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Additional Observations on the Distribution of Some Freshwater Fish of Trinidad and the Record of an Exotic

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ABSTRACT

Over the last decade, we have sampled various rivers across Trinidad using multiple techniques including seining and cast netting. This allowed us to compile a large database which includes the distribution of Trinidad's freshwater fish species. The following report summarizes our findings for the changed distribution for nine species of fish native to Trinidad. Our findings also indicate a new fish species (*Trichogaster trichopterus*) record for Trinidad.

Key words: *Ancistrus*, *Awaous*, *Callichthys callichthys*, *Dormitator maculatus*, *Eleotris pisonis*, *Erythrinus erythrinus*, *Gasteropelecus sternicla*, *Gymnotus carapo*, *Triportheus elongatus*, *Trichogaster trichopterus*, distribution, Trinidad.

INTRODUCTION

The three most recent accounts of local freshwater fish distributions include Kenny (1995), Phillip (1998), and Ramnarine and Phillip (2001). Distributions outlined by Kenny (1995) had been based on extensive sampling over almost two decades prior to publication, while the distributions indicated in the latter two works draw from Phillip's national survey which spanned the years 1996-1997 and covered 22 sites across Trinidad.

Kenny (1995) divided the drainage systems and the associated ichthyofauna of Trinidad into five zonal categories: Antillean Zone, Unstable Relicts, Stable Relicts, East Colonizing Zone and Colonizing Zone. The Antillean Zone lies on the north coast and the north flowing drainages of the Northern Range. Unstable Relicts are found on the south flowing drainages of the Northern Range. Stable Relicts are found on the central drainages flowing both east and west including the lower Caroni Drainage. This zone overlaps the Unstable Relicts Zone of the Northern Range and the East Colonizing Zone which include the Nariva Swamp and its associated drainages. The Colonizing Zone is found on the southern coastline and associated drainages. These biogeographic categories were confirmed by Phillip's (1998) analysis.

Of the assemblage recorded to date, certain fish species have demonstrated either restricted distribution or rare occurrence. This study serves to update the distribution records for selected fish species, namely *Ancistrus* sp., *Awaous* sp., *Callichthys callichthys*, *Dormitator maculatus*, *Eleotris pisonis*, *Erythrinus erythrinus*, *Gasteropelecus sternicla*, *Gymnotus carapo* and *Triportheus elongatus*. These species were chosen based on local rarity and/or changes seen in their distributions since Phillip's (1998) survey. Additionally, we add to the overall assem-

blage of Trinidad's most recently introduced freshwater fish species, *Trichogaster trichopterus*, an escapee of the ornamental fish trade.

There is some uncertainty about the species designation for the 'jumbie tetra', *Ancistrus* sp. (Order: Siluriformes, Family: Loricariidae), that will be elaborated on later (see discussion). Likewise, there is some taxonomic uncertainty about the 'sand fish', *Awaous* sp. (Order: Perciformes, Family: Gobiidae), a local goby with two possible identities.

Callichthys callichthys (Order: Siluriformes, Family: Callichthyidae) is known locally as the 'flat head cascadu' or 'chato' and closely resembles another local callichthyid, *Hoplosternum littorale* or 'cascadu' which is a popular freshwater food fish. The 'chato' may be distinguished from 'cascadu' by its more dorsoventrally tapered head and rounded (as opposed to forked) caudal fin.

Both *Dormitator maculatus* and *Eleotris pisonis* belong to the family Eleotridae (Order: Perciformes) and there is no consensus on a common local name. Similarly, *Erythrinus erythrinus* (Order: Characiformes, Family: Erythrinidae) has no local name but is often lumped with the other, a more common, local erythrinid, *Hoplerythrinus unitaeniatus*, as the 'yarrow'.

Gasteropelecus sternicla or the 'hatchet fish' (Order: Characiformes, Family: Gasteropelcidae) is a popular ornamental fish. This species was classified as a recent Trinidad colonist by Kenny (1995) based on its restricted southwestern distribution. Even more restricted is the locally rare characin *Triportheus elongatus* (Order: Characiformes, Family: Characidae), sometimes called the 'elongate hatchet fish'. It is also considered a recent colonist and prior to this study had only been recorded once, within the Chatham Drainage (Alkins and De Souza,

1983/1984).

Gymnotus carapo is locally called the 'cutlass fish' or 'banded knife' (Order: Gymnotiformes, Family: Gymnotidae). The fish has a unique appearance, lacking a caudal fin and dorsal. Its main form of propulsion is via rhythmic movements of the fused anal fin. It is this fused fin that gives the fish its 'knife' like appearance.

Trichogaster trichopterus (Order: Perciformes, Family: Osphronemidae) have been successfully bred locally by both hobbyists and ornamental fish farms in Trinidad, but now can be found in our drainages. *Trichogaster trichopterus* has a wide range of names in the ornamental fish trade, largely due to selective breeding for various colour morphs. Blue morphs are called 'blue gourami', 'opaline gourami' or the 'three spot gourami'. Gold or yellow morphs are called 'gold' or 'golden gourami'. Mottled morphs, which most closely resemble the wild forms, are referred to as 'cosby gourami'. This species is regarded as the most popular 'gourami' amongst hobbyists (Scott 1996, Dawes 2003) and is native to the Cambodian Mekong (Rainboth 1996). Newaj-Fyzul (2007) reported that four out of fourteen farms in Trinidad (14%) breed at least one variety of 'gourami' inclusive of this species and varieties mentioned.

METHODS

In the decade since the last national fish survey the current authors have fished various local freshwater systems for several purposes. These have included postgraduate research, baseline biodiversity surveys (in the capacity of environmental consultants) and personal collections. While many of the sites correspond to or are near to previously sampled sites, there has also been considerable attention paid to previously under-sampled systems/areas of the country. In almost all cases seining was employed, although cast netting was also used where necessary and the sampling has yielded count data and often size-frequency data. UTM co-ordinates were recorded by GPS. The 'new' distributional data from these various sources was collated and analyzed along with the Kenny (1995) and Phillip (1998) distributions and displayed using Arc GIS (Version 9).

RESULTS

Ancistrus cf.

Fig. 1 indicates an updated local distribution map for *Ancistrus cf.* ('jumbie teta'), which is newly recorded in the Couva Drainage and the Ortoire Drainage (Poole River). While this species had been recorded from the Caroni Drainage in the previous surveys, our recent sampling has expanded its range in the drainage to include the Lopinot (Upper Arouca) River and the Aripo River. Table

1 (Appendix 2) gives a detailed account of our six recent *Ancistrus cf.* sites with sampling methods, dates, counts and GPS UTM co-ordinates.

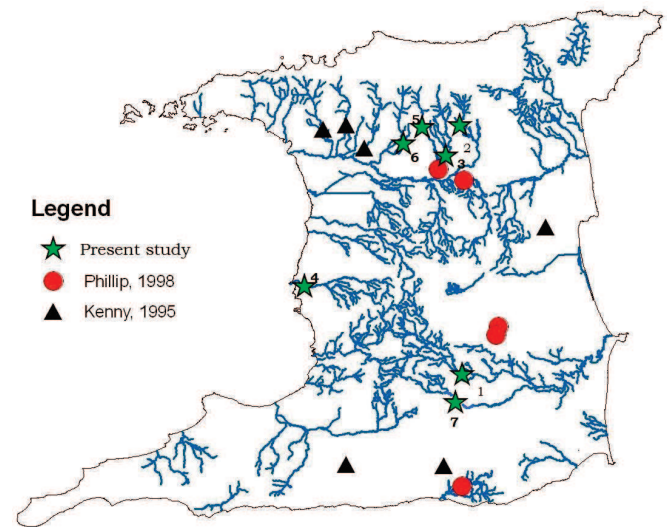


Fig. 1. Distribution of *Ancistrus sp.* ('Jumbie teta') in Trini-

Awaous cf.

There have been notable extensions of distributional ranges of *Awaous cf.* in Trinidad (Fig. 2), including a rediscovery in the Caroni Drainage. This species was previously recorded in this drainage by Kenny (1995) but not Phillip (1998). The latter found this species at only one Trinidadian site. We have since found several at Tobagonian sites at Speyside and Hermitage. Table 2 (Appendix 2) gives a detailed account of our eight recent *Awaous cf.* sites with sampling methods, dates, counts and GPS UTM co-ordinates. It should also be noted that our counts for this species were always low (1 or 2).

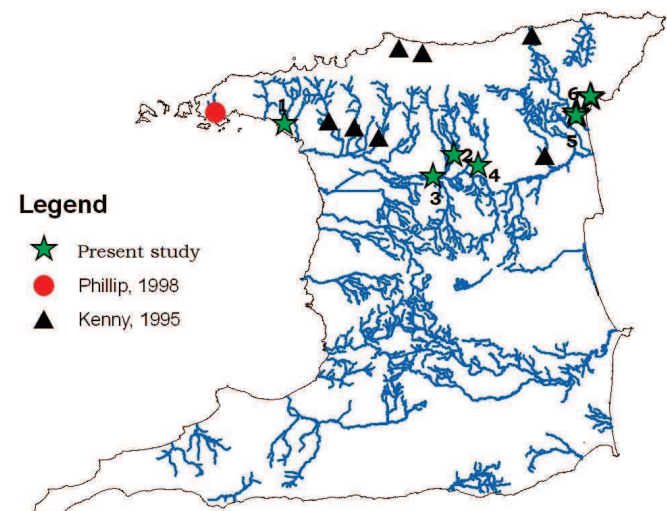


Fig. 2. Distribution of *Awaous sp.* in Trinidad.

Callichthys callichthys

Callichthys callichthys ('chato', 'flat head cascadu') has historically had a wide but fragmented distribution (Kenny 1995). It was found at only one site by Phillip (1998). Our recent sampling expands its range into two new drainages, namely the Cuesa River in the north-west and the Guapo River in the south-west, while confirming its presence in both the South Oropuche and Ortoire (Poole River) (Fig. 3 and Table 3).

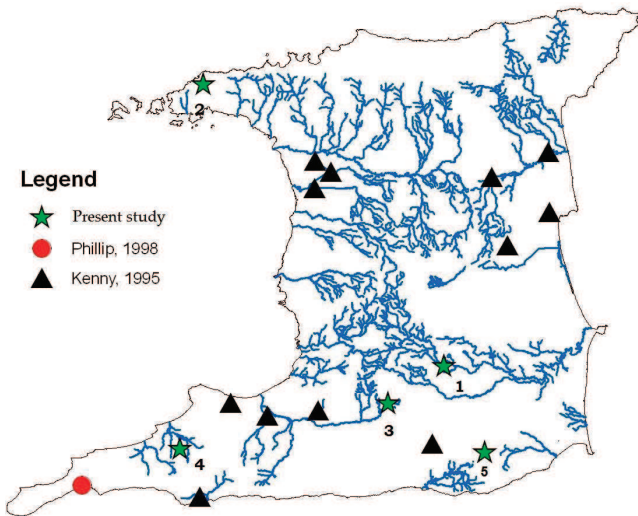


Fig. 3. Distribution of *Callichthys callichthys* ('chato' or 'flat head cascadu') in Trinidad. Kenny (1995) also previously collected this species at the same site as Phillip (1998).

Dormitator maculatus

Dormitator maculatus was previously fairly widely spread in Trinidad and restricted to lower courses of rivers (Fig. 4) according to Kenny's (1995) data but was found at only one site on the island by Phillip (1998). Our

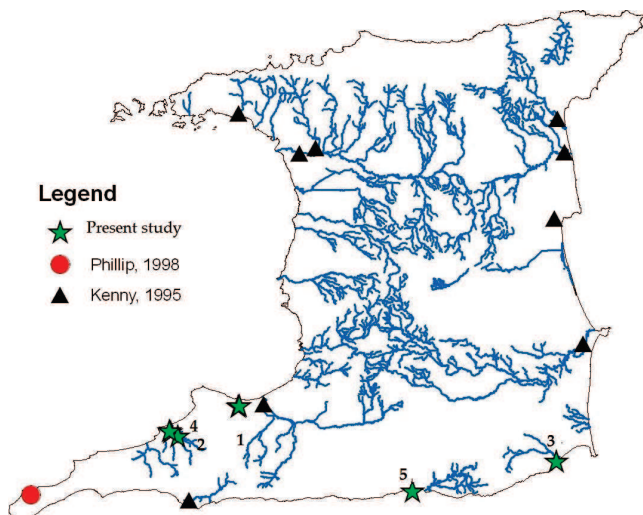


Fig. 4. Distribution of *Dormitator maculatus*.

recent data confirms its presence in the Silver Stream and Guapo Rivers while expanding its range to include two new southern drainages namely Moruga (Betty River) and St. Hilaire (See Table 4, Appendix 2 for details of recent records).

Eleotris pisonis

The other eleotrid, *Eleotris pisonis*, has a similar habitat restriction and historical local distribution to *Dormitator maculatus* (Fig. 5), but was only found in the north and northeastern part of this distribution by Phillip (1998). Our records re-establish its presence in the south-west and southeastern parts of the island (Fig. 5 and Table 5, Appendix 2).

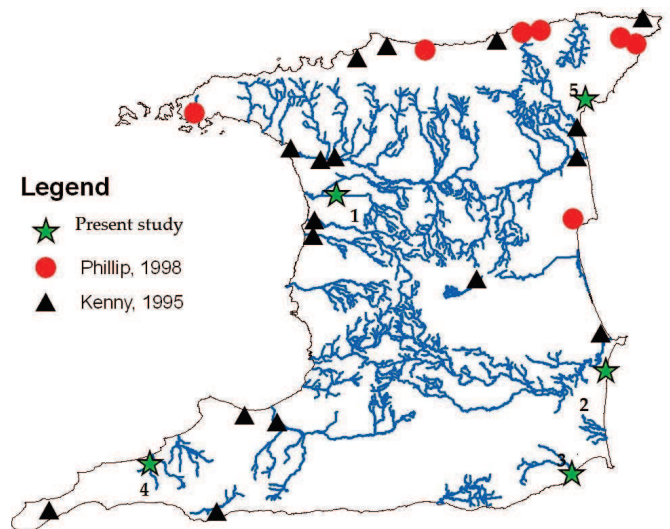


Fig. 5. Distribution of *Eleotris pisonis*. Phillip (1998) also recorded this species at similar northeastern sites to Kenny (1995).

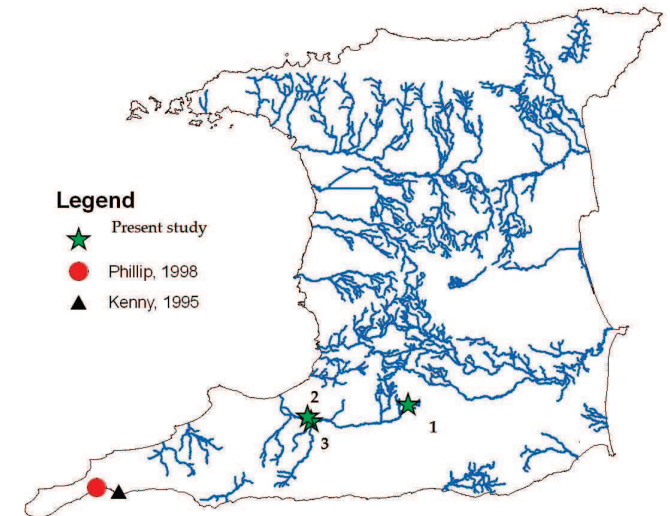


Fig. 6. Distribution of *Erythrinus erythrinus*. Kenny (1995) previously recorded this species in the vicinity of the Phillip (1998) site.

Erythrinus erythrinus

Prior to our recent sampling, *Erythrinus erythrinus* had only been recorded from two nearby sites in the same drainage by both Kenny (1995) and Phillip (1998), (Fig. 6). Our new records expand its range to three further sites in a new drainage, the South Oropuche River (See Fig. 6 and Table 6, Appendix 2 for record details).

Gasteropelecus sternicla

The local distribution of *Gasteropelecus sternicla* ('hatchet fish') has historically been both restricted and disparate (Fig. 7). While it was restricted to a single southwestern river in Kenny's (1995) account, Phillip (1998) only found this species at three closely situated sites within an eastern drainage. Our records have expanded the range to two more systems, namely the Ortoire (including the Poole River) and the Nariva. Table 7 (Appendix 2) gives details of our records.

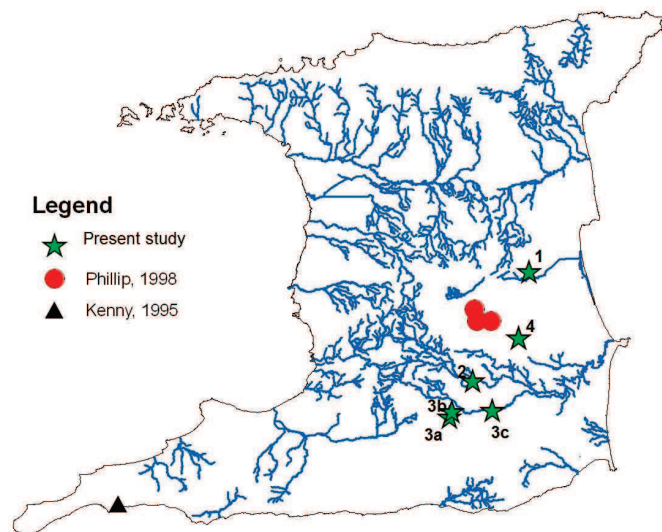


Fig. 7. Distribution of *Gasteropelecus sternicla* ('hatchet fish'). Alkins (1987) previously recorded this species at the same site as Kenny (1995).

Triporthus elongatus

Triporthus elongatus ('elongate hatchet fish') had previously been recorded by Kenny (1995, citing Alkins, 1987) in a single southwestern drainage (Figure 8). The species was not caught during Phillip's survey but subsequently occurs in our records (Fig. 8) – a single individual was caught approximately 50 m upstream from the Pilote River mouth during a falling tide (See Table 8, Appendix 2 for site details). The individual was 68 mm (Standard Length, SL).

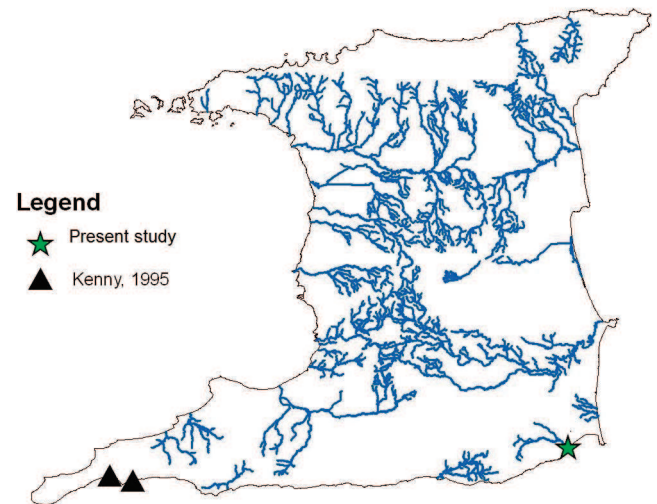


Fig. 8. Distribution of *Triporthus elongatus* ('elongate hatchet fish').

Gymnotus carapo

Kenny (1995) previously recorded *Gymnotus carapo* ('cutlass fish') across several central and southern drainages. Phillip (1998) however, only recorded it at four sites in central Trinidad. Our list shows its continued existence in the south and central drainages independent of those identified by both Kenny and Phillip.

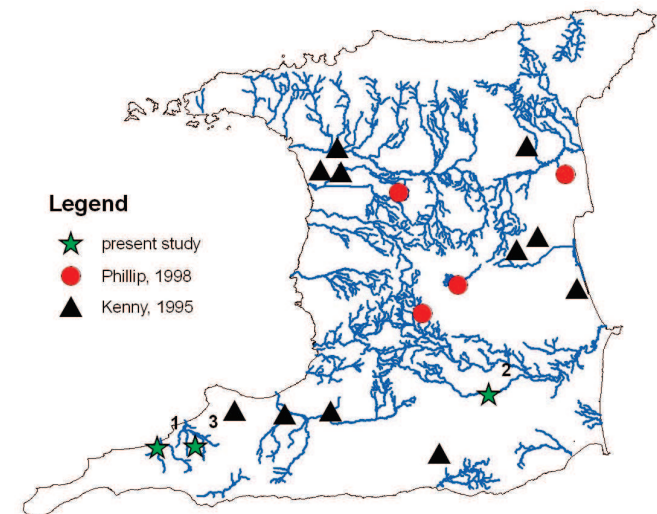


Fig. 9. Distribution of *Gymnotus carapo* ('cutlass fish').

Trichogaster trichopterus

The newly recorded exotic, *Trichogaster trichopterus* ('gourami') has been recorded from two South Oropuche sites (Fig. 9 and Table 9, Appendix 2) but anecdotal evidence by three independent sources (villagers of the environs) suggests that this species may range as far upstream as Penal. The specimen caught ranged between 5.9 cm and 11.2 cm (Standard Length).

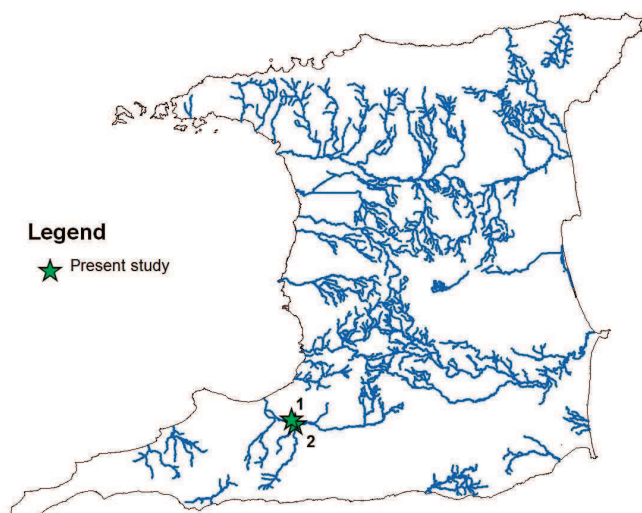


Fig. 10. Distribution of *Trichogaster trichopterus* ('three spot gourami').

DISCUSSION

We have avoided specific designations for two species (*Ancistrus* sp. and *Awaous* sp.) based on taxonomic uncertainty. In both cases, discrepancies?? appear on the website www.fishbase.org (an authoritative online resource for global fish taxonomy and distribution data) with regard to the binomials as follows:

- 1) *Ancistrus* sp. (Order: Siluriformes, Family: Loricariidae) - Three possible species listed for Trinidad. These include *A. cirrhosus*, *A. maracasae* and *A. trinitatis*. The first has been most recently listed as a possible misidentification (Fisch-Muller 2003) while the other two are listed as endemics by the same author. Given Trinidad and Tobago's recent continental origin, the assertion of endemism warrants some caution in acceptance;
- 2) *Awaous* sp. (Order: Perciformes, Family: Gobiidae) - There are two gobies that belong to this genus that possibly inhabit our freshwater drainages, namely *Awaous banana* and *Awaous tajasica*. While Kenny (1995), Phillip (1998) and Phillip and Ramnarine (2001) list *A. tajasica*, there has been a taxonomic revision by Watson (1996) which suggests that the proper designation is *A. banana*.

Ancistrus sp. occupies a similar niche (Dawes 2003) as the other native member of the Loricariidae family, *Hypostomus robinii*. Both species have similar diets and morphological adaptation for feeding. Both are similarly coloured as well. *H. robinii* is larger (Phillip and Ram-

narine 2001) and has the potential to produce more offspring per year, therefore increasing its density (personal observation of ovaries of both species by R.S. Mohammed). This is potentially why the range for *Ancistrus* cf. is still restricted and has low densities where both species are present. *Ancistrus* sp. still falls within the Stable Relict Zone of Kenny (1995). Phillip and Ramnarine (2001) stated that *Ancistrus cirrhosus* can be found scattered in a few drainages south of the Northern Range including the Caroni, Moruga, South Oropuche, Navet and Killdeer Rivers. Prior to this paper, it has never been reported in the Couva Drainage.

Awaous cf. is still within Kenny's (1995) Unstable Relict Zone. This clear-water species is regarded as Antillean, given its insular West Indian distribution. We have collected individuals at the Hermitage River, Tobago and noted its presence at drainages in Speyside as well. Phillip and Ramnarine (2001) noted that *Awaous tajasica* inhabits the drainages flowing into the Atlantic in Tobago.

Callichthys callichthys ('chato') may have been introduced to the Tucker Valley Drainages of Chaguaramas. This new find in the tributaries of the Cuesa River yielded four sub-adults in one pool. It is possible that there is currently a breeding population within this catchment. The drainage of this area is intermittent, with some rivers disappearing even during the wet season. The survival of the aquatic life is therefore dependent on the individuals surviving in pools of these rivers. This is comparable to the systems described by Alkins (1987) in the Chatham Drainages in which Phillip and Ramnarine (2001) last recorded the species. A live specimen has not been collected from Lagoon Bouffe mud volcano crater pond, but it is still speculated they inhabit the pond. 'Guppies' (*Poecilia reticulata*) were observed (dead and alive) at this site. We speculate the deaths of *Callichthys* sp. and *Poecilia* sp. was attributed to the decreases in water level (< 5.0 cm) and dissolved oxygen (1.2 mgL⁻¹). The hypersaline (40‰) conditions recorded and warm water (32.3°C) would also be an increased stress factor to both of these freshwater species.

Dormitator maculatus and *Eleotris pisonis* are both coastal species (Phillip and Ramnarine 2001). Larvae of both species are capable of tolerating estuarine and marine conditions (Winemiller and Ponwith 1998). Darcy (1980) noted that larvae of *D. maculatus* can tolerate salinities from 0.0 to 38.4‰ and larvae of *E. pisonis* tolerated salinities ranging from 0.0 to 36.6‰. Kenny (1995) described *E. pisonis* as Antillean. We were not surprised to collect several individuals (ranging from 21 to 123 mm SL) at Hermitage River, Tobago during June of 2006. Darcy (1980) stated gravid adults of both species come to estuaries and the planktonic larvae are swept downstream and dispersed

along the coast explaining the coastal colonization that seems to be occurring. Juveniles then proceed upstream as maturation occurs. This may explain why the size classes for both species found at the estuaries are either that of post larval stage (>10 mm SL) or sexually mature individuals (>100 mm SL). The largest *D. maculatus* (186 mm SL) in our data set was collected at St. Hilaire River.

Erythrinus erythrinus is probably spreading naturally into the South Oropuche Drainage. It was collected in the Black Water Channel and 40 ft. Channel in the Woodland area. Communications with D.A.T. Phillip yielded the possibility of its existence in the Penal Drainages since 2006. It is regarded as a recreational fishing food fish by locals in the area (also called 'guabine' and 'yarrow'). One juvenile was collected in a small tributary of the South Oropuche along the Moruga main road. Within this system it shares the niche of main piscivorous predator with another member of the Erythrinidae, *Hoplias malabaricus*.

Gasteropelecus sternicla, the 'hatchet fish', is still regarded as a natural colonizer of the southwestern peninsula. However, communications with M.E. Alkins-Koo, lead us to the possible conclusion that there may have been introductions from the ornamental fish trade to the Navet and even the Poole Drainages. This is based on the fact that the specimens collected are far upstream and are in isolated drainages. The probability of multiple colonization events of comparatively disparate drainages is low. However, at these sites they do have well established populations with a range of size classes (19 to 59 mm SL).

Stochastic colonizing events due to heavy outflows from South American rivers and decreased salinities may be the only way for the 'elongate hatchet fish' *Triportheus elongatus* to occur in our southern drainages. It is still regarded as a colonizer but was feared locally extinct by naturalists (personal communications) and aquatic biologists. The individual collected (68 mm SL) was within the size class described by Alkins (1987). It is still unknown if breeding populations occur within the southern drainages.

Gymnotus carapo locally called 'selengbeng', 'cutlass fish' or 'knife fish' is a unique predatory fish that forages using an electrically generated field (Phillip and Ramnarine 2001), (Lissman 1963). This adaption allows the fish to hunt in waters of high turbidity, such as those identified in this study. Two of three new sites (Ortoire and Chatham Rivers) were sampled during the dry season. The streams sampled were a series of pools. This species is capable of exploiting low dissolved oxygen conditions. It is not believed that the range of this species is expanding, but based on their low population numbers, capturing them is a chance occurrence. They evade netting via the use of their electric sensory organs. Anecdotal evidence from villagers

in the Caparo and Mamoral areas say the species is still in existence in the upper reaches of these drainages and they can be caught using a hook and line. Communications with D.A.T. Phillip yielded the knowledge of their existence in ponds in the Barrackpore area as well.

Trichogaster trichopterus, 'three spot gourami', is thriving in the South Oropuche Drainage. The wide size class ranges collected can imply varying ages of individuals therefore a reproducing population could be present. It is native to Cambodia, where it can be found in shallow, sluggish or standing water habitats with aquatic vegetation or seasonally flooded forest of the lower and middle Mekong (Rainboth 1996). This habitat can easily describe the flooded abandoned rice fields, various swamp areas and shallow channels of the Woodland area where our specimens were collected. This species is also well adapted to high predatory pressure. In the Mekong, more than 40% of the approximately 500 species are piscivorous (Rainboth 1996). 'Gouramies' have high fecundity ranging from 300 to 1000 eggs per batch in waters ranging in temperature from 22 to 29°C (Brown 1999) which falls within the temperature range for swamps of South Oropuche. The individuals collected were mottled grey and brown. This could imply that the fish is adapting to life in the drainages, because the ornamental varieties are brightly coloured. Remains of individuals were also extracted from the stomach content of large 'guabine', *Hoplias malabaricus*. Fishermen from the area provided anecdotal evidence of its presence in the Penal Drainages and S. Jairam indicated observing them approximately a decade before this report. Fishermen also complained of the decline in 'cascadu', *Hoplosternum littorale* and the local 'sardine' densities in the rivers where the 'gourami' is occurring. Even though the 'gourami' is not thought to be a predatory species (their diets consist of zooplankton, crustacean and insect larvae), there might be competition for reproductive habitat resources. The males construct bubble nests in still waters using vegetation for anchoring and aggressively guard their nests. This is quite similar to the nest building behaviour of the 'cascadu' (Ramnarine 1995). The full extent of its range and ecological impact needs to be examined more closely.

Given the widespread and intensive sampling of Trinidad and Tobago's ichthyofauna in the past, it would appear from our updated distribution data that the species indicated here are, at the least shifting, and possibly extending their ranges within the island. In some cases this assertion should be tempered by the fact that previously un-sampled or under sampled streams have received scrutiny in the past decade. At the national level diversity has not been severely threatened, even though many local fishermen have indicated declines in certain

populations (personal communications and observations). Of particular note is the rarity of an indigenous poeciliid, *Poecilia vivipara* which was previously documented by Kenny (1995) at several estuarine swamps and westerly drainages of the southwestern peninsula. Our sampling trips across both islands over the decade have yielded only two females collected once at upper Silver Stream River during January, 2009. While human influence may be contributing to some changing distributions (whether by introductions or through perturbations such as pollution and habitat modification), the local species assemblage remains naturally dynamic in terms of quantity, composition and distribution.

ACKNOWLEDGEMENTS AND DEDICATION

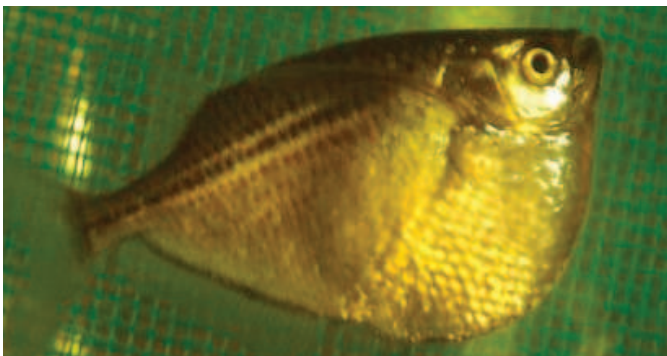
We would like to acknowledge the valuable help of field technicians Pooran Badal, Arnil Badal, Sumair Mathura, Shiva Manickchan, Kevin Mahabir and Timothy Seupaul of Strategic Environmental Services Ltd. Without their assistance and guidance brought by their years of experience, this work would not have been possible.

This work is dedicated to the memory of Karl Ramjohn and Floyd B. Lucas whose lives were tragically lost at sea while conducting field research.

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APPENDIX 1

*Dormitator maculatus**Callichthys callichthys* ('chato')*Gasteropelecus sternicla* ('hatchet fish')*Awaous* sp. ('sand fish')*Trichogaster trichopterus* ('gourami')*Erythrinus erythrinus* ('yarrow')*Gymnotus carapo* ('cutlass fish')*Ancistrus* sp. ('jumbie teta'), dorsal view

APPENDIX 2

Table 1. Updates to distribution of *Ancistrus* cf. ('jumbie teta'). *Kenny (1995) also found *Ancistrus* cf. in the vicinity of our Guanapo River site.

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'jumbie teta'	<i>Ancistrus</i> cf.	Poole River	1	13-May-06	cast netting	3	693982	1136670
		Aripo River	2	30-Jul-05	cast netting	1	693609	1179525
		Guanapo River	3	21-May-05	cast netting	16	691161	1174307
				6-May-06	cast netting	20	691161	1174307
		Couva River	4	17-May-06	bag method	7	666743	1151837
				8-Jun-05	cast netting	1	666743	1151837
		Arima River	5	16-May-06	cast netting	2	687034	1179246
				23-Apr-05	cast netting	13	687034	1179246
		Lopinot River	6	30-Aug-05	cast netting	14	683844	1176345
				6-Jun-06	seining	12	683844	1176345
Poole River	7	9-May-07	seining	1	691795	1130116		

Table 2. Updates to distribution of *Awaous* sp. * Kenny (1995) recorded *Awaous* cf. in the vicinity of our Aripo and Guanapo River sites.

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'sand goby'	<i>Awaous</i> sp.	St. Ann's River	1	7-Mar-06	cast netting	2	661282	1179761
		Guanapo River	2	21-May-05	cast netting	2	691161	1174307
				5-Jun-06	cast netting	2	691161	1174307
		Caroni River	3	7-Feb-06	cast netting	1	687432	1170517
				4-Apr-06	cast netting	3	687432	1170517
		Aripo River	4	2-May-06	cast netting	2	695471	1172389
				1-Jun-06	cast netting	1	695472	1172390
		Matura River	5	11-Aug-08	seining	2	713007	1181518
				11-Aug-08	seining	1	712597	1181732
				11-Aug-08	seining	2	712662	1181205
				7-May-08	seining	2	713007	1181518
				7-May-08	seining	3	712597	1181732
				7-May-08	seining	1	712662	1181205
		Salybia River	6	8-May-08	seining	1	715186	1184451
				8-May-08	seining	1	715504	1184442
				8-May-08	seining	1	715242	1184678
				27-Aug-08	seining	1	715186	1184451
				27-Aug-08	seining	2	715504	1184442
				27-Aug-08	seining	1	715242	1184678
		Hermitage, Tobago	7	12-Jun-06	seining	2	766382	1252201

Table 3. Updates to distribution of *Callichthys callichthys* ('chato' or 'flat head cascadu'). *Kenny (1995) recorded *Callichthys callichthys* in the vicinity of our Poole River site.

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'chato', 'flat head cascadu'	<i>Callichthys callichthys</i>	Poole River	1	13-May-06	cast netting	2	693982	1136670
		Cuesa River	2	4-Nov-08	seining	4	651739	1186053
		South Oropuche Tributary	3	4-May-07	seining	2	684101	1130035
		Guapo River Tributary, Salazar Trace	4	3-Feb-09	seining	1	647570	1122061
		Lagoon Bouffe	5	3-Mar-10	dried dead specimen on bank	1	707469	1119534

Table 4. Updates to distribution of *Dormitator maculatus*. * Kenny (1995) previously recorded *Dormitator maculatus* in the vicinity of our Silver Stream River and Guapo River sites.

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'fat sleeper'	<i>Dormitator maculatus</i>	Silver Stream, upper	1	26-May-06	seining	1	657375	1129817
		Guapo River	2	25-May-06	seining	6	645493	1125338
				25-May-06	seining	8	646784	1124652
				4-Jan-09	seining	1	645347	1125562
		St. Hilaire River	3	2-Dec-03	seining	1	713093	1120180
		Silver Stream River	4	25-May-06	seining	5	657572	1129970
Betty River, Moruga	5	17-Jul-07	seining	3	687881	1115006		

Table 5. Updates to distribution of *Eleotris pisonis*. * Kenny (1995) previously recorded *Eleotris pisonis* in the vicinity of our Candee and Salybia River sites.

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'spinycheek sleeper'	<i>Eleotris pisonis</i>	Cunupia River, Candee	1	7-Jun-06	seining	2	672772	1168004
		Mahaut River, Mayaro	2	31-May-06	seining	1	718969	1137777
		St. Hilaire River	3	Dec-2003 Nov-2009	seining	1	713093	1120180
		Chatham River	4	4-Apr-06	seining	1	640859	1121899
		Salybia River	5	8-May-08	seining	1	715504	1184442
		Hermitage, Tobago	6	12-Jun-06	seining	6	766382	1252201

Table 6. Updates to distribution of *Erythrinus erythrinus*.

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'yarrow'	<i>Erythrinus erythrinus</i>	South Oropuche Tributary	1	4-May-07	seining	2	684101	1130035
		Black Water Channel, Tulsa	2	6-Feb-09	cast netting	10	667160	1127058
		Rahamut Trace	3	6-Feb-09	seining	1	666528	1127917

Table 7. Updates to distribution of *Gasteropelecus sternicla* ('hatchet fish').

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'hatchet fish'	<i>Gasteropelecus sternicla</i>	Nariva, Cuchcut	1	June-2004	seining	2	705419	1154990
		Poole River	2	5-May-07	seining	20	695727	1136363
		Ortoire River	3a, 3b, 3c	7-May-07	seining	15	691795	1130116
				9-May-07	seining	82	692229	1131106
				9-May-07	seining	18	699133	1131269
		Killdeer River	4	13-Nov-99	seining	10	703574	1143640
				9-May-00	seining	1	703574	1143640

Table 8. Updates to distribution of *Triporthus elongatus* ('elongate hatchet fish').

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'elongate hatchet fish'	<i>Triporthus elongatus</i>	Pilote River	1	8-Sep-06	seining	1	713548	1120609

Table 9. Updates to distribution of *Gymnotus carapo* ('cutlass fish').

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'cutlass fish', 'knife fish'	<i>Gymnotus carapo</i>	Chatham River	1	4-Apr-06	hand netting	1	640859	1121899
		Ortoire River	2	9-May-07	seining	2	699133	1131269
		Guapo River Tributary, Salazar Trace	3	3-Feb-09	seining	1	647570	1122061

Table 10. Distribution of *Trichogaster trichopterus* ('three spot gourami').

Local name	Species	Site	Site number	Date	Method of capture	Number of individuals caught	GPS	
'three spot gourami', 'blue gourami'	<i>Trichogaster trichopterus</i>	Black Water Channel, Tulsa	1	6-Feb-09	cast netting	10	667160	1127058
		Rahamut Trace	2	6-Feb-09	cast netting	1	666528	1127917