

Table S1. List of available karyological data on Helicoidea. Taxonomy and nomenclature follow WoRMS (2021) [1] and MolluscaBase (2021) [2]. m = metacentric, sm = submetacentric, st = subtelocentric, t = telocentric; n e 2n = haploid and diploid chromosome number; ? = uncertain taxonomic attribution. C = C-banding; NOR = Ag-NOR staining; FISH = Fluorescence in situ hybridization.

Family	Tribe	Synonym used in the	Origin	n	2n	Karyotype	Method	Reference
Subfamily	Species	original paper						
Camaenidae								
Bradybaeninae								
Bradybaenini								
	<i>Acusta despecta</i> (G.B. Sowerby I, 1839)	<i>Fruticicola despecta</i>	Japan	29	58			[in 3]
	<i>Acusta despecta sieboldtiana</i> (Pfeiffer, 1850)		Korea	29	58	12m, 17sm		[in 4]
	<i>Acusta despecta sieboldtiana</i> (Pfeiffer, 1850)		Japan	29	58	21m, 7sm, 1st		[in 4]
	<i>Acusta ravida</i> (Benson, 1842)	<i>Bradybaena ravida</i>	China	29	58	19m, 3sm, 7t		[in 4]
	<i>Bradybaena similaris</i> (Férussac, 1822)		Japan	28	56			[in 3]
	<i>Bradybaena similaris</i> (Férussac, 1822)		Japan	28	56	2m, 2/3sm, 24/23t		[5]
	<i>Cathaica fasciola</i> (Draparnaud, 1801)		China	30	60	7m, 1sm, 22t		[in 4]
	<i>Ezohelix gainesi</i> (Pilsbry, 1900)	<i>Bradybaena gainesi</i>	Japan	28	56			[in 3]
	<i>Ezohelix gainesi</i> (Pilsbry, 1900)	<i>Bradybaena gainesi</i>	Korea	29	58			[in 6]
	<i>Fruticicola fruticum</i> (O.F. Müller, 1774)	<i>Eulota fruticum</i>	Europa	29	58			[in 3]
	<i>Fruticicola koreana</i> (Pfeiffer, 1850)	<i>Koreanohadra koreana</i>	Korea	29	58	23m, 5sm, 1t		[in 6]
	<i>Fruticicola koreana</i> (Pfeiffer, 1850)	<i>Koreanohadra koreana</i>	Korea	29	58	10m, 13sm, 1st, 5t		[in 4]
	<i>Fruticicola koreana</i> (Pfeiffer, 1850)	<i>Koreanohadra koreana</i>	Korea	29	58	16m, 12sm, 1st		[6]
	<i>Fruticicola kurodana</i> (Pilsbry, 1926)	<i>Koreanohadra kurodana</i>	Korea	29	58	11m, 17sm, 1t		[in 4]
	<i>Karaftohelix adamsi</i> (Kuroda & Hukuda, 1944)	<i>Koreanohadra adamsi</i>	Korea	29	58	10m, 18sm, 1st		[in 4]
Aegistini								
	<i>Aegista chosenica</i> (Pilsbry, 1927)		Korea	28	56	10m, 18sm		[in 4]
	<i>Aegista diversa</i> Kuroda & Miyanaga, 1936		Korea	28	56	14m, 14sm		[in 4]
	<i>Aegista kiusiuensis</i> (Pilsbry, 1900)	<i>Aegista vatheleti</i>	Japan	29	58			[in 3]
	<i>Aegista quelpartensis</i> (Pilsbry & Hirase, 1908)		Korea	28	56	15m, 10sm, 3st		[in 4]
	<i>Nesiohelix samarangae</i> (Kuroda & Miyanaga, 1943)		Korea	29	58	12m, 9sm, 2st, 1t		[in 4]
	<i>Satsuma japonica</i> (L. Pfeiffer, 1847)		Japan	29	58	19m, 10sm		[7]
	<i>Satsuma myomphala</i> (Martens, 1865)		Japan	29	58			[in 3]
	<i>Satsuma omphalodes</i> (Pilsbry, 1901)		Japan	29	58	19m, 10sm		[in 4]
Euhadrini								
	<i>Euhadra amaliae</i> (Kobelt, 1875)		Japan	28	56	19m, 9sm		[in 4]
	<i>Euhadra awaensis</i> (Pilsbry, 1902)		Japan	29	58			[in 3]
	<i>Euhadra callizona</i> (Crosse, 1871)		Japan	28	56			[in 3]
	<i>Euhadra callizona</i> (Crosse, 1871)		Japan	28	56	19m, 9sm		[in 4]
	<i>Euhadra congenita</i> (E.A. Smith, 1878)		Japan	28	56			[in 3]
	<i>Euhadra dixonii</i> (Pilsbry, 1900)		Japan	28	56	19m, 9sm		[in 4]

Hadrinae

<i>Euhadra eoa</i> (Crosse, 1868)		Japan	28	56		[in 3]
<i>Euhadra eoa</i> (Crosse, 1868)		Japan	28	56	19m, 9sm	[in 4]
<i>Euhadra grata</i> (Gude, 1900)		Japan	28	56		[in 3]
<i>Euhadra idzumonis</i> (Pilsbry & Gulick, 1900)		Japan	29	58		[in 3]
<i>Euhadra peliomphala</i> (L. Pfeiffer, 1850)		Japan	28	56		[in 3]
<i>Euhadra peliomphala simodae</i> (Jay, 1856)		Japan	28	56	18m, 10sm	[in 4]
<i>Euhadra quaesita</i> (Deshayes, 1850)		Japan	29	56		[in 3]
<i>Euhadra sandai</i> (Kobelt, 1879)		Japan	28	56		[in 6]
<i>Euhadra sandai oki</i> Pilsbry, 1928		Japan	28	56	21m, 7sm	[in 4]
<i>Euhadra sandoensis</i> (Pilsbry & Y. Hirase, 1903)		Japan	28	56		[in 3]
<i>Euhadra scaevola</i> (Martens, 1877)		Japan	29	58		[in 3]
<i>Euhadra senckenbergiana</i> (Kobelt, 1875)		Japan	28	56		[in 3]
<i>Euhadra senckenbergiana</i> (Kobelt, 1875)		Japan	28	56		[in 6]
<i>Euhadra subnimbosa</i> (Kobelt, 1894)		Japan	28	56	21m, 9sm	[in 4]
<i>Bentosites macleayi</i> (J.C. Cox, 1865)		Australia	29	58		[8]
<i>Catellotrachia setigera</i> (Tate, 1894)	<i>Semotrachia setigera</i>	Australia	29	58		[8]
<i>Chloritobadistes</i> sp. Iredale, 1933		Australia	29	58		[8]
<i>Chloritobadistes victoriae</i> (Cox, 1868)		Australia	29	58		[8]
<i>Cupedora cassandra</i> (Pfeiffer, 1864)	<i>Meracomelon cassandra</i>	Australia	29	58		[8]
<i>Cupedora evandaleana</i> (Pfeiffer, 1864)		Australia	29	58		[8]
<i>Cupedora patruelis</i> (Angas, 1864)		Australia	29	58		[8]
<i>Cupedora rufofasciata</i> Brazier, 1875	<i>Meracomelon rufofasciatum</i>	Australia	29	58		[8]
<i>Cupedora</i> sp. Iredale, 1937		Australia	29	58		[in 3]
<i>Cupedora</i> sp. Iredale, 1937		Australia	29	58		[8]
<i>Cupedora sutillosa</i> (Férussac, 1839)	<i>Exilibadistes sutillosa</i>	Australia	29	58		[8]
<i>Glyptorhagada kooringsensis</i> (Angas, 1877)		Australia	29	58		[8]
<i>Granulomelon adcockianum</i> (Bednall, 1894)	<i>Pleuroxia adcockiana</i>	Australia	29	58		[8]
<i>Hadra</i> sp. E.von Martens, 1860		Australia	29	58		[in 3]
<i>Meracomelon moorundianum</i> T. Iredale, 1937		Australia	29	58		[8]
<i>Meracamelon</i> sp.		Australia	29	58		[in 3]
<i>Meracomelon subloriolianum</i> (Pilsbry, 1890)		Australia	29	58		[8]
<i>Papuina</i> sp. E. von Martens, 1860		Australia	29	58		[in 3]
<i>Parglogenia pelodes</i> (Pfeiffer, 1846)		Australia	29	58		[8]
<i>Planispira fallaciosa</i> (A.E.J. Férussac, 1821)		Australia	29	58		[in 3]
<i>Pleuroxia</i> sp. Ancey, 1887		Australia	29	58		[in 3]
<i>Pleuroxia</i> sp. Ancey, 1887		Australia	29	58		[8]

Geomitridae
Helicellinae

<i>Pommerhelix depressa</i> (Hedley, 1901) n. comb.	<i>Meridiolum depressum</i>	Australia	29	58			[8]
<i>Sinumelon bednalli</i> (Ponsonby, 1904)		Australia	29	58			[8]
<i>Sinumelon flindersi</i> (Adams & Angas, 1864)		Australia	29	58			[8]
<i>Sinumelon nullaboricum</i> (Tate, 1879)		Australia	29	58			[8]
<i>Sinumelon perinflatum</i> (Pfeiffer, 1864)		Australia	29	58			[8]
<i>Sinumelon remissum</i> Iredale, 1937		Australia	29	58			[8]
<i>Sinumelon</i> sp. Iredale, 1937		Australia	29	58			[in 3]
<i>Sphaerospira fraseri</i> (Gray in Griffith & Pidgeon,		Australia	29	58			[8]
<i>Strepsitaurus rugus</i> (Cotton, 1953)	<i>Pleuroxia ruga</i>	Australia	29	58			[8]
<i>Torresitrachia stipata</i> Iredale, 1938		Australia	29	58			[8]
<i>Xanthomelon durvillii</i> (Hombron & Jacquinot, 1841)		Australia	29	58			[8]
<i>Xanthomelon</i> sp. E. von Martens, 1860		Australia	29	58			[8]
Cernuellini							
<i>Cernuella neglecta</i> (Draparnaud, 1805)		Australia	26	52			[in 3]
<i>Cernuella virgata</i> (Da Costa, 1778)	<i>Helicella virgata</i>	Australia	26	52			[in 3]
<i>Cernuella virgata</i> (Da Costa, 1778)		Spain	26	52			[9]
<i>Cernuella virgata</i> (Da Costa, 1778)		Italy	26	52	24m, 2sm	C, NOR	[10]; this study
<i>Xerosecta cespitum</i> (Draparnaud, 1801)	<i>Cernuella cespitum</i>	Spain	25	50			[9]
<i>Xerosecta reboudiana</i> (Bourguignat, 1863)	<i>Cernuella reboudiana</i>	Spain	25	50			[9]
Cochlicellini							
<i>Cochlicella acuta</i> (O.F. Müller, 1774)		Europe	23	46			[in 3]
<i>Cochlicella acuta</i> (O.F. Müller, 1774)		Spain	23	46			[9]
<i>Cochlicella acuta</i> (O.F. Müller, 1774)		Italy	26	52	18m, 5sm, 2st, 1t		this study
<i>Cochlicella barbara</i> (Linnaeus, 1758)	<i>Cochlicella ventrosa</i>	Australia	23	46			[in 3]
Helicellini							
<i>Candidula camporoblensis</i> (Fez, 1944)		Spain	26	52			[9]
<i>Candidula unifasciata</i> (Poiret, 1801)		Europe	27	52			[in 3]
<i>Helicella gigaxi</i> (O.F. Müller, 1774)	<i>Candidula gigaxi</i>	Spain	26	52			[9]
<i>Helicella itala</i> (Linnaeus, 1758)		Spain	26	52			[9]
<i>Helicella itala</i> (Linnaeus, 1758)		Europe	26	52			[in 3]
<i>Helicella ordunensis</i> (Kobelt, 1883)		Spain	26	52			[in 3]
<i>Helicella stiparum</i> (Rossmässler, 1854)		Spain	25	50			[in 3]
<i>Microxeromagna lowei</i> (Potiez & Michaud, 1838)	<i>Helicella virgata</i>	Australia	26	52			[in 3]
<i>Xerolenta obvia</i> (Menke, 1828)	<i>Helicella obvia</i>	Spain	26	52			[in 3]
<i>Xeroplexa intersecta</i> (Poiret, 1801)	<i>Candidula intersecta</i>	Spain	26	52			[11]
<i>Xerotricha apicina</i> (Lamarck, 1822)	<i>Helicopsis apicina</i>	Portugal	26	52	23m, 2sm		[in 4]

Helicidae	Zarateana rocandioi (Ortiz de Zárate y López, 1950)		Candidula rocandioi	Portugal	26	52		[9]
	Helicopsini							
	Xeropicta derbentina (Krynicky, 1836)			Georgia	26	52		[12]
	Trochoideini							
	Trochoidea elegans (Gmelin, 1791)			Italy	24	48	16m, 6sm, 2t	this study
	Trochoidea pyramidata (J.P.R. Draparnaud, 1805)			Italy	24	48	20m, 4sm	this study
	Trochoidea trochoides (Poiret, 1789)			Italy	24	48	16m, 7sm, 1t	this study
	Xerocrassa cretica (L. Pfeiffer, 1841)			Turkey	26	52		[in 3]
	Xerocrassa geyeri (Soós, 1926)			Spain	25	50		[9]
	Helicinae							
Ariantinae								
	Arianta arbustorum (Linnaeus, 1758)		Helicigona arbustorum	Europe	30	60		[in 3]
	Campylaea planospira (Lamarck, 1822)			Italy	30	60	29m, 1sm	this study
	Causa holosericea (S. Studer, 1820)		Isognomostoma holosericum	Europe	30	60		[in 3]
	Chilostoma achates aethica (Rossmässler, 1835)		Helicigona achates aethica	Europe	30	60		[in 3]
	Helicigona lapicida (Linnaeus, 1758)			Europe	29	58		[in 3]
	Helicigona pouzolzii (Deshayes, 1832)			Europe	29	58		[in 3]
	Helicigona setosa (Férussac, 1832)			Europe	29	58		[in 3]
	Isognomostoma isognomostomos (Schröter, 1784)			Europe	30	60		[in 3]
	Helicinae							
	Allognathini							
	Cepaea hortensis (O.F. Müller, 1774)			UK	22	44	m/sm/st	[in 4]
	Cepaea nemoralis (Linnæus, 1758)			Europe	22	44		[in 3]
	Cepaea nemoralis (Linnæus, 1758)			UK	22	44	13m, 9sm	[13]
	Cepaea nemoralis (Linnæus, 1758)			UK	22	44	14m, 8sm	[14]
	Cepaea nemoralis (Linnæus, 1758)			UK	22	44	m/sm/st	[in 4]
	Iberus alonensis (Férussac,1821)			Spain	22	44	m/sm	[in 4]
	Iberus gualterianus (Linnaeus, 1758)			Spain	22	44	m/sm	[in 4]
	Iberus guiraonus Rossmäessler in Pfeiffer, 1853)?			Spain	22	44	m/sm	[in 4]
	Iberus marmoratus (Férussac, 1821)			Spain	22	44	m/sm	[in 4]
	Pseudotachea liturata (L. Pfeiffer, 1851)			Europe	22	44		[in 3]
	Pseudotachea liturata (L. Pfeiffer, 1851)			Spain	22	44		[11]
	Pseudotachea splendida (Draparnaud, 1801)			Spain	22	44	m/sm	[in 4]
	Helicini							
	Caucasotachea atrolabiata calligera (Dubois de			Georgia	26	52		[15]
	Caucasotachea calligera (Dubois de Montpéreux,			Georgia	26	52		[15]
	Caucasotachea leucoranea (Mousson, 1863)		Caucasotachea leukoranea	Iran	30	60		[in 3]

Helicondontinae							
	<i>Helicodonta obvoluta</i> (O.F. Müller, 1774)		Europe	27	54		[in 3]
Hygromiidae							
Hygromiinae	Hygromiini						
	<i>Hygromia cinctella</i> (Draparnaud, 1801)		Europe	21	42		[in 3]
	<i>Hygromia limbata</i> (Draparnaud, 1805)		Spain	21	42		[in 4]
	Perforatellini						
	<i>Monachoides incarnatus</i> (O. F. Müller, 1774)	<i>Perforatella incarnata</i>	Europe	24	48		[in 3]
Leptaxinae	Leptaxini						
	<i>Portugala inchoata</i> (Morelet, 1845)		Portugal	26	52		[in 4]
	Cryptosaccini						
	<i>Mengoana jeschawi</i> (Kobelt, 1878)		Spain	26	52		[in 3]
	<i>Mengoana jeschawi</i> (Kobelt, 1878)	Eumphalia brigantina	Spain	26	52		[11]
	<i>Pyrenaearia cantabrica poncebensis</i> Ortiz de Zárate		Spain	26	52		[in 4]
	<i>Pyrenaearia cantabrica poncebensis</i> Ortiz de Zárate	<i>Pyrenaearia poncebensis</i>	Spain	26	52	13m, 8sm, 2st, 3t	[9]
Trochulininae	Caucasigenini						
	<i>Caucasigena eichwaldi</i> (L. Pfeiffer, 1846)		Georgia	23	46		[12]
	<i>Circassina frutis</i> (L. Pfeiffer, 1859)		Georgia	23	46		[15]
	<i>Fruticocampylaea narzanensis</i> (Krynicky, 1836)		Georgia	23	46		[12]
	Monachaini						
	<i>Diplobursa pisiformis arpatschaiana</i> (Mousson, 1873)	<i>Euomphalia arpatschuana</i>	Iran	23	46		[in 3]
	<i>Euomphalia strigella</i> (Draparnaud, 1801)		Spain	26	48	19m,5sm	[9]
	<i>Monacha cantiana</i> (Montagu, 1803)		Europe	23	46		[in 3]
	<i>Monacha cartusiana</i> (O.F. Müller, 1774)		Europe	23	46		[in 3]
	<i>Monacha cartusiana</i> (O.F. Müller, 1774)		Spain	23	46	22m, 1sm	[9]
	<i>Monacha</i> sp.		Italy	23	46	20m, 3sm	this study
	Trochulini						
	<i>Petasina unidentata</i> (Draparnaud, 1805)	<i>Trichia unidentata</i>	Europe	23	46		[in 3]
	<i>Trochulus hispidus</i> (Linnæus, 1758)	<i>Trichia hispida</i>	Spain	23	46		[11]
	<i>Trochulus hispidus</i> (Linnæus, 1758)		Czech	23	46		[19]
	<i>Trochulus plebeius</i> (Draparnaud, 1805)		Czech	23	46		[19]
	<i>Trochulus sericeus</i> (Draparnaud, 1801)	<i>Trichia sericea</i>	Europe	23	46		[in 3]
	<i>Trochulus villosus</i> (Draparnaud, 1805)	<i>Trichia villosa</i>	Europe	23	46		[in 3]
Polygyridae							
Triodopsinae	Ashmunellini						
	<i>Ashmunella ashmuni ashmuni</i> (Dall, 1897)		USA	29	58		[20]

<i>Ashmunella levettei</i> (Bland, 1882)		USA	29	58	[20]
<i>Ashmunella mendax</i> Pilsbry & Ferriss, 1917		USA	29	58	[20]
<i>Ashmunella mogollonensis</i> Pilsbry, 1905		USA	29	58	[20]
<i>Ashmunella carlsbadensis</i> Pilsbry, 1932		USA	29	58	[20]
<i>Ashmunella ferrissi</i> Pilsbry, 1905		USA	29	58	[20]
<i>Ashmunella kocki</i> Pilsbry, 1940		USA	29	58	[20]
<i>Ashmunella organensis</i> Pilsbry, 1936		USA	29	58	[20]
<i>Ashmunella pasonis</i> (Drake, 1951)		USA	29	58	[20]
<i>Ashmunella rhissa altissima</i> (Cockerell, 1898)		USA	29	58	[20]
<i>Ashmunella</i> sp (<i>ryssa complex</i>)		USA	29	58	[20]
<i>Ashmunella tetrodon inermis</i> H. A. Pilsbry and J. H.		USA	29	58	[20]
<i>Ashmunella thomsoniana</i> (Ancey, 1887)		USA	29	58	[20]
<i>Ashmunella walkeri</i> Ferriss, 1904		USA	29	58	[20]
Mesodontini					
<i>Inflectarius inflectus</i> (Say, 1821)		USA	29	58	[21]
<i>Inflectarius rugeli</i> (Shuttleworth, 1852)	<i>Mesodon rugeli</i>	USA	29	58	[21]
<i>Inflectarius</i> sp. Pilsbry, 1940		USA	29	58	[21]
<i>Mesodon andrewsae normalis</i> (W.G. Binney, 1879)		USA	29	58	[21]
<i>Mesodon appressus</i> (Say, 1821)		USA	29	58	[21]
<i>Mesodon mitchellianus</i> (I. Lea, 1838)		USA	29	58	[21]
<i>Mesodon normalis</i> (Pilsbry, 1900)		USA	29	58	[21]
<i>Mesodon thyroidus</i> (Say, 1817)		USA	29	58	[in 3]
<i>Mesodon thyroidus</i> (Say, 1817)		USA	29	58	[21]
<i>Mesodon zaletus</i> (A. Binney, 1837)		USA	29	58	[21]
<i>Patera appressa</i> (Say, 1821)	<i>Polygyra appressa</i>	USA	29	58	[21]
<i>Patera appressa</i> (Say, 1821)	<i>Polygyra appressa</i>	USA	31	62	[in 21]
Stenotrematini					
<i>Stenotrema hirsutum</i> (Say, 1817)		USA	29	58	[in 3]
<i>Stenotrema monodon aliciae</i> (Pilsbry, 1893)		USA	29	58	[21]
<i>Stenotrema monodon aliciae</i> (Pilsbry, 1893)		USA	29	58	[21]
<i>Stenotrema monodon aliciae</i> (Pilsbry, 1893)	<i>Stenotrema leai aliciae</i>	USA	29	58	[in 3]
<i>Stenotrema spinosum</i> (I. Lea, 1831)		USA	29	58	[in 3]
<i>Stenotrema stenotrema</i> (L. Pfeiffer, 1842)		USA	29	58	[in 3]
Allogonini					
<i>Allogona profunda</i> (Say, 1821)		USA	26	52	[in 3]
<i>Allogona townsendiana</i> (I. Lea, 1838)		USA	26	52	[in 3]
<i>Cryptomastix germana</i> (Gould in W.G. Binney, 1851)	<i>Triodopsis germana</i>	USA	31	62	[in 3]

	Triodopsisini							
	<i>Neohelix albolabris</i> (Say, 1817)	<i>Triodopsis albolabris</i>	USA	29	58			[21]
	<i>Neohelix dentifera</i> (A. Binney, 1837)	<i>Triodopsis dentifera</i>	USA	29	58			[21]
	<i>Triodopsis fraudolenta fraudolenta</i> (Pilsbry, 1894)		USA	29	58-			[21]
	<i>Triodopsis fraudulentula vulgata</i> (Pilsbry, 1894)		USA	29	58-			[21]
	<i>Triodopsis juxtidentula juxtidentula</i> (Pilsbry, 1894)		USA	29	58			[21]
	<i>Triodopsis tridentata</i> (Say, 1817)		USA	29	58			[21]
	<i>Triodopsis tridentata</i> (Say, 1817)		USA	29	58			[21]
	<i>Triodopsis tridentata. edentilabris</i> Pilsbry, 1940?		USA	29	58			[21]
	<i>Triodopsis vulgata</i> Pilsbry, 1940		USA	29	58			[21]
	<i>Xolotrema fosteri</i> (F.C. Baker, 1932)		USA	31	62	21m, 7sm, 3st	NOR	[22]
	Vespericolini							
	<i>Vespericola columbiana</i> (I. Lea, 1839)		USA	30	60			[in 3]
	<i>Polygira cereolus</i> (Megerle von Mühlfeldt, 1818)		USA	29	58			[in 3]
Trissexodontidae								
Trissexodontinae								
	Oestophorini							
	<i>Oestophora barbula</i> (Rossmässler, 1838)		Portugal	30	60			[in 4]
Xanthonychidae								
Helminthoglyptinae								
	Sonorellini							
	<i>Sonorella odorata</i> Pilsbry & Ferriss, 1919		USA	29	58	15m, 13sm, 1st		[23]
	Helminthoglyptini							
	<i>Eremarionta indioensis</i> (Yates, 1890)		USA	30	60	18m, 11sm, 1st		[23]
	<i>Greggelix indigena</i> (Mabille, 1895)		USA	29	58	16m, 10sm, 3st		[23]
	<i>Helminthoglypta cfr. lowei</i> (Bartsch, 1918)		USA	30	60	17m, 10sm, 3st		[23]
	<i>Helminthoglypta micrometalleoides</i> W.B. Miller, 1970		USA	30	60	17m, 10sm, 3st		[23]
	<i>Micrarionta beatula</i> Cockerell, 1929	<i>M. rufocincta beatula</i>	USA	30	60	18m, 10sm, 2st		[23]
	<i>Sonorelix borregoensis</i> (S.S. Berry, 1929)		USA	29	58	13m, 15sm, 1st		[23]
	<i>Xerarionta areolata</i> (L. Pfeiffer, 1845)		USA	30	60	19m, 10sm, 3st		[23]
Humboldtianinae								
	Humboldtianini							
	<i>Humboldtiana hogeana</i> (E. von Martens, 1892)		USA	30	60	16m, 11sm, 3st		[23]
Monadeniinae								
	<i>Monadenia fidelis</i> (J.E. Gray, 1834)		USA	29	58			[in 23]
	<i>Monadenia infumata</i> (Gould, 1855)		USA	29	58	16m, 12sm, 1st		[23]

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Table S2. Relative length (RL) and Centromeric Index (CI) of the studied taxa. Mo. Sp. = *Monacha* sp.; Tr.e. = *Trochoidea elegans*; Tr.p. = *Trochoidea pyramidata*; Tr.t. = *Trochoidea trochoides*; Ce.v. = *Cernuella virgata*; Co.a. = *Cochlicella acuta*; Eo.v. = *Eobania vermiculata*; Ot.l. = *Otala lactea*; Co.ap. = *Cornu apertus*; Er.m. = *Ercella mazzullii*; He.g. = *Helix gussoneana*; He.l. = *Helix lucorum*; Th.p. A = *Theba pisana* (Fusaro, Naples); Th.p. B = *Theba pisana* (Messina); Ca.p. = *Campylaea planospira*; Ma.. = *Marmorana platychela*.

Chr.	Mo. sp.		Tr.e.		Tr.p.		Tr.t.		Ce.v.		Co.a.		Eo.v.		Ot.l		Co.ap.		Er.m.		He.g.		He.l.		Th.p. A		Th. p. B		Ca.p.		Ma.p.	
	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI	RL	CI
1	9.3	42.7	7.5	37.1	8.3	30.5	7.9	35.4	9.5	45.2	10.9	48.8	12.3	44.4	11.7	47.9	7.5	47.8	7.2	44.6	9.5	47.5	7.9	38.4	7.2	46.4	7.0	44.5	6.2	46.5	5.9	46.7
2	8.0	34.9	6.9	47.2	8.0	45.1	7.4	42.8	6.1	39.8	9.9	43.5	6.9	41.0	6.6	47.5	5.2	41.8	5.0	41.6	7.4	40.1	6.5	31.3	5.2	39.6	5.0	41.8	5.1	47.4	5.6	48.1
3	6.9	44.4	6.7	39.8	7.3	40.2	7.0	36.5	4.7	41.9	6.1	48.1	6.3	40.9	6.3	45.2	5.0	44.4	4.9	42.7	5.8	43.2	6.5	10.9	4.5	48.0	4.6	45.8	4.6	41.9	5.2	45.5
4	5.7	40.1	4.5	39.7	5.2	43.1	5.1	31.7	4.5	44.0	5.5	46.1	5.1	41.1	4.9	43.5	4.7	41.7	4.8	42.8	5.2	48.2	5.2	47.8	4.4	46.1	4.5	43.5	4.4	44.3	5.1	45.9
5	4.8	40.6	4.5	39.6	5.0	34.7	5.1	47.3	4.1	40.6	5.0	39.4	4.7	43.5	4.6	45.3	4.6	24.7	4.5	45.9	4.8	42.9	5.1	0.0	4.4	43.8	4.3	41.1	4.2	43.6	4.7	47.4
6	4.8	39.5	4.4	44.9	4.5	36.6	4.6	34.1	4.1	41.9	4.9	44.7	4.7	46.1	4.3	49.0	4.4	43.6	4.3	43.8	4.3	42.1	5.1	10.0	4.1	43.1	4.0	42.5	4.0	48.6	4.2	38.8
7	4.4	41.8	4.1	43.4	4.4	47.8	4.6	47.0	4.0	41.9	3.9	35.8	4.4	42.3	3.8	43.7	4.4	44.8	4.2	39.2	4.3	29.1	5.0	0.0	3.9	45.6	3.9	46.9	4.0	44.9	4.1	40.8
8	4.4	42.2	4.1	34.7	4.3	41.2	4.1	29.5	4.0	45.6	3.9	35.6	4.0	41.8	3.8	31.3	4.1	41.8	4.0	40.3	4.2	48.3	4.4	8.8	3.6	44.0	3.7	43.0	4.0	38.9	4.0	40.6
9	4.4	40.3	4.1	31.9	4.3	39.4	4.0	43.8	3.9	45.1	3.9	41.5	3.9	45.5	3.8	37.1	4.0	36.2	3.9	44.2	4.1	42.1	4.1	9.9	3.4	39.7	3.6	40.6	4.0	43.5	3.9	46.2
10	4.2	44.8	4.0	45.4	3.9	40.6	3.9	40.3	3.9	43.2	3.7	8.8	3.8	46.3	3.8	40.0	4.0	48.3	3.9	44.4	4.4	47.2	4.0	41.2	3.4	40.8	3.5	44.2	3.9	44.7	3.9	38.2
11	4.1	48.4	4.0	7.8	3.8	32.5	3.8	31.5	3.9	40.4	3.6	47.5	3.6	40.7	3.7	42.9	4.0	47.2	3.9	42.9	4.0	46.6	3.8	47.0	3.3	47.8	3.5	46.1	3.6	48.6	3.6	39.9
12	4.0	45.9	4.0	36.9	3.7	38.5	3.8	39.7	3.9	41.3	3.5	33.2	3.4	34.2	3.4	34.8	3.9	41.3	3.8	43.0	3.3	33.7	3.6	0.0	3.3	46.8	3.4	44.4	3.4	44.2	3.5	46.5
13	4.2	34.0	4.0	41.0	3.7	40.2	3.8	40.4	3.6	32.3	3.4	41.1	3.3	38.4	3.4	44.3	3.6	43.4	3.8	42.2	3.2	24.3	3.3	0.0	3.3	38.6	3.2	40.6	3.4	46.8	3.4	43.1
14	4.0	43.2	4.0	42.6	3.4	47.6	3.7	44.9	3.6	42.3	3.3	39.1	3.3	47.4	3.3	40.6	3.4	42.3	3.7	39.5	3.1	34.3	3.2	38.6	3.2	43.2	3.2	40.3	3.3	47.6	3.2	48.8
15	3.9	43.1	3.8	40.8	3.3	42.4	3.7	38.6	3.6	32.9	3.2	39.5	2.9	45.5	3.3	38.1	3.4	46.0	3.4	44.1	3.1	39.9	3.0	0.0	3.2	44.5	3.2	43.2	3.3	44.6	3.1	39.8
16	3.7	41.6	3.7	27.2	3.3	46.0	3.7	43.8	3.3	40.0	3.2	27.9	2.9	43.6	3.2	44.1	3.3	46.5	3.4	31.0	2.9	47.1	2.7	40.9	3.1	44.2	3.1	44.9	3.2	39.5	2.9	42.8
17	3.3	40.8	3.6	36.4	3.3	44.8	3.5	40.0	3.2	38.6	2.9	23.6	2.9	40.4	3.2	30.1	3.2	40.5	3.3	48.4	2.9	26.8	2.7	7.9	3.1	41.1	3.1	39.1	3.2	43.5	2.9	39.5
18	3.0	41.9	3.6	42.3	3.3	44.8	3.3	29.1	3.2	39.0	2.6	37.6	2.7	43.9	3.1	45.5	3.2	29.8	3.1	45.4	2.9	46.9	2.7	0.0	3.0	47.2	3.0	48.0	2.8	41.9	2.8	43.8
19	2.6	43.8	3.5	44.7	3.1	45.4	3.3	40.2	3.1	39.1	2.6	43.2	2.6	42.9	3.0	44.3	3.1	40.7	3.0	39.8	2.8	42.2	2.6	0.0	2.9	45.6	2.9	46.1	2.8	44.9	2.8	44.2
20	3.7	39.9	3.4	41.9	2.9	40.0	3.2	42.9	3.1	40.1	2.3	47.3	2.6	41.1	2.9	35.8	3.1	42.3	3.0	32.8	2.7	48.8	2.6	0.0	2.8	41.8	2.9	40.0	2.7	44.1	2.7	40.2
21	2.6	40.9	3.2	29.7	2.9	47.9	3.1	39.4	3.0	39.3	2.1	44.6	2.6	45.7	2.9	48.7	2.9	39.6	3.0	47.8	2.5	45.9	2.5	45.8	2.8	42.4	2.8	40.4	2.7	43.5	2.7	42.5
22	2.3	32.2	3.2	46.6	2.9	43.9	2.6	40.3	2.8	45.5	2.1	18.1	2.6	29.8	2.8	39.5	2.6	41.9	3.0	41.6	2.4	41.2	2.5	45.8	2.7	39.8	2.7	41.9	2.7	40.4	2.6	29.4
23	1.7	42.2	2.8	0.0	2.8	43.8	2.5	38.1	2.8	38.2	2.0	32.7	2.5	45.5	2.8	38.9	2.6	36.0	2.9	42.3	2.3	48.8	2.5	0.0	2.6	46.7	2.6	45.8	2.7	42.8	2.5	42.0
24			2.6	38.6	2.3	46.3	2.2	0.0	2.8	43.7	1.9	42.2	2.3	44.3	2.4	40.8	2.5	40.6	2.6	45.0	2.1	40.1	2.4	0.0	2.5	44.6	2.5	46.0	2.7	45.6	2.4	46.2
25									2.6	46.1	1.9	40.5	2.0	45.9	2.0	42.3	2.5	31.7	2.6	42.7	2.1	43.4	2.2	0.0	2.5	40.1	2.5	42.6	2.6	46.0	2.3	42.8
26									2.6	46.4	1.8	41.3	2.0	46.8	1.1	0.0	2.4	43.0	2.6	40.4	2.1	41.8	2.2	46.5	2.3	40.0	2.4	39.9	2.4	41.4	2.2	40.5
27																	2.3	42.6	2.4	45.8	1.9	20.0	1.6	48.3	2.3	45.1	2.3	430	2.3	46.2	2.2	41.0
28																									2.3	42.2	2.3	41.0	2.3	31.9	2.1	38.1
29																									2.3	48.6	2.2	44.2	1.8	45.4	1.8	29.8
30																									2.3	48.5	2.2	45.9	1.7	43.7	1.6	49.0

Table S3. Distance matrix of the homologous traits of 16S rDNA of the *Monacha* species considered in the paper. M. cart = *Monacha cartusiana*; M. cisc = *Monacha ciscaucasica*; IT = Italy; Bosn Herz = Bosnia Herzegovina.

GAST 32 Portici (IT)	0.0000	0.1737	0.1737	0.1737	0.1689	0.1737	0.1689	0.1580	0.1624	0.1691	0.1898
M. cart KM247397 Brescia (IT)	0.1737	0.0000	0.0000	0.0000	0.0037	0.0000	0.0075	0.1894	0.1940	0.1413	0.1704
M. cart KX495378 Lombardia (IT)	0.1737	0.0000	0.0000	0.0000	0.0037	0.0000	0.0075	0.1894	0.1940	0.1413	0.1704
M. cart AY741416 Siena (IT)	0.1737	0.0000	0.0000	0.0000	0.0037	0.0000	0.0075	0.1894	0.1940	0.1413	0.1704
M. cart M247391 Hungary	0.1689	0.0037	0.0037	0.0037	0.0000	0.0037	0.0037	0.1847	0.1893	0.1368	0.1657
M. cart MG585433 Spain	0.1737	0.0000	0.0000	0.0000	0.0037	0.0000	0.0075	0.1894	0.1940	0.1413	0.1704
M. cart MH204083 Bosn. Herz.	0.1689	0.0075	0.0075	0.0075	0.0037	0.0075	0.0000	0.1847	0.1893	0.1368	0.1704
M. cisc KX495397 Russia	0.1580	0.1894	0.1894	0.1894	0.1847	0.1894	0.1847	0.0000	0.0181	0.1608	0.2030
M. roseni KX495386 Russia	0.1624	0.1940	0.1940	0.1940	0.1893	0.1940	0.1893	0.0181	0.0000	0.1608	0.2076
M. nummus KX495427 Lebanon	0.1691	0.1413	0.1413	0.1413	0.1368	0.1413	0.1368	0.1608	0.1608	0.0000	0.1864
M. sp1 KX495425 Sicily (IT)	0.1898	0.1704	0.1704	0.1704	0.1657	0.1704	0.1704	0.2030	0.2076	0.1864	0.0000