, Cloutier *et al.* 2009)
Diplacanthus ellsi	106	(Gagnier 1996, Cloutier *et al.* 2009)
Triazeugacanthus affinis	62	(Chevrinais *et al.* 2015)
Homalacanthus concinnus	309	(Gagnier 1996, Cloutier *et al.* 2009)
Cheirolepis canadensis	530	(Arratia & Cloutier 1996, Cloutier *et al.* 2009)
Miguashaia bureaui	415	(Cloutier 1996a, Cloutier *et al.* 2009)
Scaumenacia curta	650	(Cloutier 1996b, Cloutier *et al.* 2009)
Fleurantia denticulata	390	(Cloutier 1996b, Cloutier *et al.* 2009)
Holoptychius jarviki	470	(Cloutier 1996c, Cloutier *et al.* 2009)
Quebecius quebecensis	600	(Cloutier 1996c, Cloutier *et al.* 2009)
Porolepiform indet.	586	(Cloutier *et al.* 2009)
Eusthenopteron foordi	1180	(Jarvik 1996, Cloutier *et al.* 2009)
Callistiopterus clappi juv	78	(Thomson & Hahn 1968, Cloutier *et al.* 2009)
Elpistostege watsoni	1351	(Vorobyeva & Schultze 1991, Schultze 1996, Boisvert 2005)
Psammolepis sp.	700	(Moloshnikov 2009, Upeniece 2011)
Asterolepis ornata juv	50	(Upeniece 2011)
Asterolepis ornata	800	(Denison 1978, Janvier 1996b, Upeniece 2011)
Lodeacanthus gaujicus	40	(Upeniece 2011)
Cheirolepis sp. juv	50	(Arratia & Cloutier 1996, Upeniece 2011)
Miguashaia grossi	415	(Cloutier 1996a, Forey *et al.* 2000, Upeniece 2011)
Strunius sp.	150	(Moy-Thomas 1971; Upeniece 1995, 2011)
Glyptolepis baltica	1000	(Ahlberg 1991, Upeniece 2011)
Laccognathus panderi	1650	(Vorobyeva 2006, Downs *et al.* 2011, Upeniece 2011)
Osteolepididae gen. et sp. indet.	300	(Moy-Thomas 1971, Upeniece 2011)
Eusthenopteron kurshi	550	(Zupiņš 2008, Upeniece 2011)
Panderichthys rhombolepis	1351	(Vorobyeva & Schultze 1991, Boisvert 2005, Upeniece 2011)
Albula vulpes	NA	Fish base: *www.fiskbasen.se*; *www.fishbase.org*
Rajidae	NA	(Whitehead *et al.* 1986)

Annex II. Proxies and references of studied species. There is a lack of data concerning *Grossipterus crassus* and *Latvius* sp. For some taxa. generic cluster has been done (*i.e. Psammolepis* sp.). For Actinistia, mentioned by Upeniece (2011), a reconstruction of *Miguashaia grossi* has been used. In the same way, a reconstruction of *Osteolepis macrolepidotus* has been used for Osteolepididae gen. and sp. indet.

	TL)Total length	Body shape	Mandibles	Head length (hl)/TL	Mouth position	Eye position	Snout length/hl	Caudal fin shape	Caudal fin height/body height	Unpaired fin repartition	Teeth	Eye size/hl	Mouth gape opening length/hl
Euphanerops longaevus	2	3	1	1	2	3	?	2	4	1	2	?	?
Endeiolepis aneri	1	3	1	1	?	3	?	2	4	1	2	?	?
Escuminaspis laticeps	2	1	1	3	1	1	4	1	2	1	2	2	?
Levesquaspis patteni	2	1	1	4	1	1	3	1	2	1	2	2	?
Bothriolepis canadensis	3	2	2	1	1	2	4	1	1	1	2	1	1
Plourdosteus canadensis	3	2	2	2	3	3	2	1	2	2	4	2	3
Diplacanthus horridus	1	4	2	1	3	3	1	1	3	1	1	3	4
Diplacanthus ellsi	1	4	2	2	3	3	1	1	3	1	1	3	2
Triazeugacanthus affinis	1	3	2	2	3	3	1	1	2	1	1	2	3
Homalacanthus concinnus	2	3	2	1	3	3	1	1	2	1	2	2	4
Cheirolepis canadensis	3	4	2	2	3	3	1	1	4	2	2	2	3
Miguashaia bureaui	2	3	2	2	3	3	1	1	3	1	3	2	3
Scaumenacia curta	3	4	2	2	3	3	2	1	3	1	3	2	3
Fleurantia denticulata	2	4	2	2	3	3	4	1	2	2	3	2	3
Holoptychius jarviki	2	3	2	2	3	3	2	1	3	2	3	1	4
Quebecius quebecensis	3	3	2	2	3	3	1	1	3	2	3	2	4
Holoptychidae indet.	3	3	2	2	3	3	2	1	4	2	3	1	4
Eusthenopteron foordi	4	3	2	2	3	3	2	3	4	3	3	1	4
***Callistiopterus clappi* juv**	1	3	2	2	3	3	?	1	4	3	3	?	2
Elpistostege watsoni	4	1	2	1	3	1	4	3	2	3	3	1	4
***Psammolepis* sp.**	3	1	1	2	1	2	1	1	2	2	2	?	?
***Asterolepis ornata* juv**	1	2	2	2	1	1	2	1	2	2	2	4	3
Asterolepis ornata	3	2	2	1	1	1	2	1	1	2	2	2	3
Lodeacanthus gaujicus	1	3	2	2	3	3	1	1	3	1	1	2	3
***Cheirolepis* sp. juv**	1	4	2	2	3	3	1	1	4	2	2	2	3
Miguashaia grossi	2	3	2	2	3	3	1	1	3	1	3	2	3
***Strunius* sp.nov.**	1	3	2	2	3	3	1	3	4	2	2	2	4
Glyptolepis baltica	4	3	2	2	3	3	1	1	4	2	3	1	4

Osteolepis macrolepidotus	2	3	2	2	3	3	2	1	3	2	3	2	3
Eusthenopteron kurshi	3	3	2	2	3	3	2	3	4	3	3	1	4
Panderichthys rhombolepis	4	1	2	2	3	1	2	3	2	3	3	1	4
Rajidae	2	1	2	2	1	1	4	1	4	2	2	1	1
Albula vulpes	4	4	2	2	3	3	3	3	4	2	3	2	3

Annex III. Coding matrix of qualitative and semi-quantitative variables.

Species	Specimen number	Observations	Identifiable content
Endeiolepis aneri	MHNM 01-73A	NTO	*Asmusia membranacea*
Euphanerops longaevus ***Levesquaspis patteni***	MHNM 01-189 AB MHNM 01-180	 Anterior part of cephalic plate	*Asmusia membranacea* *Asmusia membranacea*
Escuminaspis laticeps	MHNM 01-04	AOM	
	MHNM 01-05	AOM. Osteostraci scales	
	MHNM 01-07	AOM. Osteostraci scales	
	MHNM 01-12-03	Scales. plates with tubercles	
	MHNM 01-82	Superimposed structure in right orbit	
	MHNM 01-71	AOM	
	MHNM 01-80	Scales. AOM	
	MHNM 01-13	Scales	
	MHNM 01-87	Scales in left orbit. left anterior part of plate. denticulate structures: horizontal tubercles	
	MHNM 01-111A	AOM	
	MHNM 01-133	Few scales	
	MHNM 01-138B	Calcite	
Plourdosteus canadensis	MHNM 02-909A	AOM. hardly identifiable plates	
	MHNM 02-1402	Backbone presence	*Asmusia membranacea*
	MHNM 02-2758	AOM	*Asmusia membranacea*
	MHNM 02-3145	Cephalic plates. AOM	
	MHNM 02-3375	Good conservation of trunk bones	
	MHNM 02-3020	AOM. good conservation of tubercles	
	MHNM 02-2280	NTO	
	MHNM 02-2279	NTO	

Species	Specimen number	Observations	Identifiable content
	MHNM 02-1424	AOM	
	MHNM 02-1355	NTO	
	MHNM 02-1354A	NTO	
	MHNM 02-1353	AOM	
	MHNM 02-1122	Bite marks in internal face	
Homalacanthus concinnus	MHNM 03-904	NTO	*Asmusia membranacea*
	MHNM 03-928	NTO	*Asmusia membranacea*
	MHNM 03-1022	Partial conservation. trunk. one undetermined spine	*Asmusia membranacea*
	MHNM 03-1047	NTO	*Asmusia membranacea*
	MHNM 03-1057	NTO	*Asmusia membranacea*
	MHNM 03-1111	NTO	*Asmusia membranacea*
	MHNM 03-1162	Trunk. no identifiable structure to make proxy	*Asmusia membranacea*
	MHNM 03-1173	NTO	*Asmusia membranacea*
	MHNM 03-2154	NTO	*Asmusia membranacea*
	MHNM 03-2322	NTO	*Asmusia membranacea*
	MHNM 03-2594	NTO	*Asmusia membranacea*
	MHNM 03-2069	NTO	*Asmusia membranacea*
	MHNM 03-2127	NTO	*Asmusia membranacea*
	MHNM 03-2218A	NTO	*Asmusia membranacea*
	MHNM 03-2321B	NTO	*Asmusia membranacea*
	MHNM 03-74	NTO	
	MHNM 03-41	NTO	*Asmusia membranacea*
	MHNM 03-114	NTO	*Asmusia membranacea*
	MHNM 03-154	NTO	

Species	Specimen number	Observations	Identifiable content
	MHNM 03-308	NTO	
	MHNM 03-947	NTO	*Asmusia membranacea*
	MHNM 03-1077	NTO	*Asmusia membranacea*
	MHNM 03-1007	NTO	*Asmusia membranacea*
	MHNM 03-1143	NTO	*Asmusia membranacea*
	MHNM 03-2159	NTO	*Asmusia membranacea*
	MHNM 03-2285	NTO	*Asmusia membranacea*
	MHNM 03-2160	NTO	*Asmusia membranacea*
	MHNM 03-2762	NTO	*Asmusia membranacea*
	MHNM 03-2616	NTO	
Triazeugacanthus affinis	MHNM 03-841	NTO	*Asmusia membranacea*
	MHNM 03-2590	NTO	
Diplacanthus horridus	MHNM 03-1037	Presence of spines	
	MHNM 03-2590 B	NTO	*Asmusia membranacea*
Diplacanthus ellsi	MHNM 03-2465	NTO	
	MHNM 03-1964	NTO	
	MHNM 03-1820	NTO	
	MHNM 03-1502A	Good conservation	
Fleurantia denticulata	MHNM 04-1060	NTO	
	MHNM 04-1061B	NTO	
	MHNM 04-1369	NTO	
	MHNM 04-1392	NTO	
	MHNM 04-1058	Cranial AOM. *A. membranacea* in mouth cavity	*Asmusia membranacea*
Scaumenacia curta	MHNM 04-384	AOM	*Asmusia membranacea*

Species	Specimen number	Observations	Identifiable content
	MHNM 04-397	Pyrite. AOM	*Asmusia membranacea*
	MHNM 04-646	Pyrite	
	MHNM 04-711	Thoracic AOM	*Asmusia membranacea*
	MHNM 04-723	Thoracic AOM	
	MHNM 04-859	Thoracic AOM	
	MHNM 04-948	Costal AOM. abundant pyrite	
	MHNM 04-1117	AOM. pyrite	*Asmusia membranacea*
	MHNM 04-1185	Post-cranial AOM	
	MHNM 04-426	NTO	*Asmusia membranacea*
	MHNM 04-1191	NTO	*Asmusia membranacea*
	MHNM 04-1421	NTO	*Asmusia membranacea*
	MHNM 04-103	Thoracic AOM	
	MHNM 04-918	Post opercular AOM	
	MHNM 04-1009	Trunk AOM	
	MHNM 04-1087B	Thoracic AOM. *A. membranacea* in specimen boundaries	
	MHNM 04-1164	Post pectoral fin AOM. pyrite	
	MHNM 04-604B	AOM	
	MHNM 04-698	Thoracic AOM. pyrite presence	
	MHNM 04-39	Thoracic AOM	
	MHNM 04-147	Post opercular AOM	*Asmusia membranacea*
	MHNM 04-624	Dental plates. pyrite. post opercular AOM	*Asmusia membranacea*
	MHNM 04-1023A	Anterior trunk. abundant AOM	
	MHNM 04-221B	NTO	*Asmusia membranacea*
	MHNM 04-530B	NTO	*Asmusia membranacea*

Species	Specimen number	Observations	Identifiable content
	MHNM 04-1513A	Thoracic AOM	
	MHNM 04-1529A	Thoracic AOM	
	MHNM 04-1525	AOM	*Asmusia membranacea*
	MHNM 04-1552A	NTO	*Asmusia membranacea*
	MHNM 04-1564	NTO	
	MHNM 04-1597	Partial conservation. trunk	*Asmusia membranacea*
	MHNM 04-1592	Thoracic AOM	
Cheirolepis canadensis	MHNM 05-02	AOM	
	MHNM 05-13	AOM	
	MHNM 05-12	AOM	
	MHNM 05-03	AOM	
	MHNM 05-06	AOM	
	MHNM 05-05	AOM	
	MHNM 05-28	Post parietal bones AOM	
	MHNM 05-25	NTO	*Asmusia membranacea*
	MHNM 05-41	AOM	
	MHNM 05-63	NTO	
	MHNM 05-76A	NTO	
	MHNM 05-78	NTO	
	MHNM 05-86B	Post parietal bones AOM. parietals. maxillary and jugal	
	MHNM 05-89	AOM	
	MHNM 05-91	Post pectoral fins AOM	
	MHNM 05-84	Thoracic AOM	
	MHNM 05-82	AOM	

Species	Specimen number	Observations	Identifiable content
	MHNM 05-31	NTO	
	MHNM 05-103	AOM	
	MHNM 05-109A	NTO	
	MHNM 05-105	NTO	
	MHNM 05-110	AOM	
	MHNM 05-108	NTO	
	MHNM 05-115	AOM	
	MHNM 05-116	AOM	
	MHNM 05-125	Cranial AOM	
	MHNM 05-120	NTO	
	MHNM 05-128	Inapplicable	
	MHNM 05-121	Cranial AOM. few scales of *C. canadensis* in pectoral part	
	MHNM 05-129	AOM	
	MHNM 05-159	AOM	
	MHNM 05-148	AOM	
	MHNM 05-160A	Circular traces of AOM	
	MHNM 05-153A	Thoracic AOM	
	MHNM 05-155A	Thoracic AOM	
	MHNM 05-166A	AOM	
	MHNM 05-170	AOM. pectoral part missed	
	MHNM 05-173	AOM	
	MHNM 05-288	Cranial AOM	
	MHNM 05-291	NTO	
	MHNM 05-297	NTO	

Species	Specimen number	Observations	Identifiable content
	MHNM 05-298	AOM	
	MHNM 05-316	NTO	
	MHNM 05-306	Cranial AOM	
	MHNM 05-321	Dentalosplenial and maxillary AOM	
	MHNM 05-325	AOM	
	MHNM 05-334	Thoracic AOM	
	MHNM 05-226	Spines and scales of *H.concinnus* and *A. membranacea*	*Homalacanthus concinnus. Asmusia membranacea*
	MHNM 05-1000	NTO	
	MHNM 05-32	*A. membranacea* around the specimen	
	MHNM 05-65A	NTO	
	MHNM 05-18	Scales and spines *H. concinnus*	*Homalacanthus concinnus*
	MHNM 05-296	Marks and dentalosplenial bone	
	MHNM 05-362	NTO	
	MHNM 05-364	NTO	
	MHNM 05-374	Cranial bones conservation	
	MNHN 1968.8.4	NTO	*Cheirolepis canadensis*
	MHNM 05-366	Good preservation of general anatomical shape	
Holoptychius jarviki	MHNM 06-1632	Bad preservation	
	MHNM 06-951	AOM. juvenile specimen	
Miguashaia bureaui	MHNM 06-1234B	AOM. anatomically uninformative	
	MHNM 06-1235	Lateral gular bone. AOM traces	
	MHNM 06-1232	Trunk. AOM traces	

Species	Specimen number	Observations	Identifiable content
	MHNM 06-1236	Cleithrum and opercula bones AOM	
	MHNM 06-1501	Cranial bones. cleithrum	
	MHNM 06-1678	NTO	
	MHNM 06-1748	Pyrite presence	
	MHNM 06-1809A	AOM. cleithrum	
	MHNM 06-1237	Superior part of cleithrum AOM	
	MHNM 06-1539	NTO	
Quebecius quebecensis	MHNM 06-836	Thoracic AOM	
	MHNM 06-182A	Thoracic AOM	
	MHNM 06-918	Cranial bones. AOM	
	MHNM 06-1148	Orbital AOM. trunk and cranial roof	
	MHNM 06-1289	Cranial bones. AOM	
	MHNM 06-1246	Cranial bones	
	MHNM 06-1243	NTO	
	MHNM 06-1381	NTO	*Asmusia membranacea*
	MHNM 06-1474	Orbit AOM. cranial roof. juvenile	*Asmusia membranacea*
Eusthenopteron foordi	MHNM 06-32	Scales and cranial bones of *C. canadensis*	*Cheirolepis canadensis*
	MHNM 06-45A	NTO	*Asmusia membranacea*
	MHNM 06-61	AOM	
	MHNM 06-99	Fins and few scales. AOM	
	MHNM 06-111	AOM	
	MHNM 06-122	AOM	

Species	**Specimen number**	**Observations**	**Identifiable content**
	MHNM 06-157A	Backbone AOM	
	MHNM 06-159	AOM.	*Asmusia membranacea*
	MHNM 06-250	AOM	
	MHNM 06-277B	Post opercular bones AOM	*Asmusia membranacea*
	MHNM 06-286A	AOM	
	MHNM 06-344A	Pectoral girdle AOM	*Asmusia membranacea*
	MHNM 06-409A	AOM	
	MHNM 06-417	NTO	*Asmusia membranacea*
	MHNM 06-423	Post opercular bones AOM. dermopalatin disparate teeth	
	MHNM 06-418	Pectoral girdle. AOM	*Asmusia membranacea*
	MHNM 06-419A	AOM	*Asmusia membranacea*
	MHNM 06-413	became *H. jarviki*. AOM	
	MHNM 06-484	*A. membranacea* between maxillary and dentary bones	*Asmusia membranacea*
	MHNM 06-502	Swallowed *E. foordi*	*Eusthenopteron foordi*
	MHNM 06-543	AOM	
	MHNM 06-586	External *A. membranacea*	
	MHNM 06-601	AOM	
	MHNM 06-611	Good conservation. post pectoral fins AOM	*Asmusia membranacea*
	MHNM 06-678A	AOM	
	MHNM 06-695A	AOM	
	MHNM 06-700	AOM. ventral plates of *B. canadensis*	*Bothriolepis canadensis*
	MHNM 06-903	AOM	
	MHNM 06-905	AOM	

Species	Specimen number	Observations	Identifiable content
	MHNM 06-915	AOM. ventral plates of *B. canadensis*	*Bothriolepis canadensis*
	MHNM 06-912	NTO	
	MHNM 06-932B	External *A. membranacea*	
	MHNM 06-986	NTO	*Asmusia membranacea*
	MHNM 06-1037	AOM	
	MHNM 06-1219B	AOM	
	MHNM 06-1303	AOM	
	MHNM 06-1341	AOM	
	MHNM 06-1342	AOM. post opercular bones *A. membranacea*	*Asmusia membranacea*
	MHNM 06-1377B	Pyrite. post opercular bones AOM	
	MHNM 06-1385	AOM	
	MHNM 06-1503	NTO	
	MHNM 06-1515	Pelvic fin AOM	*Asmusia membranacea*
	MHNM 06-1554	NTO	
	MHNM 06-1676	AOM	
	MHNM 06-1698	NTO	*Asmusia membranacea*
	MHNM 06-1583	AOM	*Asmusia membranacea*
	MHNM 06-1590	NTO	*Asmusia membranacea*
	MHNM 06-1586	AOM	
	MHNM 06-271	AOM	
	MHNM 06-830B	AOM	
	MHNM 06-2012	AOM	
	MHNM 06-2051	AOM	

Species	Specimen number	Observations	Identifiable content
	MHNM 06-2044	AOM	
	MHNM 06-2066A	Abundant AOM. pyrite	
	MHNM 06-2070	AOM	
	MHNM 06-2071	AOM	
	MHNM 06-2077	Cranial bones. AOM. internal *A. membranacea*	*Asmusia membranacea*
	MHNM 06-2102B	Juvenile. backbone AOM	
	MHNM 06-2103	AOM. pyrite. *A. membranacea*	*Asmusia membranacea*
	MHMN 06-2112	AOM	
	MHNM 06-2114	Backbone AOM	
	ULQ Escuminac 95	AOM	
	YPMPU 13405	AOM	
	FMNH PF 6261	Swallowed *E. foordi*	*Eusthenopteron foordi*
	MHNM 06-1754B	Swallowed larvae	*Scaumenacia curta*
	AMNH 5968	Swallowed *E. foordi*	*Eusthenopteron foordi*

AOM: amorphous organic matter
NTO: nothing to observe

Annex IV. Observed specimens and their corresponding digestive contents.

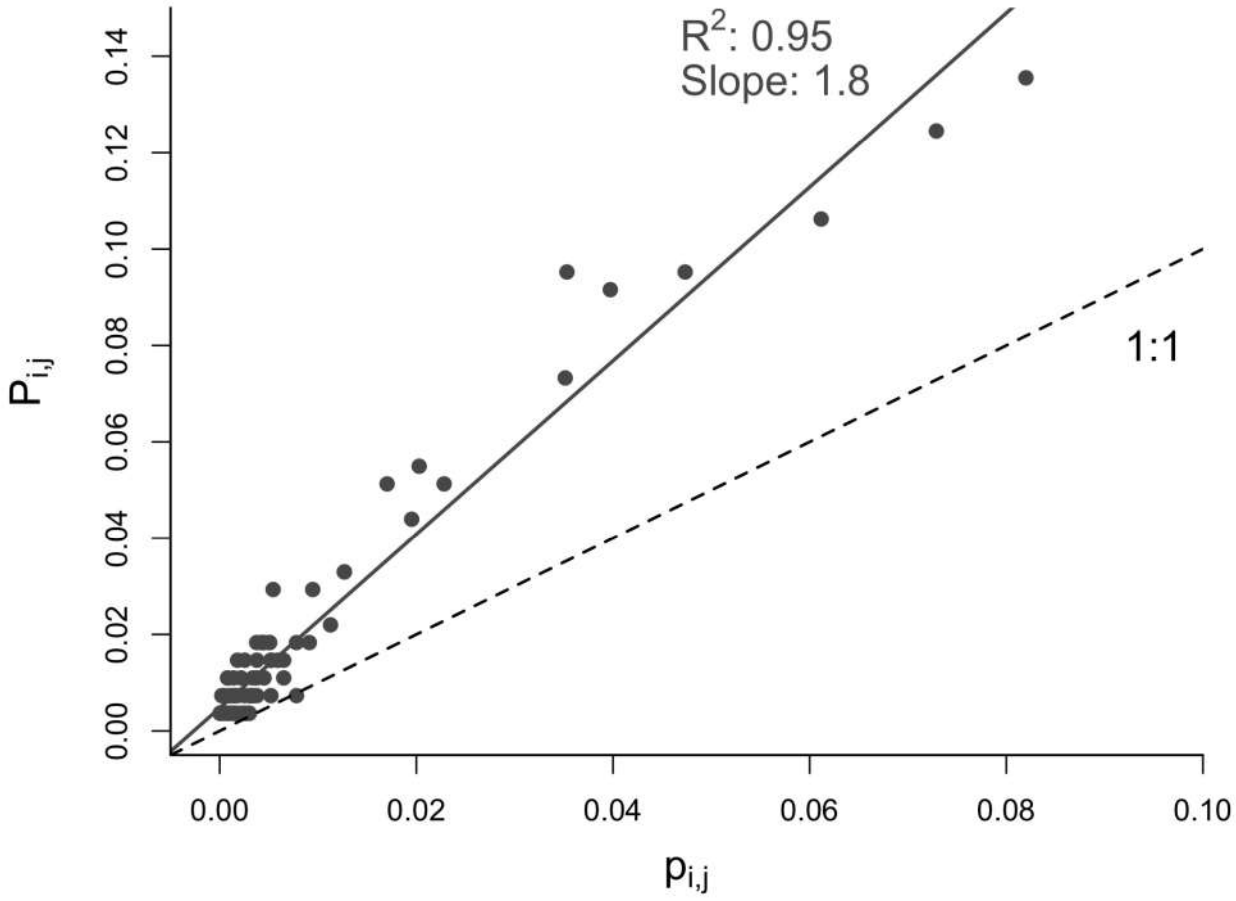
Predator (i)*prey (j)	Ni	Nj	Nij	N	pij	Pij	ρ
*Endeiolepis*Triazeugacanthus*	6	27	1	273	0.00217365052	0.003663	-0.5218754599
*Endeiolepis*Asmusia*	6	97	2	273	0.00780904077	0.00732601	0.06385147198
*Euphanerops*Homalacanthus*	5	15	2	273	0.00100631968	0.00732601	-1.9851308622
*Euphanerops*Triazeugacanthus*	5	27	4	273	0.00181137543	0.01465201	-2.0904913778
*Euphanerops*Asmusia*	5	97	3	273	0.00650753398	0.01098901	-0.5239351929
*Escuminaspis*Bothriolepis*	5	63	5	273	0.00422654268	0.01831502	-1.4663370687
*Escuminaspis*Homalacanthus*	5	15	2	273	0.00100631968	0.00732601	-1.9851308622
*Escuminaspis*Triazeugacanthus*	5	27	2	273	0.00181137543	0.00732601	-1.3973441973
*Escuminaspis*Diplacanthus*	5	4	1	273	0.00026835191	0.003663	-2.6137395216
*Escuminaspis*Fleurantia*	5	6	2	273	0.00040252787	0.00732601	-2.9014215940
*Escuminaspis*Asmusia*	5	97	4	273	0.00650753398	0.01465201	-0.8116172653
*Levesquaspis*Bothriolepis*	2	63	1	273	0.00169061707	0.003663	-0.7731898882
*Levesquaspis*Asmusia*	2	97	1	273	0.00260301359	0.003663	-0.3416136361
*Bothriolepis*Triazeugacanthus*	63	27	14	273	0.02282333051	0.05128205	-0.8095575324
*Bothriolepis*Diplacanthus*	63	4	2	273	0.00338123415	0.00732601	-0.7731898882
*Bothriolepis*Asmusia*	63	97	37	273	0.08199492814	0.13553114	-0.5025440029
*Bothriolepis*Homalacanthus*	63	15	9	273	0.01267962806	0.03296703	-0.9555114450
*Bothriolepis*Fleurantia*	63	6	5	273	0.00507185122	0.01831502	-1.2840155119
*Bothriolepis*Escuminaspis*	63	5	5	273	0.00422654268	0.01831502	-1.4663370687
*Bothriolepis*Levesquaspis*	63	2	1	273	0.00169061707	0.003663	-0.7731898882
*Bothriolepis*Miguashaia*	63	1	1	273	0.00084530853	0.03663	-1.4663370687
*Bothriolepis*Cheirolepis*	63	7	4	273	0.00591715976	0.01465201	-0.9067212808
*Plourdosteus*Escuminaspis*	4	5	1	273	0.00026835191	0.003663	-2.6137395216
*Plourdosteus*Bothriolepis*	4	63	2	273	0.00338123415	0.00732601	-0.7731898882
*Plourdosteus*Homalacanthus*	4	15	3	273	0.00080505575	0.01098901	-2.6137395216
*Plourdosteus*Triazeugacanthus*	4	27	2	273	0.00144910035	0.00732601	-1.6204877486
*Plourdosteus*Diplacanthus*	4	4	2	273	0.00021468153	0.00732601	-3.5300302535
*Plourdosteus*Cheirolepis*	4	7	1	273	0.00037569268	0.003663	-2.2772672850
*Plourdosteus*Miguashaia*	4	1	1	273	5.3670383e-05	0.003663	-4.2231774340
*Plourdosteus*Scaumenacia*	4	56	1	273	0.00300554146	0.003663	-0.1978257433
*Plourdosteus*Asmusia*	4	97	4	273	0.00520602718	0.01465201	-1.0347608166
*Homalacanthus*Bothriolepis*	15	63	9	273	0.01267962806	0.03296703	-0.9555114450
*Homalacanthus*Triazeugacanthus*	15	27	8	273	0.00543412631	0.02930403	-1.6850262697
*Homalacanthus*Diplacanthus*	15	4	3	273	0.00080505575	0.01098901	-2.6137395216
*Homalacanthus*Asmusia*	15	97	12	273	0.01952260194	0.04395604	-0.8116172653
*Triazeugacanthus*Asmusia*	27	97	20	273	0.03514068349	0.07326007	-0.7346562242

Predator (i)*prey (j)	Ni	Nj	Nij	N	pij	Pij	ρ
*Diplacanthus*Triazeugacanthus*	4	27	2	273	0.00144910035	0.00732601	-1.6204877486
*Diplacanthus*Asmusia*	4	97	4	273	0.00520602718	0.01465201	-1.0347608166
*Cheirolepis*Euphanerops*	7	5	1	273	0.00046961585	0.003663	-2.0541237336
*Cheirolepis*Escuminaspis*	7	5	1	273	0.00046961585	0.003663	-2.0541237336
*Cheirolepis*Bothriolepis*	7	63	4	273	0.00591715976	0.01465201	-0.9067212808
*Cheirolepis*Homalacanthus*	7	15	3	273	0.00140884756	0.01098901	-2.0541237336
*Cheirolepis*Triazeugacanthus*	7	27	4	273	0.00253592561	0.01465201	-1.7540191412
*Cheirolepis*Diplacanthus*	7	4	2	273	0.00037569268	0.00732601	-2.9704144655
*Cheirolepis*Miguashaia*	7	1	1	273	9.3923170e-05	0.003663	-3.6635616461
*Cheirolepis*Fleurantia*	7	6	1	273	0.00056353902	0.003663	-1.8718021769
*Cheirolepis*Asmusia*	7	97	5	273	0.00911054757	0.01831502	-0.6982885800
*Miguashaia*Escuminaspis*	1	5	1	273	6.7087979e-05	0.003663	-4.0000338827
*Miguashaia*Bothriolepis*	1	63	1	273	0.00084530853	0.003663	-1.4663370687
*Miguashaia*Homalacanthus*	1	15	1	273	0.00020126393	0.003663	-2.9014215940
*Miguashaia*Triazeugacanthus*	1	27	1	273	0.00036227508	0.003663	-2.3136349291
*Miguashaia*Diplacanthus*	1	4	1	273	5.3670383e-05	0.003663	-4.2231774340
*Miguashaia*Asmusia*	1	97	1	273	0.00130150679	0.003663	-1.0347608166
*Scaumenacia*Endeiolepis*	56	6	3	273	0.00450831220	0.01098901	-0.8909729238
*Scaumenacia*Euphanerops*	56	5	3	273	0.00375692683	0.01098901	-1.0732944806
*Scaumenacia*Escuminaspis*	56	5	5	273	0.00375692683	0.01831502	-1.5841201044
*Scaumenacia*Levesquaspis*	56	2	1	273	0.00150277073	0.003663	-0.8909729238
*Scaumenacia*Bothriolepis*	56	63	26	273	0.04733727810	0.0952381	-0.6990819160
*Scaumenacia*Homalacanthus*	56	15	6	273	0.01127078050	0.02197802	-0.6678293725
*Scaumenacia*Triazeugacanthus*	56	27	15	273	0.02028740490	0.05494505	-0.9963334395
*Scaumenacia*Diplacanthus*	56	4	1	273	0.00300554146	0.003663	-0.1978257433
*Scaumenacia*Cheirolepis*	56	7	4	273	0.00525969756	0.01465201	-1.0245043165
*Scaumenacia*Miguashaia*	56	1	1	273	0.00075138536	0.003663	-1.5841201044
*Scaumenacia*Fleurantia*	56	6	5	273	0.00450831220	0.01831502	-1.4017985476
*Scaumenacia*Quebecius*	56	4	2	273	0.00300554146	0.00732601	-0.8909729238
*Scaumenacia*porolepiformes*	56	1	1	273	0.00075138536	0.003663	-1.5841201044
*Scaumenacia*Asmusia*	56	97	34	273	0.07288438057	0.12454212	-0.5357696505
*Fleurantia*Bothriolepis*	6	63	5	273	0.00507185122	0.01831502	-1.2840155119
*Fleurantia*Homalacanthus*	6	15	1	273	0.00120758362	0.003663	-1.1096621248
*Fleurantia*Triazeugacanthus*	6	27	3	273	0.00217365052	0.01098901	-1.6204877486
*Fleurantia*Asmusia*	6	97	5	273	0.00780904077	0.01831502	-0.8524392598
*Quebecius*Endeiolepis*	4	6	1	273	0.00032202230	0.003663	-2.4314179648

Predator (i)*prey (j)	Ni	Nj	Nij	N	pij	Pij	ρ
*Quebecius*Euphanerops*	4	5	1	273	0.00026835191	0.003663	-2.6137395216
*Quebecius*Escuminaspis*	4	5	1	273	0.00026835191	0.003663	-2.6137395216
*Quebecius*Bothriolepis*	4	63	3	273	0.00338123415	0.01098901	-1.1786549963
*Quebecius*Homalacanthus*	4	15	1	273	0.00080505575	0.003663	-1.5151272329
*Quebecius*Triazeugacanthus*	4	27	2	273	0.00144910035	0.00732601	-1.6204877486
*Quebecius*Fleurantia*	4	6	1	273	0.00032202230	0.003663	-2.4314179648
*Quebecius*Asmusia*	4	97	2	273	0.00520602718	0.00732601	-0.3416136361
*Porolepiformes*Euphanerops*	1	5	1	273	6.7087979e-05	0.003663	-4.0000338827
*Porolepiformes*Homalacanthus*	1	15	1	273	0.00020126393	0.003663	-2.9014215940
*Porolepiformes*Triazeugacanthus*	1	27	1	273	0.00036227508	0.003663	-2.3136349291
*Porolepiformes*Asmusia*	1	97	1	273	0.00130150679	0.003663	-1.0347608166
*Eusthenopteron*Endeiolepis*	47	6	2	273	0.00378376202	0.00732601	-0.6607119048
*Eusthenopteron*Euphanerops*	47	5	2	273	0.00315313502	0.00732601	-0.8430334616
*Eusthenopteron*Escuminaspis*	47	5	2	273	0.00315313502	0.00732601	-0.8430334616
*Eusthenopteron*Levesquaspis*	47	2	1	273	0.00126125400	0.003663	-1.0661770129
*Eusthenopteron*Bothriolepis*	47	63	25	273	0.03972950126	0.09157509	-0.8350652919
*Eusthenopteron*Plourdosteus*	47	4	2	273	0.00252250801	0.00732601	-1.0661770129
*Eusthenopteron*Homalacanthus*	47	15	8	273	0.00945940506	0.02930403	-1.1307155340
*Eusthenopteron*Triazeugacanthus*	47	27	14	273	0.01702692911	0.05128205	-1.1025446570
*Eusthenopteron*Diplacanthus*	47	4	1	273	0.00252250801	0.003663	-0.3730298323
*Eusthenopteron*Cheirolepis*	47	7	5	273	0.00441438902	0.01831502	-1.4228519568
*Eusthenopteron*Miguashaia*	47	1	1	273	0.00063062700	0.003663	-1.7593241934
*Eusthenopteron*Scaumenacia*	47	56	26	273	0.03531511223	0.0952381	-0.9920690407
*Eusthenopteron*Fleurantia*	47	6	4	273	0.00378376202	0.01465201	-1.3538590853
*Eusthenopteron*Quebecius*	47	4	1	273	0.00252250801	0.003663	-0.3730298323
*Eusthenopteron*Asmusia*	47	97	29	273	0.06117081941	0.10622711	-0.5519090449

pij = (Ni*Nj)/N*N	N = bed total number
Pij = Nij/N	Ni = number of beds with species i
ρ=log(pij/Pij)	Nj= number of beds with species j
	Nij= number of beds with species i and j
	pij = expected probability of ij co-occurrence
	Pij = observed probability of ij co-occurrence
	ρ = expected by observed probability ratio

Annex V. Prey/predator co-occurrence and probabilities of co-occurrences in Escuminac Formation. Co-occurrence probabilities have been calculated using data from Cloutier *et al.* (2011).



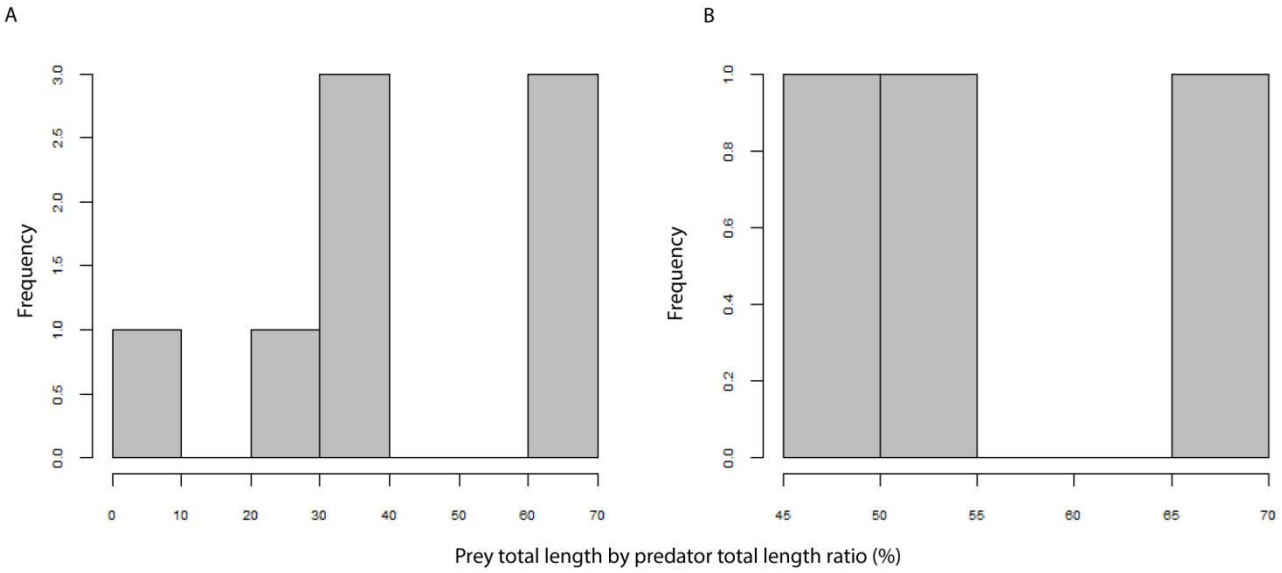
Annex VI. Pij*pij showing the relationship between the expected probabilites of co-occurrences and the observed co-occurrences.

Specimen	Predator species	Prey species	Predator size proxy(mm)	Prey size proxy (mm)	Estimated predator size (mm)	Estimated prey size (mm)
MHNM 04-1525	*Scaumenacia curta*	*Asmusia membranacea*	Dist. pectoral fin insertion – pelvic fin 94	Estimation	285	3
MHNM 04-1552A	*Scaumenacia curta*	*Asmusia membranacea*	Dist. opercular bones – caudal fin insertion 57	Estimation	124.6	3
MHNM 04-1597	*Scaumenacia curta*	*Asmusia membranacea*	Trunk 91	Estimation	237.6	3
MHNM 04-1058	*Fleurantia denticulata*	*Asmusia membranacea*	NA	Estimation	152	3
MHNM 05-25	*Cheirolepis canadensis*	*Asmusia membranacea*	Dist. pectoral fin insertion – pelvic fin 76	Estimation	237.7	3
MNHN 1968.8.4	*Cheirolepis canadensis*	*Cheirolepis canadensis*	Dist. anterior extremity – pelvic fin insertion 19.3	Dist. dentary anterior extremity – sopercular bones posterior extremity 4.7	527	272
MHNM 05-18	*Cheirolepis canadensis*	*Homalacanthus concinnus*	Dist. anterior extremity – pectoral fin insertion 84	Pectoral spine length 22	262.7	179.6
MHNM 05-399	*Cheirolepis canadensis*	*Homalacanthus concinnus*	NA	Dist. anterior extremity – pelvic spines insertion 82	402	294
	Homalacanthus concinnus	*Asmusia membranacea*	Dist. anterior extremity – pelvic spines insertion 82	Estimation	294	3
MHNM 05-226	*Cheirolepis canadensis*	*Homalacanthus concinnus*	Dist. pectoral fin insertion – pelvic fin 69	Pectoral spine length 32	548.4	249.3
	Homalacanthus concinnus	*Asmusia membranacea*	Pectoral spine length 32	Estimation	249.3	3
	Homalacanthus concinnus	*Asmusia membranacea*	Pectoral spine length 32	NA	249.3	1.5
MHNM 06-1381A	*Quebecius quebecensis*	*Asmusia membranacea*	Dist. pectoral fin insertion – posterior extremity 76	Estimation	95.8	3
MHNM 06-1474	*Quebecius quebecensis*	*Asmusia membranacea*	Juvenile 49	Estimation	49	3

Specimen	Predator species	Prey species	Predator size proxy(mm)	Prey size proxy (mm)	Estimated predator size (mm)	Estimated prey size (mm)
MHNM 06-32	*Eusthenopteron foordi*	*Cheirolepis canadensis*	Post Scu Dorsal 1 – post Rad Dorsal 2 108.75	Anterior premaxillary – posterior maxillary 80	685.97	470.4
MHNM 06-159	*Eusthenopteron foordi*	*Asmusia membranacea*	Juvenile 146	NA	146	2
MHNM 06-277	*Eusthenopteron foordi*	*Asmusia membranacea*	Dist. anterior extremity – last part of caudal fin 112	Estimation	121.2	3
MHMN 06-344	*Eusthenopteron foordi*	*Asmusia membranacea*	NA	NA	189	3
MHNM 06-417	*Eusthenopteron foordi*	*Asmusia membranacea*	Dist. pectoral fin insertion – pelvic fin 150	Estimation	492.8	3
MHNM 06-418A	*Eusthenopteron foordi*	*Asmusia membranacea*	Dist. opercular bones – pelvic fin insertion 150	Estimation	363.2	3
MHNM 06-419	*Eusthenopteron foordi*	*Asmusia membranacea*	Anterior extremity – pelvic fin insertion 184	Estimation	319.4	3
MHNM 06-484	*Eusthenopteron foordi*	*Asmusia membranacea*	Anterior extremity – opercular bones 68	Estimation	403.6	3
MHNM 06-502	*Eusthenopteron foordi*	*Eusthenopteron foordi*	Body height dorsal 1 36.92	Anterior orbit – anterior cleithrum 15.38	283.83	85.99
MHNM 06-611	*Eusthenopteron foordi*	*Asmusia membranacea*	NA	Estimation	405	3
MHNM 06-700	*Eusthenopteron foordi*	*Bothriolepis canadensis*	Pectoral – pelvic insertion 210	Ventral thoracic plates length 46.67	580.44	138.99
MHNM 06-986	*Eusthenopteron foordi*	*Asmusia membranacea*	Dist. pectoral fin insertion – pelvic fin 86	Estimation	342.9	3
MHNM 06-1342	*Eusthenopteron foordi*	*Asmusia membranacea*	Anterior extremity – pectoral fin end 82	Estimation	228.6	3

Specimen	Predator species	Prey species	Predator size proxy(mm)	Prey size proxy (mm)	Estimated predator size (mm)	Estimated prey size (mm)
MHNM 06-1515	*Eusthenopteron foordi*	*Asmusia membranacea*	Dist. pelvic fin insertion – caudal fin 142	Estimation	339.3	3
MHNM 06-1698A	*Eusthenopteron foordi*	*Asmusia membranacea*	NA	Estimation	62	3
MHNM 06-1583	*Eusthenopteron foordi*	*Asmusia membranacea*	Anterior extremity – pelvic fin end 52	Estimation	78.4	3
MHNM 06-1590	*Eusthenopteron foordi*	*Asmusia membranacea*	Dist. Dentary – caudal fin 232	Estimation	284.6	3
MHMN 06-2077	*Eusthenopteron foordi*	*Asmusia membranacea*	Anterior extremity – pectoral fin insertion 146	Estimation	516	3
MHNM 06-2103	*Eusthenopteron foordi*	*Asmusia membranacea*	Anterior extremity – pectoral fin end 77	Estimation	214	3
MHNM 06-126	*Eusthenopteron foordi*	*Homalacanthus concinnus*	Body height pectoral 55.88	Anterior pectoral spine – anterior anal spine 53.53	528.72	172.23
FMNH PF 6261	*Eusthenopteron foordi*	*Eusthenopteron foordi*	NA	NA	248	166
MHNM 06-1754AB	*Eusthenopteron foordi*	*Scaumenacia curta*	Anterior premaxillary – anterior anal instertion 210	Opercular length 2.33 and Opercular height 1.91	57.73	35.54
MHNM 06-915	*Eusthenopteron foordi*	*Bothriolepis canadensis*	Pectoral radial III – Ulna 45.45	Ventral thoracic plates length 31.11	1230.12	92.66
AMNH 5968	*Eusthenopteron foordi*	*Cheirolepis canadensis*	Maximal body height 1st dorsal – pelvic fin 175	Branchiostegal rays length 24.2	1192	424

Annex VII. Identifiable gut contents and estimated size for prey and predator specimens. Estimations for *A. membranacea* are from Martens (1996).



Annex VIII. Histograms of prey total length by predator total length ratio frequency for vertebrate preys. A – *E. foordi*; B – *C. canadensis*.

References

AHLBERG, P.E. 1991. A re-examination of sarcopterygian interrelationships, with special reference to the Porolepiformes. *Zoological Journal of the Linnean Society 103*, 241–287.

ARRATIA, G. & CLOUTIER, R. 1996. Reassessment of the morphology of Cheirolepis canadensis (Actinopterygii), 165–197. *In* SCHULTZE, H.P. and CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr. Friedrich Pfeil, München.

BÉCHARD, I., ARSENAULT, F., CLOUTIER, R. & KERR, J. 2014. The Devonian placoderm fish Bothriolepis canadensis revisited with three-dimensional digital imagery. *Palaeontologia Electronica 17*, 1–19.

BOISVERT, C.A. 2005. The pelvic fin and girdle of Panderichthys and the origin of tetrapod locomotion. *Nature 438*, 1145–1147.

CHEVRINAIS, M., CLOUTIER, R. & SIRE, J.Y. 2015. The revival of a so-called rotten fish: the ontogeny of the Devonian acanthodian Triazeugacanthus. *Biology Letters 11*, 20140950.

CLOUTIER, R. 1996a. The primitive actinistian Miguashaia bureaui Schultze (Sarcopterygii), 227–247. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr Friedrich Pfeil, München.

CLOUTIER, R. 1996b. Dipnoi (Akinetia: Sarcopterygii), 198–226. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr Friedrich Pfeil, München.

CLOUTIER, R. 1996c. Porolepiform fishes (Sarcopterygii), 248–270. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr Friedrich Pfeil, München.

CLOUTIER, R., PROUST, J.N. & TESSIER, B. 2011. The Miguasha Fossil-Fish-Lagerstätte: A consequence of the Devonian land-sea interactions. *Palaeobiodiversity and Palaeoenvironments 91*, 293–323.

CLOUTIER, R., BÉCHARD, I., CHAREST, F. & MATTON, O. 2009. La contribution des poissons fossiles du parc national de Miguasha à la biologie évolutive du développement. *Le Naturaliste canadien 133*, 84–95.

DENISON, R. 1978. Placodermi. *In* SCHULTZE, H.P. & KUHN, O. (eds) *Handbook of. Paleoichthyology Vol. 2*. 128 pp. Gustav Fisher Verlag, Stuttgart.

DOWNS, J.P., DAESCHLER, E.B., JENKINS JR, F.A. & SHUBIN, N.H. 2011. A new species of Laccognathus (Sarcopterygii, Porolepiformes) from the Late Devonian of Ellesmere Island, Nunavut, Canada. *Journal of Vertebrate Paleontology 31*, 981–996.

FOREY, P.L., AHLBERG, P.E., LUKŠEVIČS, E. & ZUPINŠ, I. 2000. A new coelacanth from the Middle Devonian of Latvia. *Journal of Vertebrate Paleontology* ***20***, 243–252.

GAGNIER, P.Y. 1996. Acanthodii, 149–164. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr. Friedrich Pfeil, München.

JANVIER, P. 1996a. The Miguasha 'Anaspida', 134–140. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr. Friedrich Pfeil, München.

JANVIER, P. 1996b. *Early vertebrates*. 393 pp. Oxford University Press, Oxford.

JANVIER, P. & ARSENAULT, M. 1996. Osteostraci, 123–133. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr. Friedrich Pfeil, München.

JANVIER, P. & ARSENAULT, M. 2007. The anatomy of Euphanerops longaevus Woodward, 1900, an anaspid-like jawless vertebrate from the Upper Devonian of Miguasha, Quebec, Canada. *Geodiversitas 29*, 143–216.

JARVIK, E. 1996. The evolutionary importance of Eusthenopteron foordi (Osteolepiformes), 285–313. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada*. Verlag Dr. Friedrich Pfeil, München.

MARTENS, T. 1996. Conchostraca (Phyllopoda, Crustacea) from the Escuminac Formation, 112–113. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada*. Verlag Dr. Friedrich Pfeil, München.

MOLOSHNIKOV, S.V. 2009. A new species of psammosteiform heterostracan (Agnatha) from the Givetian (Middle Devonian) of the Voronezh Region. *Paleontological Journal 43*, 306–310.

MOY-THOMAS, J.A. 1971. Summary of the Early Evolution of Fishes, 246–250. *In* MOY-THOMAS, J.A. (ed.) *Palaeozoic Fishes*. Springer.

SCHULTZE, H.P. 1996. The elpistostegid fish Elpistostege, the closest the Miguasha fauna comes to a tetrapod, 316–327. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr. Friedrich Pfeil, München.

THOMSON, K.S. & HAHN, K.V. 1968. Growth and form in fossil rhipidistian fishes (Crossopterygii). *Journal of Zoology 156*, 199–223.

UPENIECE, I. 1995. A new species of Strunius (Sarcopterygii; Onychodontida) from Latvia; Lode quarry (Upper Devonian). *Geobios 28*, 281–284.

UPENIECE, I. 2011. Palaeoecology and juvenile individuals of the Devonian placoderm and acanthodian fishes from Lode site, Latvia. Ph.D. thesis, University of Latvia, Riga, Latvia,

VÉZINA, D. 1996. Placodermi (Antiarchi and Arthrodira), 141–148. *In* SCHULTZE, H.P. & CLOUTIER, R. (eds) *Devonian Fishes and Plants of Miguasha, Quebec, Canada.* Verlag Dr. Friedrich Pfeil, München.

VOROBYEVA, E.I. 2006. A new species of *Laccognathus* (Porolepiform Crossopterygii) from the Devonian of Latvia. *Paleontological Journal 40*, 312–322.

VOROBYEVA, E.I. & SCHULTZE, H.P. 1991. Description and systematics of panderichthyid fishes with comments on their relationship to tetrapods. *Origins of the higher groups of tetrapods: controversy and consensus 68*, 109.

WHITEHEAD, P.J.P., BAUCHOT, M.L., HUREAU, J.C., NIELSON, J. & TORTONESE, E. 1986. Fishes of the North-eastern Atlantic and the Mediterranean. Vol. I, II & III. Paris: United Nations Educational, Scientific and Cultural Organisation.

ZUPIŅŠ, I. 2008. A new tristichopterid (Pisces, Sarcopterygii) from the Devonian of Latvia. *Proceedings of the Latvian Academy of Sciences. Section B. Natural, Exact, and Applied Sciences 62*, 40–46.