

## REPOSITORY MATERIALS

Kase, T. and Ishikawa, M. -- The mystery of naticid predation history solved: Evidence from a "living fossil" species.

Table DR1. Sources for naticid and ampullospirid diversity relative to the total prosobranch gastropod species from various localities/areas/geographic regions/formations/stratigraphic units of the Cretaceous to Holocene shown on Figure 4. See references in Table DR2.

Age	Area	Group or Formation	No. of gastropod species	No. of naticid and ampullospirid species (% relative to total gastropod species)		Generic reassignment of naticids and ampullospirids, and other gastropods belonging to or erroneously identified to both groups (original name is in parenthesis)	Reference
				Naticids	Ampullospirids		
Pleistocene-Holocene	Tropical W. Pacific		414	5(1.2)	0		Ladd (1966, 1972, 1977, 1982)
Pleistocene	Akita, Japan	Anden, Shibikawa and Katanishi	197	8 (4.1)	0		Takayasu et al. (1986)
Plio-Pleistocene	N. Carolina, USA	James City and Chowan River	98	3(3.1)	0		Wart & Blackwelder (1987)
Plio-Pleistocene	Shizuoka, Japan	Kakegawa	125	7(5.6)	0		Ozawa et al. (1998)
Pliocene	Okinawa, Japan	Ryukyu	162	7 (4.3)	0		MacNeil (1960)
Pliocene	Florida, USA		354	8(2.3)	0		Olsson & Harbison. (1953)
Pliocene	Tropical W. Pacific		244	6(2.5)	1(0.4)		Ladd (1966, 1972, 1977, 1982)
Mio-Pliocene	Panay and Luzon, Philippines		153	11 (7.2)	1(0.7)	<i>Cernina (Neritilia fernandezi)</i>	Shuto (1969), Kanno (1982)
Mio-Pliocene	Venezuela		203	6(3.0)	0		Weisbord (1962)
Late Miocene	Tropical W. Pacific		237	2(0.8)	0		Ladd (1966, 1972, 1977, 1982)
Miocene	The Netherlands		352	13(3.7)	0		Janssen (1984)
Miocene	Florida, USA	Alum Bluff	427	17(4.0)	3(0.7)		Gardner (1937, 1944, 1947)
Middle Miocene	Belgium		422	10(2.4)	0		Glibert (1949, 1952)
Middle Miocene	California, USA	Astoria	49	4(9.2)	0		Moore (1963)

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Miocene	Mizunami, Japan	Mizunami	261	7 (2.7)	0	Itoigawa et al. (1974)
Miocene	Panama	Gutan	286	12 (4.2)	0	Woodring (1957, 1959, 1964, 1970, 1973, 1982)
Early Miocene	Gironde, France	Aquitaine	314	9(2.9)	2	Lozouet et al., (2001)
Miocene	California, USA		182	8 (4.4)	0	Addicott (1970)
Early Miocene	Tropical W. Pacific		241	1(0.4)	0	Ladd (1966, 1972, 1977, 1982)
Upper Oligocene	Germany	Kassel Marine Sands	196	5(2.6)	0	Jannsen (1978)
Oligocene	Peru		66	4(6.1)	2(3.0)	Olsson (1931)
Oligocene	Washington, USA		165	13(7.9)	0	Durham (1944)
Oligocene	Mississippi, USA	Vicksburg	339	9 (2.7)	1 (0.3)	MacNeil & Dockery (1984)
Eocene	Nigeria	Bende Ameki Beds	44	3(6.8)	0	Eames (1957)
Eocene	Mississippi, USA	Jackson, Claiborne and Wilcox	176	11 (6.3)	0	Dockery (1980)
Eocene	Panama	Gutancillo	52	3 (5.8)	3 (5.8)	Woodring (1957, 1959, 1964, 1970, 1973, 1982)
Eocene	England	Selsey	394	9(2.3)	10((2.5)	Tracy et al. (1996)
Eocene	Belgium		45	4(8.9)	2(4.4)	Glibert (1985)
Eocene	California, USA	Juncal	56	3(5.4)	4(7.1)	Squires (1987)
Eocene	India	Laki and Khirhar	46	1(2.2)	7(15.2)	Cox (1931)
Eocene-Paleocene	Germany		159	3(1.9)	3(1.9)	Traub (1979, 1980, 1981, 1984, 1989)
Paleocene	Germany	Huckelhoven	39	1(2.6)	1(2.6)	Anderson (1975)
Paleocene	Poland	Babica Clay	251	4(1.6)	7(2.8)	Krach (1963)
Paleocene	Nigeria	Ewekoro	134	1 (0.7)	3 (2.2)	<i>Neritopsis (Sinum akinkugbei)</i> Adegoke (1977)
Paleocene	Bergium		228	2(0.9)	2(0.9)	Glibert (1973)

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Paleocene	Greenland	Agatdal	256	3 (1.2)	3 (1.2)		Kollmann & Peel (1983)
Maestrichtian	Australia	Miria	35	0	1 (2.9)		Darragh & Kendrick (1994)
Maestrichtian	Texas, USA	Navaroo	213	2 (0.9)	7 (3.3)	<i>Amaurellina (Polinices stephensoni)</i> ; <i>Pseudamaura ? (Amauropsis ? sp.)</i> ; <i>Euspira (Polinices rectilabrum)</i> ; <i>Banis siniformis</i> is probably naticid	Stephenson (1941)
Maastrichtian	Mexico	Mexacala	40	1(2.5)	4(10.0)		Perrilliat et al. (2000)
Maastrichtian	Mississippi and Tennessee, USA	Ripley, Owl Creek and Prairie Bluff	377	2 (0.5)	12 (3.2)		Sohl (1960, 1964)
Maastrichtian	Izumi, Japan	Izumi	19	0	1(5.3)		Kase (1990)
Maastrichtian	S. India	Arriyaloor	137	2(1.5)	11(8.2)	<i>Pseudamaura (Ampullina bulbiformis)</i> ; <i>Amaurellina (Euspira pagoda)</i> ; most probably ampullospirids ( <i>Euspira rotundata</i> , <i>Amauropsis pannucea</i> ); <i>Globularia (Ampullina sortita)</i> ; <i>Tylostoma (Phasianella conula, Phasianella incerta)</i> ; <i>Tylostoma ? (Phasianella globoides, Pterodonta ? bulimoides)</i> ; <i>Pictavia (Amauropsis pannucea)</i> ; undetermined ampullospirid ( <i>Euspira lyrata</i> ); <i>Euspira (Mammila carnatica)</i> ; <i>Polinices (Mammila edura)</i>	Stoliczka (1867–1868)
Maastrichtian	Poland		92	1(1.0)	2(2.2)		Abdel-Gawad (1986)
Maastrichtian	N. Dakota, USA	Fox Hill	37	3(8.1)	1(2.7)	Undetermined ampullospirid ( <i>Euspira subcrassa</i> )	Erickson (1974)
Campanian	Mississippi, USA	Coffee Sand	100	1 (1.0)	5 (5.0)		Dockery (1993)
Campanian	Aachen	Aachen Cretaceous	132	3(2.3)	3(2.3)	<i>Gyrodes (Lunatia geinizii)</i> ; <i>Amaurellina (Natica cretacea)</i> ; <i>Euspira (Lunatia stoliczkai, Lunatia klipsteini)</i> ; seemingly naticid ( <i>Amauropsis exaltata</i> )	Holzappel (1888)
Coniacian-Santonian	Southern India	Trichinopoly	84	0	5(6.0)	<i>Tylostoma (Pterodonta nobilis, Phasianella incerta)</i> ; <i>Pseudamaura (Ampullina bulbiformis)</i> ; <i>Gyrodes (Euspira mariae)</i>	Stoliczka (1867–1868)
Turonian-Santonian	Gosau, Austria		192	0	4(2.1)	<i>Pseudamaura (Natica bulbiformis, Natica angulata)</i> ; <i>Globularia (Natica semiglobosa, Natica lyrata)</i>	Zekeli (1852)
Turonian	The Crimea		107	0	10(9.3)		Pchelintsev (1953)

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Cenomanian	Sarthe, France		124	0?	7(5.6)	<i>Tylostoma</i> ( <i>Globiconcha rotundata</i> , <i>Varigera guerangeri</i> , <i>Pterodonta minima</i> ?); neither naticid nor ampullospirid, probably neritid ( <i>Natica tuberculata</i> ); ampullospirid but genus undetermined ( <i>Natica acuta</i> ); <i>Gyrodes</i> ( <i>Natica perforata</i> ); either ampullospirid or naticid ( <i>Natica varusensis</i> )	Gueranger (1867)
Cenomanian	Southern India	Ootatoor	39	0	5(12.8)	<i>Amaurellina</i> ( <i>Euspira spissata</i> ); <i>Gyrodes</i> ( <i>Vanikoro munita</i> ); <i>Tylostoma</i> ( <i>Pterodonta ootatoorensis</i> ); <i>Tylostoma</i> ? ( <i>Pterodonta ? terebralis</i> )	Stoliczka (1867–1868)
Cenomanian	Texas, USA	Woodbine	114	0	6(5.3)	<i>Pictavia</i> ? ( <i>Natica humilis</i> , <i>Natica striaticostata</i> ); <i>Ampullina</i> ( <i>Natica rivulana</i> ); <i>Globularia</i> ( <i>Natica dorothiensis</i> )	Stephenson (1952)
Cenomanian	The Crimea		54	0	2(3.7)		Pchelintsev (1953)
Albian-Cenomanian	Austria	Losenstein	92	0	8(8.7)		Kollmann (1976, 1978, 1979, 1982)
mainly Albian	Southern USA	Comanche	123	0	10(8.1)	<i>Pictavia</i> ( <i>Lunatia cragini</i> ); undetermined ampullospirids ( <i>Lunatia ? pedernalis</i> , <i>Lunatia ? praegrandi</i> , <i>Natica ? conradi</i> )	Stanton (1947)
Albian	England		65	0	4(6.2)	<i>Pictavia</i> ( <i>Forator parkinsoni</i> MS)	Taylor et al. (1983)
Aptian-Albian	Iwate, Japan	Miyako	128	0	11(8.7)	<i>Pictavia</i> ( <i>Amauroopsis importuna</i> ); undetermined ampullospirid ( <i>Euspira</i> sp.)	Kase (1984)

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**Table DR2. References for Table DR1.**

Author(s) (year)	Sources
Abdel-Gawad, G.I. (1986)	Acta Geologica Polonica, 36, p. 69–224.
Addicott, W.D. (1970)	U.S. Geological Survey Professional Paper 642, 174 p.
Adegoke, O.S. (1977)	Bulletins of American Paleontology, v. 71, p. 1–379.
Anderson, H-J. (1975)	Geologica et Palaeontologica 9, p. 141–171.
Cox, L.R. (1931)	Transactions of Royal Society of Edinburgh, v. 57, p. 25–92.
Darragh, T.A. & Kendrick, G.W. (1994)	Records of the Western Australian Museum, Supplement 48, 76 p.
Dockery, D.T., III (1980)	Mississippi Department of Environmental Quality Office of Geology, Bulletin 122, 387 p.
Dockery, D.T., III (1993)	Mississippi Department of Environmental Quality Office of Geology, Bulletin 129, 191 p.
Durham, J.W. (1944)	University of California Publications, the Department of Geological Sciences, Bulletin, v. 27, p. 101–212.
Eames, F.E. (1957)	Bulletin of the British Museum (Natural History), Geology, v. 3, p. 25–70.
Erickson, J. M. (1974)	Bulletins of American Paleontology, v. 66, p. p. 131–253.
Gardner, J. (1937)	U.S. Geological Survey Professional Paper 142-F, p. 251–435.
Gardner, J. (1944)	U.S. Geological Survey Professional Paper 142-G, p. 437–491.
Gardner, J. (1947)	U.S. Geological Survey Professional Paper 142-H, p. 493–656.
Glibert, M. (1949)	Institut Royal des Sciences naturelles de Belgique, Mémoires, 2nd series, no. 30, 240 p., 12 pls.
Glibert, M. (1952)	Institut Royal des Sciences naturelles de Belgique, Mémoires, 2nd series, no. 46, 197 p., 10 pls.
Glibert, M. (1973)	Institut Royal des Sciences naturelles de Belgique, Mémoires, no. 173, p. 1–116.

- Glibert, M. (1985) *Annales de la Société Royal Zoologique de Belgique*, v. 115, p. 261–368.
- Gueranger, E. (1867) *Album paléontologique de département de la Sarthe, Le Mans*, 20 p.
- Holzapfel, E. (1888) *Palaeontographica*, v. 34, p. 29–180.
- Itoigawa, J., Shibata, H. & Nishimoto, H. (1974) *Bulletins of the Mizunami Fossil Museum*, no. 1, p. 43–203.
- Janssen, R. (1978) *Geologisches Jahrbuch, Reihe A*, v. 41, p. 1–195.
- Janssen, A.W. (1984) *Koninklijke Nederlandse Natuurhistorische Vereniging*, no. 36, 451 p., 82 pls.
- Kanno, S. (1982) *Geology and Paleontology of Southeast Asia*, v. 24, p. 51–128, pls. 14–19.
- Kase, T. (1984) *Early Cretaceous marine and brackish-water Gastropoda from Japan: National Science Museum, Tokyo* 263 p.
- Kase, T. (1990) *Journal of Paleontology*, v. 64, p. 563–578.
- Kollmann, H.A. (1976) *Annalen des Naturhistorischen Museums in Wien*, v. 80, p. 163–206.
- Kollmann, H.A. (1978) *Annalen des Naturhistorischen Museums in Wien*, v. 81, p. 173–201.
- Kollmann, H.A. (1979) *Annalen des Naturhistorischen Museums in Wien*, v. 82, p. 11–51.
- Kollmann, H.A. (1982) *Annalen des Naturhistorischen Museums in Wien*, v. 84A, p. 13–56.
- Kollmann, H.A. & Peel, J.S. (1983) *Grønlands Geologiske Undersøgelse, Bulletin*, 146, 115 p.
- Krach, W. (1963) *Studia Geologica Polonica*, v. 14, 151 p.
- Ladd, H.S. (1966) *U.S. Geological Survey Professional Paper* 531, 98 p.
- Ladd, H.S. (1972) *U.S. Geological Survey Professional Paper* 532, 79 p.
- Ladd, H.S. (1977) *U.S. Geological Survey Professional Paper* 533, 84 p.
- Ladd, H.S. (1982) *U.S. Geological Survey Professional Paper* 1171, 100 p.
- Lozouet, P., Lesport, J.-F. & Renard, P. (2001) *Cossmanniana, Hors série* 3, 189 p.
- MacNeil, F.S. (1960) *U.S. Geological Survey Professional Paper* 339, 148 p.

- MacNeil, F.S. & Dockery, D.T., III (1984) Mississippi Department of Environmental Quality Office of Geology, Bulletin 124, 415 p.
- Moore, E.J. (1963) U.S. Geological Survey Professional Paper 419, 109 p.
- Olsson, A.A. (1931) Bulletin of American Paleontology, v. 17, p. 97–264.
- Olsson, A.A. (1964) Neogene mollusks from northwestern Ecuador: Ithaca, New York, Paleontological Research Institute 256 p.
- Olsson, A.A. & Harbison, A. (1953) Academy of Natural Sciences of Philadelphia Monograph 8, 457 p.
- Ozawa, T., Tanaka, T. & Tomida, S. (1998) Nagoya University Furukawa Museum, Special Report 7, 1–205.
- Pchelintsev, V.F. (1953) Akamemiya Nauk SSSR, Geologicheskii Muzei, Seriya Monograficheskaya, 1, 391 p.
- Perrilliat, M.C, Vega, F.J. & Corona, R. (2000) Journal of Paleontology, v. 74, p. 7–24.
- Shuto, T. (1969) Memoirs of the Faculty of Science, Kyushu University, series D, v. 19, p. 1-250.
- Sohl, N.F. (1960) U.S. Geological Survey Professional Paper 331-A, p. 1–151.
- Sohl, N.F. (1964) U.S. Geological Survey Professional Paper 331-B, p. 153–344.
- Squires, R. L. (1987) Natural History Museum of Los Angeles County, Contribution in Science, no. 388, p. 1–93.
- Stanton, T.W. (1947) U.S. Geological Survey Professional Paper 211, 116 p.
- Stephenson, L.W. (1941) University of Texas Publication 4101, 641 p.
- Stephenson, L.W. (1952) U.S. Geological Survey Professional Paper 242, p. 1–226.
- Stoliczka, F. (1867–1868) Memoirs of the Geological Survey. Palaeontologia Indica, v. 2, series 5, parts 1–10, 497 p.
- Takayasu, T., Ogasawara, K., Shimamoto, M. & Matoba, Y. (1986) Molluscan fossil localities and stratigraphy in the Akita Oil-field, in Ogasawara, K., et al., eds., Neogene and Quaternary molluscs from the Akita Oil-field: Commemorative Association of Prof. T. Kakayasu' Retirement and Supporters' Foundation of Mineral Industry Museum, Mining College, Akita University, Akita, p. 9–69.
- Taylor, J.D., Cleevely, R.J., and Morris, N.J. (1983) Palaeontology, v. 26, p. 521–553.

- Tranb, F. (1979) Mitteilungen der Bayerischen Staatssammlung für Paläontologie und Historische Geologie, v. 19, p 93–123.
- Tranb, F. (1980) Mitteilungen der Bayerischen Staatssammlung für Paläontologie und Historische Geologie, v. 20, p 29–49.
- Tranb, F. (1981) Mitteilungen der Bayerischen Staatssammlung für Paläontologie und Historische Geologie, v. 21, p 41–63.
- Tranb, F. (1984) Mitteilungen der Bayerischen Staatssammlung für Paläontologie und Historische Geologie, v. 24, p 3–26.
- Tranb, F. (1989) Mitteilungen der Bayerischen Staatssammlung für Paläontologie und Historische Geologie, v. 29, p 85–108.
- Tracy, S., Todd, J. A., Le Renard, J., King, C. & Goodchild, M. (1996) Tertiary Research, v. 16, p. 97–139.
- Wart, L.W. & Blackwelder, B.W. (1987) Smithsonian Contributions to Paleobiology, 61, p. 113–283.
- Weisbord, N. E. (1962) Bulletins of American Paleontology, v. 42, p. 1–672.
- Woodring, W.P. (1957) U.S. Geological Survey Professional Paper 306-A, p. 1–145.
- Woodring, W.P. (1959) U.S. Geological Survey Professional Paper 306-B, p. 147–239.
- Woodring, W.P. (1964) U.S. Geological Survey Professional Paper 306-C, p. 241–297.
- Woodring, W.P. (1970) U.S. Geological Survey Professional Paper 306-D, p. 299–452.
- Woodring, W.P. (1973) U.S. Geological Survey Professional Paper 306-E, p. 453–539.
- Woodring, W.P. (1982) U.S. Geological Survey Professional Paper 306-F, p. 541–759.
- Zekeli, F. (1852) Kaiserlich-Königlichen geologischen Reichsanstalt, Abhandlungen, v. 7, p. 1–124.
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