

Year of the Rainbowfish

A monthly column about Rainbowfish
by Derek P. S. Tustin



Melanotaenia parva
Photo by Joel Felix

Melanotaenia

As mentioned last month, there are two families of Rainbowfish; *Pseudomugilidae*, which has three genera, and *Melanotaeniidae*, which has seven genera. This month we will be looking at the most populous genus of the *Melanotaeniidae* family, *Melanotaenia*.

In 1838 John Gilbert, a taxidermist for the Zoological Society of London, was hired by John Gould, an English ornithologist and bird artist, to accompany him to Australia and assist in the collection of specimens for *Birds of Australia*, a book John Gould was planning on writing. While it appears that the main task of Gilbert was to gather ornithological specimens, he also studied and gathered specimens of other fauna native to Australia. Somehow one of the specimens of fish that Gilbert gathered ended up in the British Museum of Natural History. This specimen was found by John Richardson in 1843 and he described it as a new species of hardyhead, *Atherina nigrans*. (Canadian Connection – John Richardson, later Sir John Richardson, was a member of the Coppermine Expedition of 1819 – 1822 that was searching for the Northwest Passage. He returned between 1825 and 1827, and a result of natural history discoveries made during the years he was in Canada co-authored a book, *Fauna Boreali-Americana*.)

In 1862, based on this sole specimen, American naturalist Dr. Thomas Gill created the genus *Melanotaenia*, although still within the family *Atherinidae*. In 1894, Dr. Gill created the subfamily *Melanotaeniidae* to stress the number of differences between what we now know as *Melanotaenia* Rainbowfish and the hardyhead fish.

In 1964, 70 years later, Australian ichthyologist Ian Munro elevated *Melanotaeniidae* from a sub-family of *Atherinidae* to a family in its own right. And that's where we stand today.

So now that you know all about *Melanotaenia*, next month I will be... okay, hold on. That's all historical stuff, and while interesting to know, is probably not essential.



Melanotaenia nigrans
Photo by Gunther Schmidt

The word *Melanotaenia* is actually very descriptive of the first Rainbowfish species that was discovered. The first fish described, now known as *Melanotaenia nigrans*, has a very clear and distinct black stripe running down its side. The word *Melanotaenia* is derived from the Greek work "melano" (meaning black) and the Latin word "taenia" (meaning stripe). Therefore, these fish are literally "black-striped".

The *Melanotaenia* genus of fish currently has 53 different described species. They originate from across Australia, Papua New Guinea, and from several of the surrounding islands. As such, they come from various different geographic regions where temperature as well as water conditions differ. Elsewhere in this edition of *Tank Talk* you will find a chart detailing the different known *Melanotaenia* species.

Included in this chart you will find;

- The species name as most recently described.
- The origin of the given species name.
- The year it was first described.
- The general geographic origin of the species.
- The average maximum growth for the male of the given species (in both metric and imperial).
- The recommended minimum and maximum temperature (again in metric and imperial).
- The recommended pH range.
- The availability of the given species within Canada.

A couple of quick notes on this chart (a similar form will be used in the future months on the other Rainbowfish). This information has been compiled using the internet as well as various books on Rainbowfish. As such, the information recorded in this chart may differ depending on the source you reference. When a given species of Rainbowfish is first discovered and gathered, it is usually done by respectable scientists, and information regarding the location where they were gathered is often included in the paper or article describing their discovery. However, given the remote locations where many of these fish are discovered (especially in Papua New Guinea) and the limited time available at some sites, the information regarding temperature and water parameters is often only a snap-shot of the conditions at the time the fish were gathered. Seasonal variations (and often variations between night and day) in both temperature and water conditions are often not known. Different people over the years have informed and published of the temperatures and conditions that they have kept Rainbowfish under. Using this information, the chart was developed to give an idea regarding the general parameters under which the various species should be kept. If you do keep some of these species, your experiences may vary. Treat this chart as a guideline, rather than a rule.



Melanotaenia kamaka

Photo by Gunther Schmidt



Melanotaenia oktediensis

Photo by Klaus Steinhaus

Generally, Rainbowfish from Australia are adapted for lower temperatures than those from Papua New Guinea and the surrounding islands. The exception to this is for Rainbowfish that come from the interior mountain rivers of Papua New Guinea, such as *Melanotaenia monticola* (the Mountain Rainbowfish) and *Melanotaenia oktediensis* (another Rainbowfish from the interior mountain rivers).

Also of consideration is that many of the various species, such as *Melanotaenia boesemani*, have been captive bred for numerous generations, and therefore their temperature and condition tolerances, and indeed preferences, may have altered from the wild form of a given species.

Finally, I have listed the given species availability with-in Canada. For your

reference, the terms I used were based on my personal experience with Rainbowfish keepers in Canada and North America, the various specialty fish stores, local fish stores and pet shops in Southwestern Ontario, and my interactions with participants on the various Rainbowfish forums on the internet. The terms referencing availability, and my arbitrary definition of the terms, are;

- Unavailable** No known population of the given species is currently being maintained in Canada. Many species are not maintained at all globally, but some may have small captive populations in Europe or the United States, but have not entered the Canadian aquatic hobby.
- Very Rare** One or two people in Canada are maintaining these species. They will not be found in any local fish store.
- Rare** More than two but probably less than twenty people are maintaining populations. They may occasionally appear at either specialty local fish stores (such as Menagerie in Toronto), or at local aquarium society auctions.
- Uncommon** Species of Rainbowfish listed as “Uncommon” will often be seen in specialty local fish stores and aquarium society auctions. They will also occasionally be seen at local fish stores and pet stores.
- Common** Those listed as “Common” are often seen at local fish stores, specialty fish stores, and aquarium society auctions.
- Very Common** Often seen at the same sources as those listed under “Common” as well as general pet stores such as PJ’s Pets.

About the Black Stripes

As mentioned, there are 53 described species of *Melanotaenia*. Other than an overall body shape, there are really no characteristics that are identical from one species to the next. Some, such as *Melanotaenia nigrans*, *M. oktediensis*, and *M. vanheurni*, have a very bold black stripe. In others, such as *Melanotaenia angfa* and *M. monticola*, there is a diffuse stripe. In others, such as *Melanotaenia sexlineata* and *M. utcheensis*, there are multiple thinner horizontal lines across the body.

Regarding colour, well they are known as Rainbowfish for a very simple reason – they reflect all the colours of the rainbow. Sir Issac Newton was one of the first to study light and the composition of colours and he initially stated that a rainbow was comprised of five colours. And each colour has some corresponding species of Rainbowfish which feature that colour. The colours of the rainbow, along with a corresponding *Melanotaenia* species are;



Melanotaenia splendida
Photo by Neil Armstrong

- Red – *Melanotaenia parva*, *M. rubripinnis*
- Yellow – *Melanotaenia angfa*, *M. boesemani*, *M. herbertaxelrodi*
- Green – *Melanotaenia misoolensis*, *M. monticola*
- Blue – *Melanotaenia batanta*, *M. boesemani*, *M. kamaka*, *M. lacustris*
- Violet – *Melanotaenia arfakensis*, *M. duboulayi*

Melanotaenia & C.A.R.E.S

Unfortunately, several species of Rainbowfish feature are on the C.A.R.E.S. Conservation Priority Species at Risk List. The *Melanotaenia* species on this list, along with their status, are;

- *Melanotaenia arfakensis* – Vulnerable
- *Melanotaenia boesemani* – Endangered, At Risk in Nature
- *Melanotaenia eachamensis* – Vulnerable
- *Melanotaenia lacustris* – Vulnerable, At Risk in Nature
- *Melanotaenia oktediensis* – Vulnerable
- *Melanotaenia parva* – Vulnerable



To refresh;

- Vulnerable means “(a) species facing a high risk of extinction in the wild in the medium term future.”
- Endangered means a “(s) species facing a very high risk of extinction in the wild in the near future.”

Each of the *Melanotaenia* species listed, with the exception of *Melanotaenia eachamensis*, is from Papua New Guinea. Unfortunately as both Indonesia (the country controlling the western half of Papua New Guinea) and New Guinea (the country of the eastern half of the island) continue to develop, resources are being exploited and irreparable environmental damage is being done. Personally I feel that the list for *Melanotaenia* species is too short and despair that in the coming years more species will be added to the list, and that many species may become extinct before they were ever even discovered.

Luckily, we have DRAS members keeping four of the six *Melanotaenia* species on the C.A.R.E.S. Conservation Priority List, including one member who is keeping *M. oktediensis*, his population which is the only one known to currently exist in

North America. A detailed examination of why *M. oktediensis* is on this list, as well the attempt to bring it to North America, will be presented in the November 2011 edition of *Tank Talk*.

Locally you will often see *Melanotaenia boesemani* and *Melanotaenia lacustris* for sale, and will occasionally see *Melanotaenia parva*. Should you have the tank space, it would be beneficial to the hobby and personally satisfying to acquire a school and start breeding them. (The September edition of *Tank Talk* will have an article on breeding Rainbowfish. If you want a head start, come see me, or visit the website *Home of the Rainbowfish* (<http://members.optushome.com.au/chelmon>.)



Melanotaenia angfa
Photo by Gerald Allen

A General Appreciation

The above, and the chart in this issue, are all intended to give you a broad appreciation of the *Melanotaenia* genus of fish. With 53 different known species, and with all of them coming from different habitats, it is difficult to give an in-depth review of them all. Should one of these fish catch your eye, or should you like the idea of keeping some of the most colourful freshwater fish, or should you want to participate in the C.A.R.E.S. program, I would encourage you to come talk to me about *Melanotaenia*, or take the time and do some research. They truly are wonderful, and I know you won't be disappointed.

Next month, I'll be telling you about the ten species of the Lip-Silversides, better known as *Chilatherina*. Until then!



Melanotaenia boesemani
Photo by Klaus Steinhaus

Species	Origin of Name	Year	Origin	Maximum Size		Water Temperature				pH		Availability in Canada
				cm	inch	°C		°F		Low	High	
<i>affinis</i>	Related (<i>affinis</i> = Latin "related to")	1908	Papua New Guinea	15	6.00	20	28	68	82	6.8	7.8	Uncommon
<i>ajamaruensis</i>	From Lake Ajamaru (Ajamaru + <i>ensis</i> = Latin "from")	1980	Papua New Guinea	11	4.25	23	27	73	81	7.0	8.0	Unavailable
<i>ammeri</i>	Max Ammer (<i>Dutch owner of diving company is Indonesia, exploration expedition member</i>)	2008	Papua New Guinea	9	3.50	24	28	75	82	7.0	8.0	Unavailable
<i>angfa</i>	ANGFA (Australia New Guinea Fish Association)	1990	Papua New Guinea	13	5.00	23	29	73	84	6.5	7.5	Very Rare
<i>arfakensis</i>	From the Arfak Mountains (Arfak + <i>ensis</i> = Latin "from")	1990	Papua New Guinea	10	4.00	23	29	73	84	6.5	7.5	Unavailable
<i>australis</i>	Southern (<i>australis</i> = Latin "of the south")	1875	Australia	10	4.00	22	28	72	82	6.8	7.8	Common
<i>batanta</i>	Batanta Island	1998	Batanta Island	10	4.00	22	28	72	82	7.0	8.0	Unavailable
<i>boesemani</i>	Dr. Marinus Boeseman (<i>Dutch ichthyologist</i>)	1980	Papua New Guinea	12	4.75	22	28	72	82	6.7	7.7	Very Common
<i>caerulea</i>	Blue (<i>caerulea</i> = Latin "blue")	1996	Papua New Guinea	8	3.00	25	28	77	82	7.2	8.2	Unavailable
<i>catherinae</i>	Catharina Josephone Boissevain de Beaufort (<i>wife of Dutch explorer Lieven de Beaufort</i>)	1910	Waigeo & Batanta Islands	10	4.00	22	28	72	82	6.8	7.8	Unavailable
<i>corona</i>	Bordered (<i>corona</i> = Latin "border")	1982	Papua New Guinea	12	4.75	Data Deficient					Unavailable	
<i>duboulayi</i>	Francis Houssemayne Du Boulay (<i>Australian entomologist and natural history artist</i>)	1878	Australia	12	4.75	18	28	64	82	6.8	7.8	Unavailable
<i>eachamensis</i>	From Lake Eachem (Eachem + <i>ensis</i> = Latin "from")	1982	Australia	8	3.00	18	28	64	82	6.7	7.7	Unavailable
<i>exquisita</i>	Excellent (<i>exquisitus</i> = Latin "excellent")	1978	Australia	9	3.50	20	28	68	82	6.8	7.8	Unavailable
<i>fasinensis</i>	From the Fasin River (Fasin + <i>ensis</i> = Latin "from")	2010	Papua New Guinea	12	4.75	22	30	72	86	7.2	8.2	Unavailable
<i>fluviatilis</i>	River (<i>fluviatilis</i> = Latin "river")	1878	Australia	10	4.00	15	30	59	86	6.5	7.5	Unavailable
<i>fredericki</i>	Frederick Crockett (<i>American ichthyological explorer</i>)	1939	Papua New Guinea	12	4.75	22	28	72	82	6.5	7.5	Unavailable
<i>goldiei</i>	From the Goldie River	1883	Papua New Guinea	10	4.00	22	30	72	86	6.8	7.8	Unavailable
<i>gracilis</i>	Slender (<i>gracilis</i> = Latin "slender")	1978	Australia	10	4.00	22	28	72	82	6.8	7.8	Unavailable
<i>herbertaxelrodi</i>	Dr. Herbert Axelrod (<i>American ichthyologist and expedition financier</i>)	1980	Papua New Guinea	12	4.75	24	30	75	86	7.0	8.0	Uncommon
<i>irianjaya</i>	From Irian Jaya	1985	Papua New Guinea	12	4.75	25	29	77	84	7.0	8.0	Unavailable
<i>iris</i>	Iridescent (<i>iris</i> = Latin "iridescent")	1987	Papua New Guinea	10	4.00	25	29	77	84	7.0	8.0	Unavailable
<i>japenensis</i>	From Japen Island (Japen + <i>ensis</i> = Latin "from")	1980	Yapen Island	11	4.25	24	28	75	82	7.0	8.0	Unavailable
<i>kamaka</i>	From Lake Kamakawaiar	1996	Papua New Guinea	8	3.00	24	28	75	82	7.0	8.0	Uncommon
<i>kokasensis</i>	From Kokas, New Guinea (Kokas + <i>ensis</i> = Latin "from")	2008	Papua New Guinea	12	4.75	21	29	70	84	7.2	8.2	Unavailable
<i>lacustris</i>	From a Lake (<i>lacu</i> = Latin "lake" + <i>ustris</i> "origin")	1964	Papua New Guinea	12	4.75	21	27	70	81	7.5	8.5	Common

Species	Origin of Name	Year	Origin	Maximum Size		Water Temperature				pH		Availability in Canada
<i>lakamora</i>	From Lake Lakamora	1996	Papua New Guinea	6	2.25	21	27	70	81	7.0	8.0	Unavailable
<i>maccullochi</i>	Alan R. MacCulloch (<i>Australian ichthyologist</i>)	1915	Australia	7	2.50	20	30	68	86	6.0	7.0	Very Rare
<i>maylandi</i>	Hans J. Mayland (<i>German aquarium related author and ichthyological explorer</i>)	1982	Papua New Guinea	10	4.00	22	28	72	82	6.8	7.8	Very Rare
<i>misoolensis</i>	From Misool Island (Misool + ensis = Latin "from")	1982	Misool Island	6	2.25	22	28	72	82	7.0	8.0	Rare
<i>monticola</i>	Mountain Dweller (Mons = Latin "mountain" + cola = Latin "inhabits")	1980	Papua New Guinea	10	4.00	18	26	64	79	7.2	8.2	Very Rare
<i>mubiensis</i>	From the Mubi River (Mubi + ensis = Latin "from")	1996	Papua New Guinea	10	4.00	Data Deficient					Unavailable	
<i>nigrans</i>	Dark Coloured (nigrans = Latin "dark coloured")	1843	Australia	12	4.75	20	30	68	86	7.1	8.1	Unavailable
<i>ogilbyi</i>	J. Douglas Ogilby (<i>Australian ichthyologist</i>)	1910	Papua New Guinea	10	4.00	21	27	70	81	6.6	7.6	Unavailable
<i>oktediensis</i>	From the Ok Tedi River (Ok Tedi + ensis = Latin "from")	1980	Papua New Guinea	12	4.75	19	27	66	81	7.3	8.3	Very Rare
<i>papuae</i>	From Papua	1981	Papua New Guinea	8	3.00	26	30	79	86	7.1	8.1	Unavailable
<i>parkinsoni</i>	Brian Parkinson (<i>New Zealander author and ichthyological explorer</i>)	1980	Papua New Guinea	15	6.00	26	30	79	86	7.4	8.4	Uncommon
<i>parva</i>	Small (parvu = Latin "small")	1990	Papua New Guinea	9	3.50	23	27	73	81	6.8	7.8	Uncommon
<i>pierucciae</i>	Paola Pierucci (<i>Italian ichthyologist</i>)	1996	Papua New Guinea	8	3.00	23	27	73	81	6.8	7.8	Unavailable
<i>pimaensis</i>	From the Pima River (Pima + ensis = Latin "from")	1980	Papua New Guinea	9	3.50	24	28	75	82	6.8	7.8	Unavailable
<i>praecox</i>	Early (praecox = Latin "early")	1922	Papua New Guinea	8	3.00	22	28	72	82	6.4	7.4	Very Common
<i>pygmaea</i>	Dwarf (pygmaeus = Latin "dwarf")	1978	Australia	7	2.50	24	28	75	82	6.6	7.6	Unavailable
<i>rubripinnis</i>	Red Fins (rubri = Latin "red" + pinnis = Latin "fins")	1998	Papua New Guinea	12	4.75	24	30	75	86	6.5	7.5	Unavailable
<i>sexlineata</i>	Six Parellel Lines (sex = Latin "six" + lineata = Latin "fine parellel lines")	1964	Papua New Guinea	8	3.00	24	26	75	79	6.8	7.8	Unavailable
<i>splendida inornata</i>	Unadorned Splendid (splendida = Latin "splendid" + inornata = Latin "unadorned")	1875	Australia	12	4.75	15	30	59	86	6.5	7.5	Unavailable
<i>splendida rubrostriata</i>	Red Striped Splendid (splendida = Latin "splendid" + rubro = Latin "red" + striata = Latin "striped")	1886	Papua New Guinea	16	6.25	23	29	73	84	6.5	7.5	Unavailable
<i>splendida splendida</i>	Splendid Splendid (splendida = Latin "splendid" + splendida = Latin "splendid")	1866	Australia	12	4.75	23	29	73	84	6.5	7.5	Unavailable
<i>splendida tatei</i>	Ralph Tate (<i>British botanist and geologist</i>)	1896	Australia	10	4.00	23	29	73	84	6.5	7.5	Unavailable
<i>sylvatica</i>	Of the forest (sylvaticus = Latin "growing among trees")	1997	Papua New Guinea	6	2.25	21	25	70	77	6.8	7.8	Unavailable
<i>synergos</i>	Synergos Institute (name sold at Christie's Blue Auction 2007)	2008	Batanta Island	12	4.75	19	27	66	81	7.4	8.4	Unavailable
<i>trifasciata</i>	Three Banded (tri = Latin "three" + fasciata = Latin "banded")	1922	Australia	15	6.00	23	29	73	84	6.5	7.5	Rare
<i>utcheensis</i>	From the Utchee Creek (Utchee + ensis = Latin "from")	2001	Australia	7	2.50	24	30	75	86	6.6	7.6	Unavailable
<i>vanheurni</i>	Dr. Willem van Heurn (<i>Dutch civil engineer and zoologist</i>)	1922	Papua New Guinea	20	8.00	24	28	75	82	6.8	7.8	Unavailable