

Range sizes of groundwater amphipods (Crustacea) are not smaller than range sizes of surface amphipods: a case study from Iran

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Supplementary material

TABLE S1 The data of genus *Gammarus* samples [including geographic locality, geographic coordinates, and accession number].

TAXON	Acc.No. 28S (upper) Acc.No. COI (lower)	ORIGIN OF SAMPLES	COORDINATES	
			N	E
<i>Gammarus</i> sp.	KT827526 KT778454	Chenar Spring 19	37.373	55.96986
<i>Gammarus</i> sp.	KT827484 KT778330	Golestan waterfall 20	37.37317	55.96975
<i>Gammarus</i> sp.	KT827515 KT778404	Janlar Spring 21	37.43783	55.95894
<i>Gammarus</i> sp.	KT827528 KT778458	Chatalghabagh Spring and Cave 22	37.45711	55.93039
<i>Gammarus</i> sp.	- KT778390	Divshel 42	37.46178	50.10822
<i>Gammarus</i> sp.	KT827521 KT778440	Chatalghabagh Stream 23	37.35175	55.92889
<i>Gammarus</i> sp.	KT827518 KT778411	Karkooli Spring 15	37.37456	56.08514
<i>Gammarus</i> sp.	KT827552 KT778502	Yeki Barmagh Spring 17	37.17172	56.04892
<i>Gammarus</i> sp.	KU513434 KT778407	Alang Sofla 27	36.84319	55.24869
<i>Gammarus</i> sp.	KT827490 KT778339	Aghsoo River 26	37.41003	55.57319
<i>Gammarus</i> sp.	KT827492 KT778343	Shirabad Waterfall 28	36.97165	55.03743

<i>Gammarus</i> sp.	KT827493 KT778344	Shirabad Waterfall 28	36.97165	55.03743
<i>Gammarus</i> sp.	KT827519 KT778432	Moosa Bolaghi Spring 46	36.15875	48.6015
<i>Gammarus</i> sp.	- KT778428	Moosa Bolaghi Stream 47	36.15814	48.59983
<i>Gammarus</i> sp.	KU513431 KT778493	Taham Spring 45	36.83547	48.60194
<i>Gammarus</i> sp.	KT827551 KT778500	Yash Bolagh 44	36.62575	49.12861
<i>Gammarus</i> sp.	KU513432 KT778359	Biledargh 48	38.17744	48.0577
<i>Gammarus</i> sp.	KT827497 KT778360	Biledargh 48	38.17744	48.0577
<i>Gammarus</i> sp.	KT827554 KT778505	Yaghtikalan Spring 12	37.40081	56.19892
<i>Gammarus</i> sp.	- KT778379	Zoghali Spring 16	37.43733	56.07675
<i>Gammarus</i> sp.	KT827514 KT778400	Harijan 38	36.24044	51.33253
<i>Gammarus</i> sp.	KT827546 KT778421	Loveh Waterfall 25	37.35336	55.66278
<i>Gammarus</i> sp.	KU513433 KT778425	Lohondor Water Reservoir18	37.56106	55.96781
<i>Gammarus</i> sp.	- KT778414	Karim Ilan Spring 24	37.49275	55.79522
<i>Gammarus</i> sp.	KT827545 KT778418	Kelardasht 39	36.47353	51.14263
<i>Gammarus</i> sp.	KT827509 KT778394	Ahovan Pass 32	35.70031	53.61769
<i>Gammarus</i> sp.	KT827485 KT778333	Ahovan Pass33	35.68033	53.61556
<i>Gammarus</i> sp.	- KT778390	Divshel 42	37.17172	50.10822
<i>Gammarus</i> sp.	KT827504 KT778380	Darab Spring 5	36.81758	58.14131
<i>Gammarus</i> sp.	KT827500 KT778371	Baba Aman Spring 8	37.48483	57.43481
<i>Gammarus</i> sp.	KT827516 KT778409	Jozak Spring 9	37.42347	56.68867
<i>Gammarus</i> sp.	KT827536 KT778472	Shoor Spring 11	37.35794	56.20211
<i>Gammarus</i> sp.	KT827524 KT778452	Nozhian Waterfall 60	34.04417	48.57596
<i>Gammarus</i> sp.	KT827522 KT778444	Nozhian Waterfall Spring 61	33.23105	48.57871
<i>Gammarus</i> sp.	KT827543 KT778484	Sarab-e- Pir Hossein 57	33.22333	48.03444
<i>Gammarus</i> sp.	KU513427 KT778480	Sarab-e-Honam 58	33.80694	48.31333
<i>Gammarus</i> sp.	KT827532 KT778463	Rostam Abad Waterfall 65	32.08867	50.51422
<i>Gammarus</i> sp.	KU513430 KT778470	Sarab-e-Fes 51	34.59835	47.91564
<i>Gammarus</i> sp.	KT827535 KT778471	Sarab-e-Fes 51	33.92358	47.91564
<i>Gammarus</i> sp.	- KT778378	Pahn Spring 56	33.48758	49.6562
<i>Gammarus</i> sp.	KU513429 KT778456	QalaDez Spring 59	34.59835	49.35832
<i>Gammarus</i> sp.	-	QalaDez Spring 59	35.0271	49.35832

	KT778457			
<i>Gammarus</i> sp.	KU513426 KT778369	Badr-o- Parishan 50	36.81758	47.8554
<i>Gammarus</i> sp.	KT827504 KT778380	Darab Spring 5	35.76703	58.14131
<i>Gammarus</i> sp.	KT827499 KT778365	Bagh-e-Keshmir 1	36.15142	60.65006
<i>Gammarus</i> sp.	KT827523 KT778450	Mazdavand 2	36.03658	60.54992
<i>Gammarus</i> sp.	KT827522 KT778451	Mazdavand 2	37.35139	60.54992
<i>Gammarus</i> sp.	- KT778446	Meydan-e-Tir 3	37.35794	59.67403
<i>Gammarus</i> sp.	KT827530 KT778460	Mirzabayloo Old Qanat 10	37.42472	56.24314
<i>Gammarus</i> sp.	KT827536 KT778472	Shoor Cheshmeh 11	37.41764	56.20211
<i>Gammarus</i> sp.	- KT778386	Degarmanli Midstream 13	35.86928	56.14597
<i>Gammarus</i> sp.	KT827495 KT778353	Degarmanli Upstream 14	35.80625	56.13083
<i>Gammarus</i> sp.	KU513428 KT778496	Tange Vashi Stream 34	33.14586	52.7245
<i>Gammarus</i> sp.	KT827487 KT778336	Lasem Waterfall 36	35.32639	52.18325
<i>Gammarus</i> sp.	KT827488 KT778337	Lasem Waterfall 36	35.89761	52.18325
<i>Gammarus</i> sp.	KT827483 KT778323	Ab Sefid Waterfall 62	36.88376	49.68372
<i>Gammarus</i> sp.	KU513436 KT778392	Forsheh Spring 4	36.15875	59.21533
<i>Gammarus</i> sp.	KT827541 KT778482	Sheshtamad 7	36.6008	57.73717
<i>Gammarus</i> sp.	KT827547 KT778486	Taham Spring 43	36.61878	49.37274
<i>Gammarus</i> sp.	KU513424 KT778432	Moosa Bolaghi Spring 46	35.77694	48.6015
<i>Gammarus</i> sp.	- KT778375	Charbagh 29	36.34	54.4362
<i>Gammarus</i> sp.	KT827549 KT778489	10 Km Charbagh30	35.9264	54.32314
<i>Gammarus</i> sp.	KT827502 KT778373	Ala Spring 37	33.06867	51.98856
<i>Gammarus</i> sp.	KT827510 KT778396	Gelabad 6	34.72571	57.89306
<i>Gammarus</i> sp.	KT827550 KT778498	Vana (Haraz River) 35	34.00262	52.27224
<i>Gammarus</i> sp.	KU513425 KT778357	Behesht River 63	35.86367	49.71861
<i>Gammarus</i> sp.	- KT778462	Qom rood Nakhjiravan 53	32.73656	51.07429
<i>Gammarus</i> sp.	- KT778351	Atashkooch Delijan 55	32.08867	50.69499
<i>Gammarus</i> sp.	KT827507 KT778384	Dare Dazoon 49	37.373	46.73032
<i>Gammarus</i> sp.	- KT778488	Soozanieh River 64	37.37317	50.75006
<i>Gammarus</i> sp.	KT827532 KT778463	Rostam Abad Waterfall 65	37.43783	50.51422

TABLE S2 The data of genus *Niphargus* samples [including geographic locality, geographic coordinates, and accession number].

TAXON	Acc.No. 28S (upper) Acc.No. COI (lower)	ORIGIN OF SAMPLES	COORDINATES
<i>N. alisadri</i> Esmacili-Rineh & Sari, 2013	KF581049 KF581079	Alisadr Cave, Hamedan province, Iran.	N 35° 16', E 48°17'
<i>N. aquilex</i> Schiödte, 1855	EF617264 JF420841	Marden, Kent, GB; 29.12.2005; leg. P. Wood North German Plain, Weser, Hessisch Oldendorf, Germany	N 50.92° W 0.855°
<i>N. daniali</i> Esmacili-Rineh & Sari, 2013	KF581033 KF581080	Danial Cave, Mazandaran province, Iran	N 36°41', E 50°53'
<i>N. khayyami</i> Hekmatara et al, 2013	JX535353 -	Ghori- Ghale Cave, Ravansar-Paveh road, Kermanshah province, Iran	N 34° 53', E 46°34'
<i>N. khwarizmi</i> Hekmatara et al, 2013	KF581056 -	Kahriz Spring, Khoranagh, East Azarbayejan, Iran	N 38° 40', E 45°28'
<i>N. krameri</i> Schellenberg, 1935	EF617274 KF719253	Subsidiary stream of river Fojba, Pazin; HRV; leg. C. Fišer	N 45.25° E 13.99°
<i>N. schellenbergi</i> S. Karaman, 1932	EU693321 JF420854	Sample FK995; DEU; leg. A. Fuschs Hessen, Kammerbacher Hohle, Germany	Coordinates unknown, Germany
<i>N. hosseini</i> Esmacili-Rineh et al, 2017	KF581054 KF581064	Brolan Spring, West Azarbayejan, Iran	N 39°47', E 44°35'
<i>N. hosseini</i> Esmacili-Rineh et al, 2017	KF581055 KF581065	Nojivaran Spring, Kermanshah province, Iran	N 34°29', E 47°29'
<i>N. persicus</i> Esmacili-Rineh et al, 2017	KF581047 KF581074	Tir-e-Bagh Spring, Fars province, Iran	N 30° 14', E 52°40'

<i>N. persicus</i> Esmacili-Rineh et al, 2017	KF581036 KF581075	Tir-e-Bagh Spring, Fars province, Iran	N 30° 14', E 52°40'
<i>N. ilamensis</i> Esmacili-Rineh et al, 2017	KF581039 KF581075	Sarab-e-Moord, Ilam province, Iran	N 33° 14', E46°54'
<i>N. ilamensis</i> Esmacili-Rineh et al, 2017	KF581053 KF581070	Sarab-e-Kanipahn, Ilam province, Iran	N 33°20', E 46°46'
<i>N. sohrevardensis</i> Esmacili-Rineh et al, 2017	KF581035 KF581061	Sohrevard Spring, Zanjan province, Iran	N 36° 40', E 48°29'
<i>N. sohrevardensis</i> Esmacili-Rineh et al, 2017	KF581034 KF581060	Razbashi Spring, Lorestan province, Iran	N 33° 38', E 48°35'
<i>N. bisitunicus</i> Esmacili-Rineh et al, 2015	KF581050 KF581062	Sarab-e-Bisitun, Kermanshah province, Iran	N 34° 25', E 7°28'
<i>N. sharifti</i> Esmacili-Rineh et al, 2015	KF581048 KF581078	Sarab-e-Robat, Lorestan province, Iran	N 33° 35', E48°18'
<i>N. borisi</i> Esmacili-Rineh et al, 2015	KF581044 KF581076	Belqais Spring, Kohgiluyeh- va- Boyerahmad province, Iran	N 30°45', E 50°44'
<i>N. borisi</i> Esmacili-Rineh et al, 2015	- KF581077	Siah Spring, Kohgiluyeh- va- Boyerahmad province, Iran	N 30° 44', E 50°45'
<i>N. darvishi</i> Esmacili-Rineh et al, 2015	KF581042 KF581071	Gholam-Abad Spring, Chaharmahal- va- Bakhtiari province, Iran	N 32°29', E 50°14'
<i>N. darvishi</i> Esmacili-Rineh et al, 2015	- KF581073	Dimeh Spring, Chaharmahal- va- Bakhtiari province, Iran	N 32° 30', E50°13'
<i>N. darvishi</i> Esmacili-Rineh et al, 2015	KF581046 KF581072	Dimeh Spring, Chaharmahal- va- Bakhtiari province, Iran	N 32° 30', E50°13'

<i>N. kurdistanensis</i> Mamaghani-Shishvan et al, 2017	MG008301 MG008304	Shoei Cave, 12 km to Baneh City (near to Iraq border), Kurdistan Province, Iran	N 36°0', E 45°53'
<i>N. kurdistanensis</i> Mamaghani-Shishvan et al, 2017	MG008303 MG008306	Darvish-Olya Cave, 75 Km to Marivan City, Kurdistan Province, Iran	N 35°37', E 46°37'
<i>Niphargus</i> sp.	KF581059 KF581081	Magharit cave, L-Mascat, Ras Chekka, Batroun, Lebanon	N 34.25 °, E 35.66°
<i>Niphargus</i> sp.	MK911608 MK911603	Badin Abad Spring, Piranshahr City, Western Azerbaijan Province, Iran	N 36° 34', E 45° 10'
<i>Niphargus</i> sp.	MK911609 MK911604	Badin Abad Spring, Piranshahr City, Western Azerbaijan Province, Iran	N 36° 34', E 45° 10'
<i>Niphargus</i> sp.	MK911610 MK911605	Badin Abad Spring, Piranshahr City, Western Azerbaijan Province, Iran	N 36° 34', E 45° 10'
<i>Niphargus</i> sp.	MK911611 MK911606	Randole Spring, Oshnavieh City, West Azerbaijan Province, Iran	N 37° 03', E 45° 02'
<i>Niphargus</i> sp.	MK911612 MK911607	Randole Spring, Oshnavieh City, West Azerbaijan Province, Iran	N 37° 03', E 45° 02'
<i>Niphargus</i> sp.	MN496474 MN502690	Saholan Cave, Mahabad City, West Azerbaijan, Iran	N 36° 39', E 45° 56'
<i>Niphargus</i> sp.	MN496475 MN502691	Saholan Cave, Mahabad City, West Azerbaijan, Iran	N 36° 39', E 45° 56'
<i>Niphargus</i> sp.	MN496476 MN502676	Shinkeh Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 25', E 45° 28'
<i>Niphargus</i> sp.	MN496477 MN502677	Shinkeh Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 25', E 45° 28'
<i>Niphargus</i> sp.	MN496478	Shinkeh Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 25', E 45° 28'

	MN502678		
<i>Niphargus</i> sp.	MN496479 MN502679	Shinkeh Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 25', E 45° 28'
<i>Niphargus</i> sp.	MN496480 MN502680	Shinkeh Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 25', E 45° 28'
<i>Niphargus</i> sp.	MN496481 MN502681	Shinkeh Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 25', E 45° 28'
<i>Niphargus</i> sp.	MN496490 MN502692	MergehMir Spring, Oshnavieh City, West Azerbaijan Province, Iran	N 37° 05', E 45° 00'
<i>Niphargus</i> sp.	MN496491 MN502693	MergehMir Spring, Oshnavieh City, West Azerbaijan Province, Iran	N 37° 05', E 45° 00'
<i>Niphargus</i> sp.	MN496484 MN502682	Jandaran Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 24', E 45° 30'
<i>Niphargus</i> sp.	MN496485 MN502683	Jandaran Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 24', E 45° 30'
<i>Niphargus</i> sp.	MN496486 MN502684	Jandaran Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 24', E 45° 30'
<i>Niphargus</i> sp.	MN496482 MN502685	Vordekan Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 25', E 45° 32'
<i>Niphargus</i> sp.	MN496483 MN502686	Vordekan Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 25', E 45° 32'
<i>Niphargus</i> sp.	MN496487 MN502687	Kani Rasoul Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 28', E 45° 30'
<i>Niphargus</i> sp.	MN496488 MN502688	Kani Rasoul Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 28', E 45° 30'

<i>Niphargus</i> sp.	MN496489 MN502689	Kani Rasoul Spring, Mahabad City, West Azerbaijan Province, Iran	N 36° 28', E 45° 30'
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