Table S1. Occurrence list of fossil ostracods from the Niitsu Hills, Niigata Prefecture, central Japan.

Route	4 (Takinoiri)																				10 *	13 (Kitayama rindo)						2 (Monzen)																								6 (Sugesawa)					
Sample	TIR01	TIR02	TIR03	TIR05	TIR06	TIR08	SM09	SM08	SM07	SM06	SM5.5	SM05	SM4.5	SM04	SM3.5	SM03	SM2.5	TIR09	SM01	SM0.5	HS02	KR13.8	KR13.6	KR13.5	KR13.3	KY08	KR11.2	MN50	MN47	MN44	MN37	MN36	MN35	MN34	MN33	MN32	MN30.5	MN30	MN29	MN27	MN26	MN25	MN23	MN22	MN21.2	MN21	MN20.6	MN20.5	MN03	MN02	MN01	SGE04	SG03	SGE01	SG04	SG01	SG02
Acanthocythereis dunelmensis s.l.	16	17	10	4	1	2	21	17	12	14	12	16	13	7	10	2	5	7	6	11				3	1	1		12		9	3	3	5	2	4	2	2		1	10	11	2	14	18	32	43	15	38		1		6		3	3	3	
Acanthocythereis mutsuensis								1	1	1									1		1																								2							3					
Acanthocythereis tsurugasakensis	6	2	1			4						1	1		2				3									1		3	3					2												1					1				
Acanthocythereis sp.																	7																																					1			
Ambocythere japonica															7																			2		1				1							2			4									
Ambostracon ikeyai	4						31	25	10	27	20	6	8		7		3	5	5	3																									10			6						6			
Ambtonia grabla							2	4			1				1		6			2																									6		1	8									
Ambtonia obai																						1	3	23	10	38	2																						2								
Amphileberis nipponica								1										1					2	1									1					1		3	1								2	1							
Argilloecia hanaii				1			4	3						1	2		4																																									
Argilloecia lunata																			1																																					
Argilloecia toyamaensis	2	18	9	7				3		9	2		4						2		3																																				
Argilloecia sp.1										2																																																
Aurila cymba								4																3				4	2	2		6		12	26	12	10	11	1	9	26	2	22	8		11			25	15	8		3		7	6	3
Aurila dispalata			6		2		10							2	2			3		2													3				1							6		2								6			
Aurila corniculata	2		2	5						7		2	2	1		3	4													5	2	10		11				1									9							2			
Aurila hataii	3	3	2	1	6		6	4	4	9	3		6	1			3	9		4								2		9	3	4	2		9		3	5	2	1	3			2	10	6	1	1	2	7						2	1	6
Aurila cf. *inabai*																				4																																					
Aurila munechikai																														4		3	2			1																						6	
Aurila shigaramiensis																												1					24	1		1	1		2	2																	
Aurila spinifera																																								1			2						4	6							
Aurila togakushiensis																																																			4						
Aurila tosaensis				1																																																							
Aurila tsukawakii																																10			4			3										2										
Aurila uranouchiensis																												2		1		1	5	1	2	1	7	7	0		2		2	3		11			3								
Aurila sp.1	1	1	3	2	1	1	9	9	9	30	17	14	10	17	2		5	6	5	3																									13			7				5		6			
Aurila spp.	1	1	2	1			8	4	2			1						4			2					1																						1			1									
Australimoosella tomokoae																										1																															
Baffinicythere ishizakii		1	2		1						2							1																																						
Baffinicythere reticulata	2	1				1				5		5	3	2	4		3	4										2		2	1							1		1								4		1		3	5		1		
Baffinicythere robusticostata									2																																						4		2			1	3							
Baffinicythere sp.	1			1																	1																																			
Bicornucythere bisanensis																							1	2	2	2																										2							
Bicornucythere sp.														1																																												
Bradleya cf. *nuda*							1	1																												1	1		2		1			1	1		1												
Bythoceratina sp.							1																																																			
Callistocythere aff. *alata*																																			1																					
Callistocythere hayamensis																																							1																	
Callistocythere japonica								1	2	2																																			1											
Callistocythere pumila																																								1																
Callistocythere reticulata					1					1																																														
Callistocythere undulatifaciaris	1	1		3	1		1	1	3								1	8										6		1		3	5	15	6	5	1	7		7	5		4	7	1	3		2	11	4		1	2	1	1		
Callistocythere spp.					1						4		2			1																																								
Caudites japonicus																																																	1							
Celtia sp.										1				1												1																														
Chejudocythere higashikawai	1						2	1	13	9																																												1			
Cluthia cluthae																												1		1																															1
Cluthia japonica		1					3	1	4		4				2		1		3	1																										2			2										
Coquimba ishizakii																														1																											
Cornucoquimba moniwensis	3	5	4				9	7	4	6	6		7	3	2		11		3	3	4										4	3	8	1	3	2	2	7		3	4	1	4	4	6	6		2		7	1	4	1	3	4	1	4
Cornucoquimba aff. *moniwensis*								2																																																		
Cornucoquimba saitoi	1		1	1			3		2	1	2	1			2		1		2		1										1	1						2		3		1			3			4		4				2			2
Cornucoquimba tosaensis	1	1	3	14	1				1		5		2	5	1	1	1	9			2			1		4		18		6	12	13	31	37	20	13	17	22	3	12	18	4	11	20		16		1	18	12	9		2		3	1	8
Cornucoquimba sp.1		1	2				2	4	6	11	6	3	2	3	1		2	1																											4			1								
Cornucoquimba spp.	1	1	1		1		2											7																													1		3	1						3		
Cythere hanaii	26	5		27	46	1		1	3	4	1	3	1	1	2		1	2	1					1		1			1	6	16	8	19	11	7	4	1	7	2	9	10	2	6	6		1		2			2	18	21		8	14	2
Cythere japonica					3													1												5	3	4	1		1		5																			
Cythere nishinipponica		24	5																		1																																			
Cythere nopporoensis																		2																						4												4					
Cythere omotenipponica																																																						10			
Cythere sanrikuensis			1															1																																							
Cythere uranipponica	3	14	4					1		3												1		1	1		2				15		4			1												3		1						6	2			
Cythere sp.1		3																																																							
Cytheridea sp.			1																																																						
Cytheromorpha acupunctata																																			1																					
Cytheromorpha sp.								1							1																																									
Cytheropteron aff. *alatum*								1																																																
Cytheropteron arcuatum				3				2	2	1	6	3	7	2	3		2		2																																			5					
Cytheropteron carolae																												7		4	3			1	1											6									4			6	1
Cytheropteron champlainum																												1					2		1	2	1																					
Cytheropteron elaeni																												2															1															
Cytheropteron cf. *foresteri*																												1																														
Cytheropteron lordi																														1																							5			
Cytheropteron miurense		2	3				27	33	8	4	6	4	16	2	1	1		4	4	5								4	9	5	2		1	3	10	9	3	7	6	4	4	2	6	4	8	6	2	15	1	13	4	1	2		2		4
Cytheropteron nodosoalatum																															1													1												
Cytheropteron sawanense	3	3	3	7	3		12	18	29	33	31	22	18	20	27		17	6	19	6	3							3	1	6	1	1		1	2			9			1		3		4	5		16	2	1	7	1	9	8	11	2	
Cytheropteron subuchioi																																														1		1								
Cytheropteron testudo							5	7	1		9	2	4	4	2		3		4		1																								14			7				3					
Cytheropteron uchioi							1													2																					1																	
Cytheropteron yajimae																												1																												4	
Cytheropteron sp.1			2	3						4									4						10		5																						1							6			
Cytheropteron spp.		3		1				1								1																														1											
Cytherura spp.		4	5	6	7		3	1		1			1		2					1	3																													3				8		1			
Daishakacythere abei			1		3																																																				
Elofsonella concinna				10		2	1		1								1	1		1								12																	1			1					3	4			2
Eucythere yugao										1																																									1							
Eucytherura neoalae				1			1			1	1		1															1						1	1						1						2										
Falsobuntonia hayamii							15	7				3	1	6																																			2											
Falsobuntonia taiwanica			3	4							4							1	4		2								2		1			1					2	2	1	1		2	3	5	4				2	1	3	2	1	3	4	4
Finmarchinella hanaii	16	16	3	13		3	8	7	7	11	12	17	12	8	11		7	24	17	4	23			2		1		18	2	5	7	69	68	90	49	33	23	17	15	50	41	26	26	31	7	16	3	4	25		20	16	28	11	11	4	5
Finmarchinella japonica		1		5			14	14	8	9	10	2	9	6			12	2	12		3							9	3	4	2	6	16	11	9	3	8	3	1	11	3	2	3	8	1	3		9		5	1		3		4	1	2
Finmarchinella rectangulata					1																										2						1																			1	1	
Finmarchinella uranipponica		1	2	2			3	2	1	1	1													2						1	13	1	2	3		1	1		1			1							1					1				3	
Finmarchinella sp.								3								1																																								
Hanaiborchella miurensis						1	6	5	3	11	10	2	8	1	5		6		1	4								1				3	2	1	1			6		1	1	1			1	2		2	2	2			2		2		1
Hanaiborchella triangularis	1			2			2																			1			1	1		1		1	1	1		1		1						3										
Hemicythere boreokurila																														2	1				1																				4		
Hemicythere emarginata			2		1			6	1	1	1	5	1	1			3		3																										4			1								
Hemicythere kitanipponica	5	5	9	15	13		19	17	32	29	22	22	43	14	19		21	9		3	8							7	3	12	14	5	16	12	9	8	4	7	6	6	2	1	5	2	12	14	1	8			3	6	9	13	8	4	4
Hemicythere ochotensis					1																									2																					3				2	1	
Hemicythere orientalis					1																																																1		1			
Hemicythere quadorinodosa																								1																																
Hemicythere sp.1					1		1	3	4	8	7	5		8	4		3	2	3																																					
Hemicythere spp.	1		1		1			2	2				1					1						1																						1											
Hemicytherura cuneata		1	2	6			15	14	6	16	11	3	4		4		5	1	2	3								5	6		5	7	10	15	17	13	8	5		3	5	2	3	2	5	12		4	3	16	1			2	3	3	8
Hemicytherura henryhowei																															3	8																								
Hemicytherura kajiyamai				1	5													2	9										1	3	6		1		1		1													1						3	6	6
Hermanites posterocostata																																						4	2	5	7	2	7	6		5											
Heterocythereis otsuchiensis																														3																											
Howeina higashimeyaensis			4		1													1			1																																			
Johnnealella sp.				1								1	1																																									1			
Kangarina yamaguchii				1				3		4	7				1		1										1			1	7	6	10	5	1	2			3	6	1	5	1		3	1		2	2	1		1	2	1	2	1
Kobayashiina hyalinosa			1							4							1																																							1	
Kotoracythere sp.1				1			1	1													2		1	3		3																																
Kotoracythere sp.						1				2				1																																1											
Krithe spp.	42	56	30	34			1			1	7	29	52	41	23		4		4		10							5	1	13	1	1	1	2		2	2	4	1	11	4		3	3								14	4		1	17	8
Laperousecythere sasaokensis				2					4																															1												2					
Laperousecythere sp.1				1			1						2					1	1	1								2			1		1						1								15	61			1	1					
Legitimocythere hanaii							1													2																1			1			1	2	3	3													
Loxoconcha epeterseni	1																	2			1																												1									
Loxoconcha harimensis																												6		3		1											2						1		3				3	2	
Loxoconcha hattorii	1																	8														4	4	1	2					1		1							6	2	2							
Loxoconcha japonica																								1		3						10	25	6	4	1	8			4	8	1	5				1			2							
Loxoconcha kamiyai		1	2	2	9		1	1	1	4	4						2				1									28	9	3	7	1		2	2	3																	1		11	14	20
Loxoconcha kattoi																																3	19	10	7	3		2	1		3	1	3	3	2				5								
Loxoconcha kitanipponica																			1																																					
Loxoconcha ocellata																								1																																
Loxoconcha optima							1																	3																										1								
Loxoconcha ozawai					1		1						1																																			3										
Loxoconcha propontica																												1		1																									1			5	2
Loxoconcha subkotoraforma																																2	1	3			2	4		2	1	5	3			1					1							
Loxoconcha uranouchiensis				1				3					2				1						2		1						2										1		1				3	1	2						2
Loxoconcha viva											1							1	1										3					3	4	3	2	3												3	3							
Loxoconcha sp.	1		1					1	3		1													1																							1											
Loxoconchidea dolgoiensis		2																													2																									
Loxocorniculum kotoraformum																														3		11	10	7	2	2	2	3	1	2	3			3					1								1	
Loxocorniculum mutsuense	2	1	3		7			1	2			1						13	1									2		2	9	9	12	1	3	1	1	1			5		4	3	1	8			4	8	5	1	2	4	24	22	12
Loxocythere inflata														1														2	6	3	2					1			2						2						1	1		4		1
Microcythere sp.																																																								1	
Munseyella hatatatensis s.l.						2	7	15	3	12		1	4		3		1				2																									1			1		1							
Munseyella japonica	4	1	1				1				3				1		5		3							1				1	2																	1		4					1			
Munseyella oborozukiyo				3	1								2						1		1																													1										
Munseyella spp.							1						1							2																								1											
Neocytherideis punctata																	1																															1										
Neocytherideis sp.																														1																											
Neomonoceratina tsurugasakensis						5	2							1					1				3	3		10		23														2	1	1	1		1	1									
Neomonoceratina sp.																	1																																								
Neonesidea oligodentata	2	3	2		5		33	30	28	27	18	2	5	8	4		12	19		2	1							3		7	6	3	18		7	1		4			3		1		2		1		8	70	45			11	11	22	14
Neonesidea sp.1								8																																																		
Nipponocythere bicarinata										2	3		1						2							1																								1							
Nipponocythere spp.							1	3	3	5																																														
Pacambocythere u-carinata										18	13		3					2											1																			1		1	3	1	1			
Pacambocythere spp.		1															1																												4											
Paijenborchella hanaii								1																						1				1					1						1								1			1
Paijenborchella iocosa																																													1											
Palmenella limicola				2				1													1								1	1	2				1																	2	7			1	1
Palmoconcha saboyamensis	5	10	5	16													1				1																																			
Palmoconcha sp.																			1																																					
Paracytheridea neolongicaudata							9	4	1	1		1	2					4												1					1						1		1		1	1		5		2		1			1	1	
Paracytheridea cf. *neolongicaudata*																												1	1				1	7	6	7	6	1	3	1	7	3	3	6	7		3												
Paracytheridea spp.		2	1							1																																																
Paradoxostoma spp.		1	1				7	8	2	7	4	1		2			5	1	3	2																																			2			
Parakrithella pseudadonta											1						1	1										1		1	4	11	8	3	3	1	8	3		3	7		4	2	3	2		2	1	12						1	
Paranesidea sp.										4																																																
Pectocythere daishakaensis	2		1	4						2	2								4																																	3					
Pectocythere spp.		4	2				3	5	2		3	1	1		2		3		3																																					
Phlyctocythere spp.							1		4	2							1																																							
Pistocythereis bradyformis																								1																																
Polycope sp.								1																																																
Pontocythere japonica																								1																																
Pontocythere miurense																																									1												1			
Pontocythere spp.							3	1		6	1																																			1											
Propontocypris attenuata					1					3											1																																			
Propontocypris spp.		4	1				1	1																																																
Pseudoaurila japonica																																		1	1									1												
Pseudocythere spp.															2		1																																							
Robertsonites hanaii		4		1		3	1		2	1	1				1		2	1		2								2		1				2	1										3			2									1
Robertsonites reticuliforma																						1		3		1																															
Robertsonites tabukii			9	29		4					6		10		3	2	4	1			4		1					7	1		3	3					1			4	2					2										1	
Robertsonites spp.				1					1																1																															
Robustaurila ishizakii					4					1								1												5	2						1				2			2				2		9						1	3	1
Schizocythere ikeyai																																																					1			
Schizocythere kishinouyei	1	1	4		5	1		4	1		1						1	3	3	1	4			2				1	1	4	1	1			1					4	5	3	7	7	4	4	1	3	21	22	10	3	2	9	4	2	1
Sclerochilus sp.											1																																													
Semicytherura enshuensis																														1																											
Semicytherura henryhowei	3		2	1			4				3			1	3			1		1								3	4	4			4	6	11	3	2	3	1	4	2		4			3			1	4	2		2		1	1	7
Semicytherura hiberna		2	1															1		1	1										2		2				1	2																				
Semicytherura leptosubundata				9				14		2																		1	4	17	1	1	2		4										2	2						1		8	8	1	
Semicytherura mainensis																															1			3		1															1						
Semicytherura miurensis			1														1													2					1																						1	1
Semicytherura robustundata																																																			2				2		
Semicytherura cf. *skippa*																																																							1	1	
Semicytherura subslipperi	5	1	10	26			35	35	7	48	29	29	22	9	17		15	9	28	12	3							3	3	7	9	3	2	7	2	19		22	11	14	9	8	10	3	10	19	1	40	1	7	7	3	6	15	13	5	5
Semicytherura subundata			1	5	1		12	5	4		7	3	4	1			1	1			2									8	13	2	1						9					3		1			1		2			3	1	6	4	2
Semicytherura tanimurai		3			4				2			2	2				2		1										1			2	2		1		1			1			1								1		1			1			1	
Semicytherura undata																																								1																
Semicytherura sp.1							1	1	10	9	7	3	3	1	3		1		2																										1									2			
Semicytherura spp.			1	1			7	10	20	10	5			3			8	1	1																										4			1							1			
Sinocytheridea impressa			1				4	2																	3		4																			2	4		10												
Sinocytheridea sp.											2																																													
Spinileberis rhomboidaris																																																	1							
Tanella miurensis																													1	1																										1		
Trachyleberis scabrocuneata																								2		2																						1											1
Trachyleberis spp.							3				1				1									1																																
Triebelina sp.																															1																									
Typhlocythere japonica																																		1		1		1					1													
Typhlocythere spp.				1				3	2	1	2																																													
Urocythereis gorokuensis																															4				1	1																				
Xestoleberis hanaii					4		1			4	1					1	4											3		7	15	2	7		3		9	3		2	7	2	5	1	4	4			1	12	4				9	10	6
Xestoleberis spp.			1				9	6	6	12	7	3	5	2	4		3		2										3																											2		2	
Yezocythere sp.																																												1												
Unknown	1				2	1	3	3	4	2		1	2	1	1	1	1			1						1	1	2	1	4		1		1			2				2				1			1				1	1	1	4	1	2
Total number of ostracod specimens	171	233	181	289	147	32	404	410	295	461	364	217	312	191	196	9	222	201	180	86	98	2	12	78	14	85	3	196	51	257	194	254	373	295	271	165	147	206	64	220	221	77	196	171	224	242	55	295	164	266	159	122	144	154	189	194	152
Diversity index	2.80	2.97	3.51	3.24	2.81	2.53	3.55	3.64	3.44	3.52	3.60	2.92	3.18	2.97	3.18	1.89	3.59	3.42	3.27	3.02	3.01	0.69	1.82	2.74	0.90	2.19	0.64	3.34	2.84	3.57	3.46	3.17	3.14	2.76	3.25	2.98	3.09	3.32	2.62	3.14	3.12	2.60	3.29	3.01	3.50	3.14	2.31	3.00	2.84	2.93	2.77	2.96	3.00	3.23	3.29	3.27	3.21

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