Conserving freshwater fish in south west Western Australia

Little Pygmy Perch and the Balston's Pygmy Perch

Biannual update

Stephen Beatty, David Morgan, Mark Allen

STATE NRM OFFICE
Natural Resource Management in Western Australia

Murdoch
Freshwater Fish Group & Fish Health Unit

Centre of Excellence in Natural Resource Management

GOVERNMENT OF WESTERN AUSTRALIA
Department of Fisheries
Department of Water
Department of Parks and Wildlife

SOUTHCOAST NATURAL RESOURCE MANAGEMENT

SWCC south west catchments council

Activities

	Description of key activities	Timeframe for completion
1	Determining the distribution, migration patterns, critical spawning habitat of the Trout Minnow, Balston's Pygmy Perch and Little Pygmy Perch	Present - June 2015
2	Surveying the habitat of Trout Minnow (Angove, Goodga, Kent), Little Pygmy Perch (Mitchell and Hay) and Balston's Pygmy Perch (Milyeannup Brook and Blackwood River) to identify critical summer refugia	Present - June 2015
3	A full risk analysis for each species that includes water quality, salinity, in-stream barriers to migration, future population viability under altered flow and groundwater levels resulting from climate change and impacts of feral fish	Present - June 2015
4	Develop a steering committee involving key stakeholders such as DoF, South Coast NRM, DEC and DoW.	October 2012
5	Assess and implement management arrangements for the protection of the Trout Minnow, Balston's Pygmy Perch and Little Pygmy Perch and preserve critical habitat	June 2015
6	Increase community engagement and awareness.	ongoing

✓ Commenced

✓ 2013 completed

✓

✓ Commenced

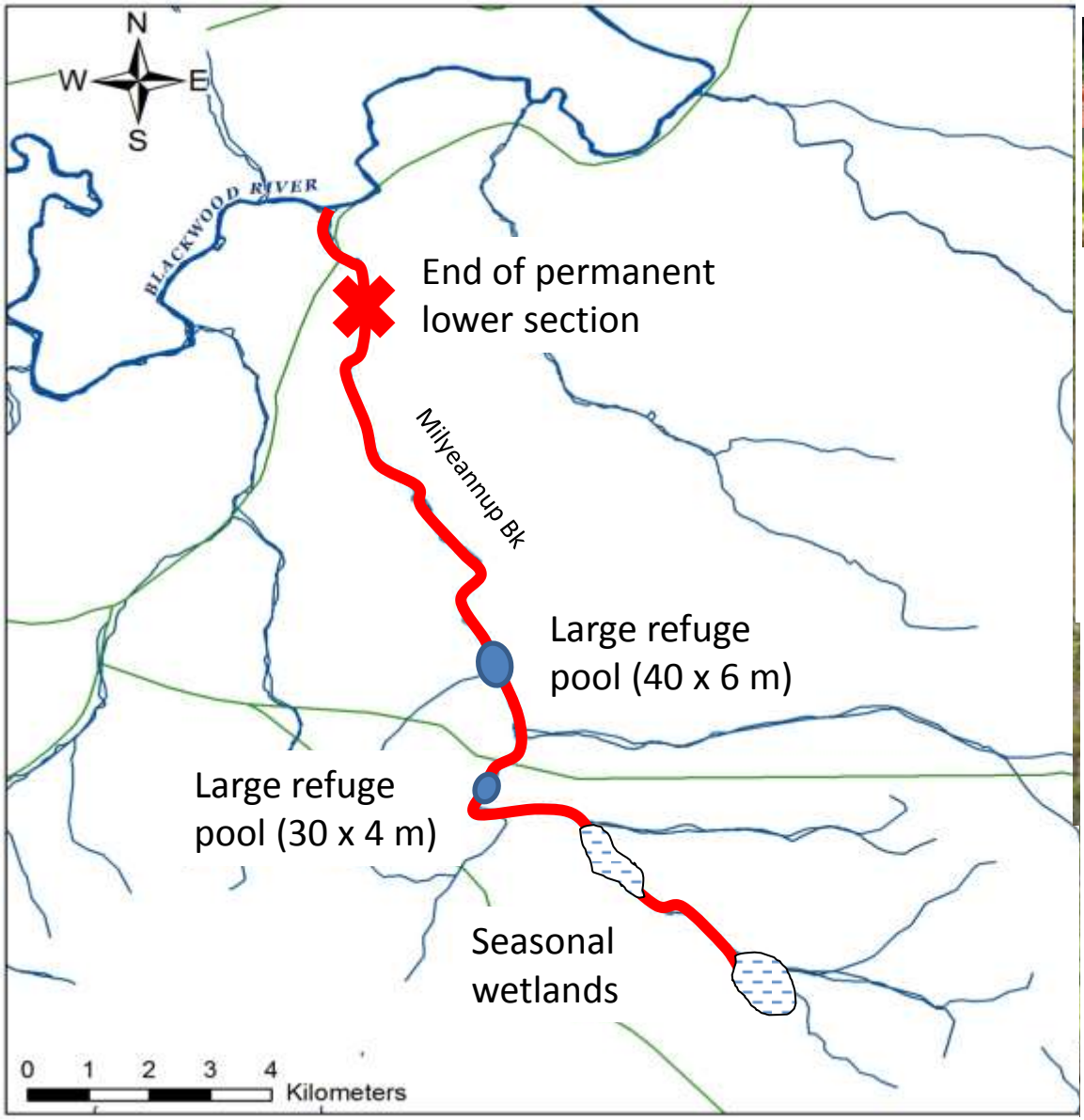
Activities 1 and 2

- Refuge pool ID: surveys and mapping (Milyeannup, Mitchell, Hay, Kent, Goodga)
- Refuge pool distributional sampling (Milyeannup, Mitchell, Hay + additional survey of Turner Brook)
- Distribution, migration patterns, critical spawning habitat, population biology data (more frequent than seasonal)

Baseflow Refuge Surveys

(March 2013)

Milyeannup Brook



Species present

(ind.m^{-2} ± s.e)

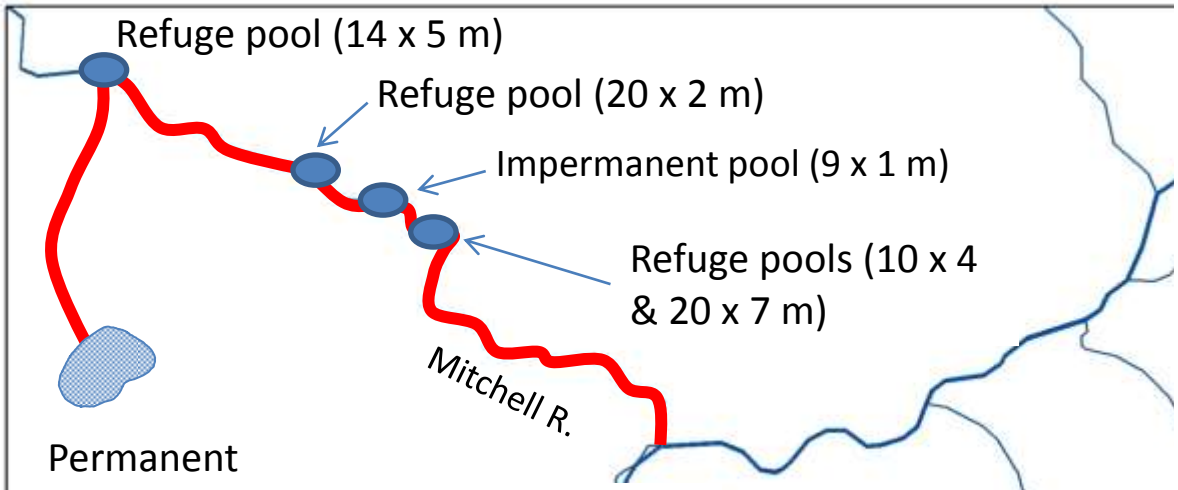
1. *Nannoperca vittata* (14.30 ± 10.07)
2. *Bostockia porosa* (0.10 ± 0.06)
3. *Galaxias occidentalis* (0.08 ± 0.10)
4. ***Nannatherina balstoni*** (0.07 ± 0.05)
5. *Cherax cainii* (0.03 ± 0.02)
6. *Cherax quinquecarinatus* (0.02 ± 0.02)

Species present

(ind.m^{-2} ± s.e)

1. *Nannoperca vittata* (6.78 ± 3.12)
2. *Galaxias occidentalis* (1.63 ± 1.44)
3. ***Nannatherina balstoni*** (0.35 ± 0.11)
4. *Bostockia porosa* (0.23 ± 0.26)
5. *Cherax cainii* (0.18 ± 0.09)
6. *Cherax preissii* (0.02 ± 0.02)

Mitchell River



Species present

(ind.m^{-2} ± s.e)

1. ***Galaxiella munda*** (0.49 ± 0.38)
2. *Cherax preissii* (0.29 ± 0.17)
3. *Nannoperca vittata* (0.27 ± 0.25)
4. *Bostockia porosa* (0.06 ± 0.06)

Species present

(ind.m^{-2} ± s.e)

1. *Nannoperca vittata* (0.97 ± 0.28)
2. *Galaxias occidentalis* (0.61 ± 0.36)
3. *Bostockia porosa* (0.28 ± 0.12)
4. *Cherax preissii* (0.19 ± 0.12)
5. ***Galaxiella munda*** (0.03 ± 0.02)
6. ***Nannatherina balstoni*** (0.02 ± 0.02)

Species present

(ind.m^{-2} ± s.e)

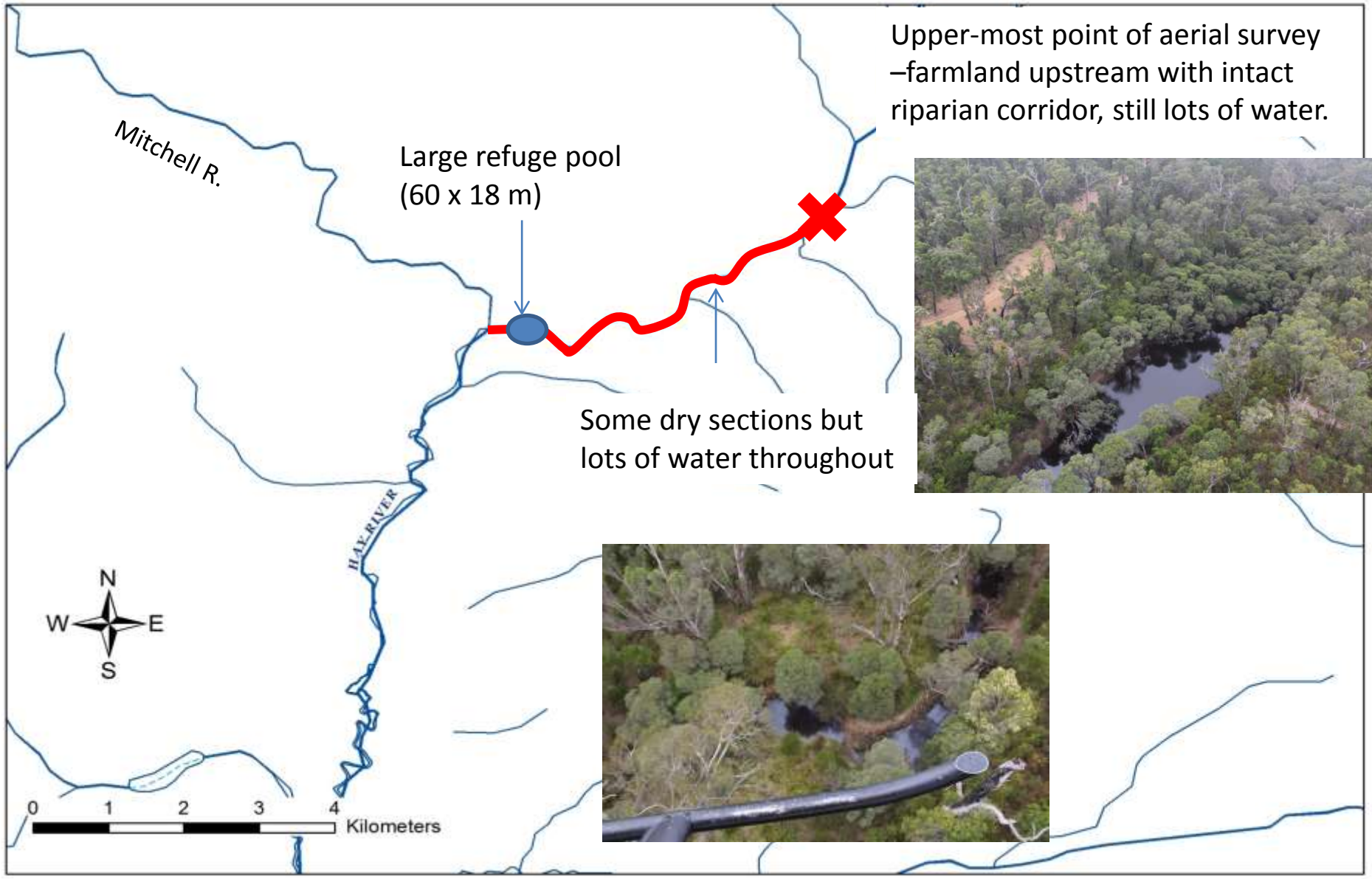
1. *Nannoperca vittata* (1.72 ± 0.23)
2. ***Galaxiella munda*** (0.18 ± 0.18)
3. *Galaxias occidentalis* (0.13 ± 0.04)
4. *Bostockia porosa* (0.11 ± 0.01)

Species present

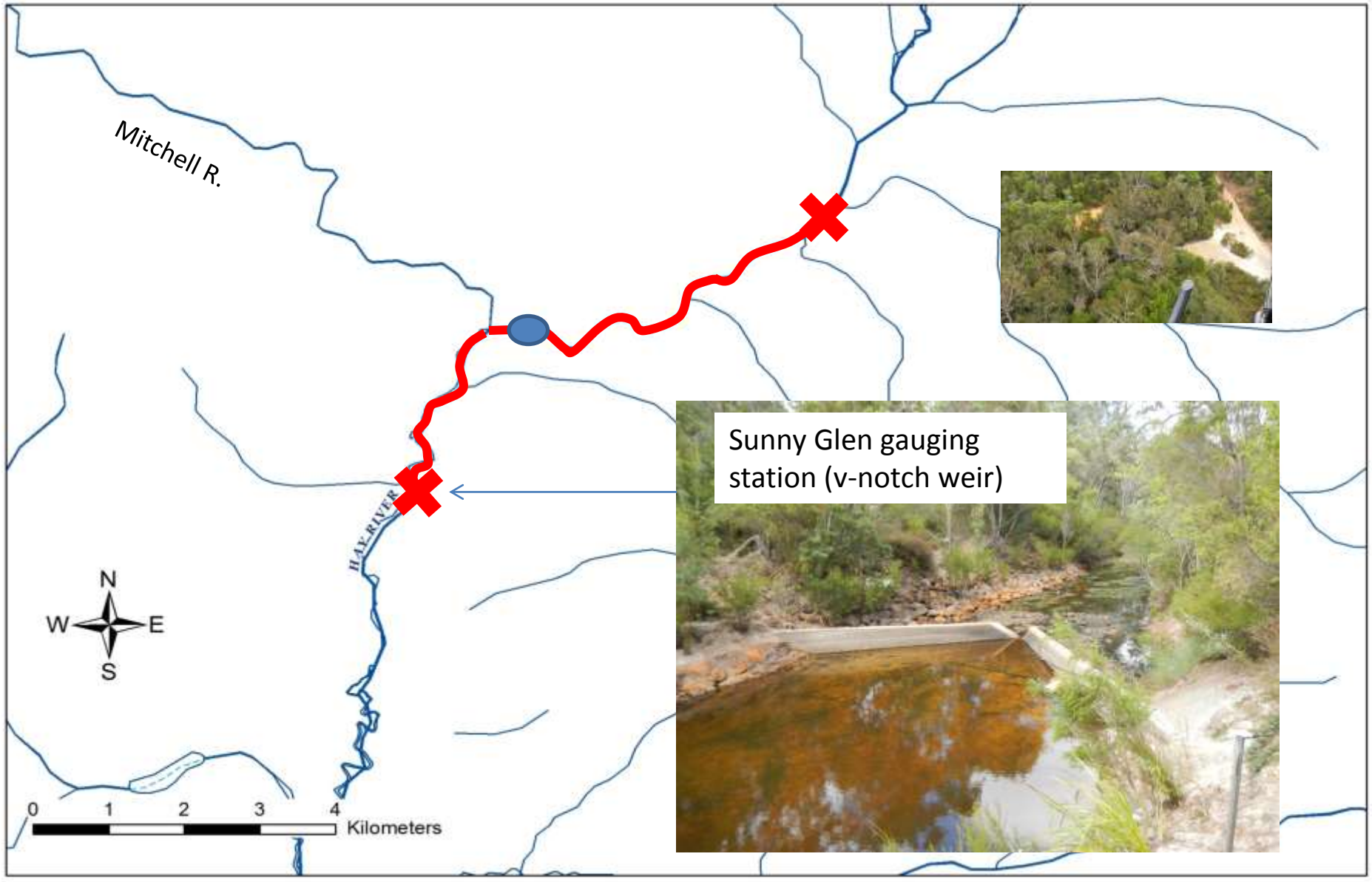
(ind.m^{-2} ± s.e)

1. *Cherax preissii* (0.13 ± 0.01)

Hay River (upstream of Mitchell confluence)



Hay River (downstream of Mitchell confluence)



Baseflow sampling locations

- - present
- - absent
- Current known distribution of *N. pygmaea* - less than 1 km of stream

Mitchell R.

n=2

n=30

n=2

HAY RIVER

N

W E

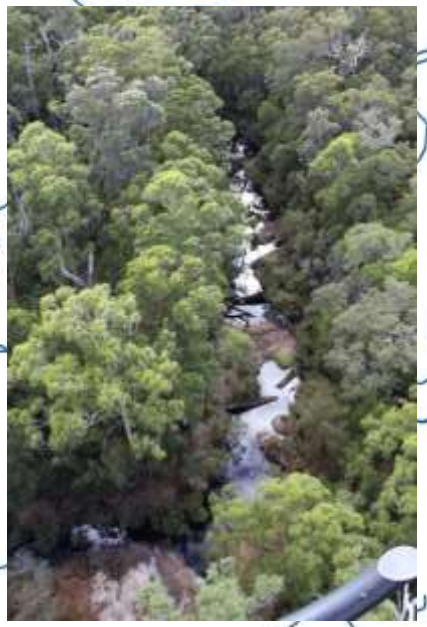
S

0 1 2 3 4 Kilometers

Major known baseflow refuge habitat (60 x 18 m pool)

Kent River (lower section)

Baseflow Refuge Survey (March 6 2013)



Kentdale Creek confluence
(another known Trout Minnow site)

Kent River

Moombaki Winery
(known Trout Minnow site)

N
W E
S

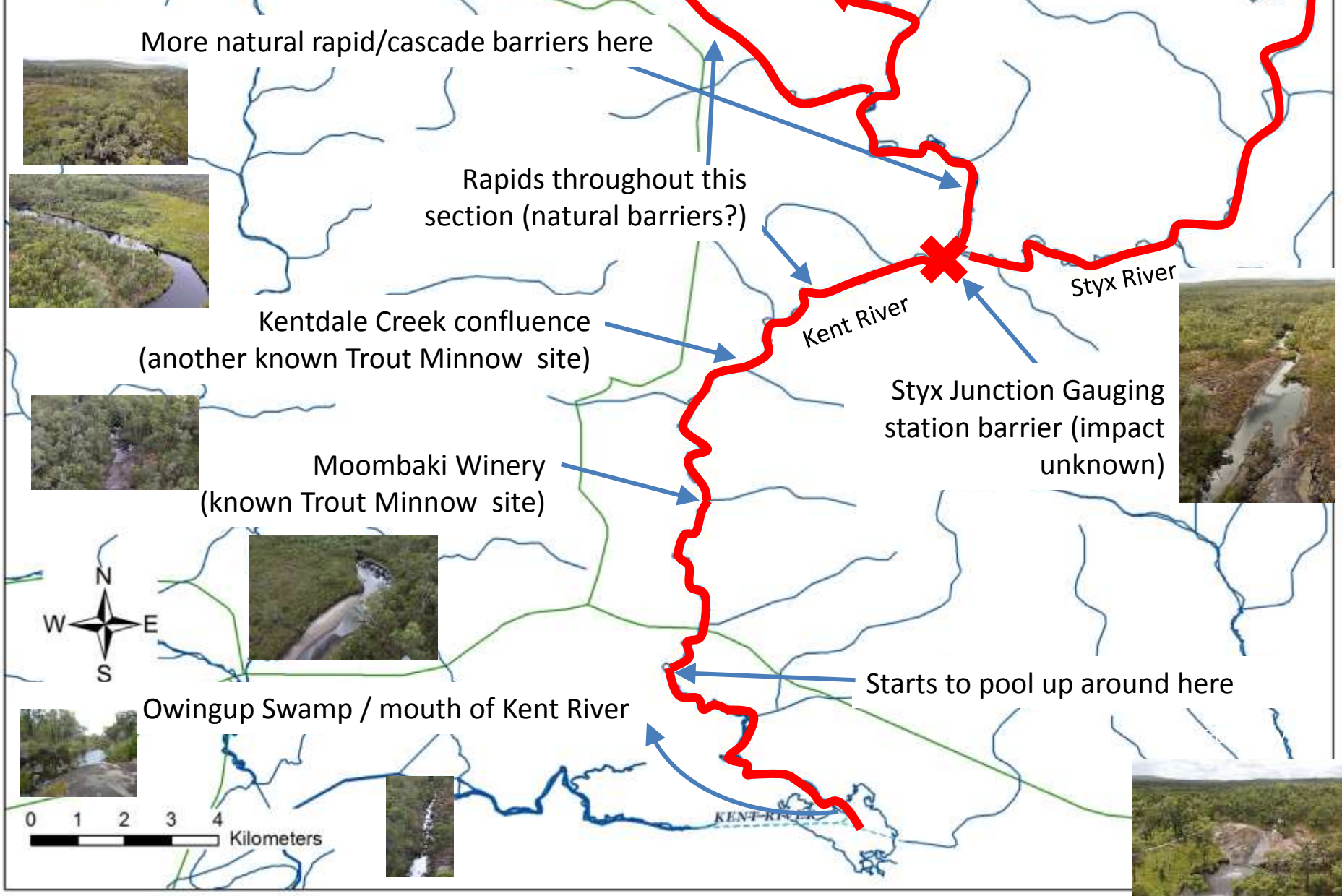
Starts to pool up around here

Owingup Swamp / mouth of Kent River

0 1 2 3 4 Kilometers

Kent River (lower section)

Baseflow Refuge Survey (March 6 2013)



Goodga River

Baseflow Refuge Survey (March 7 2013)

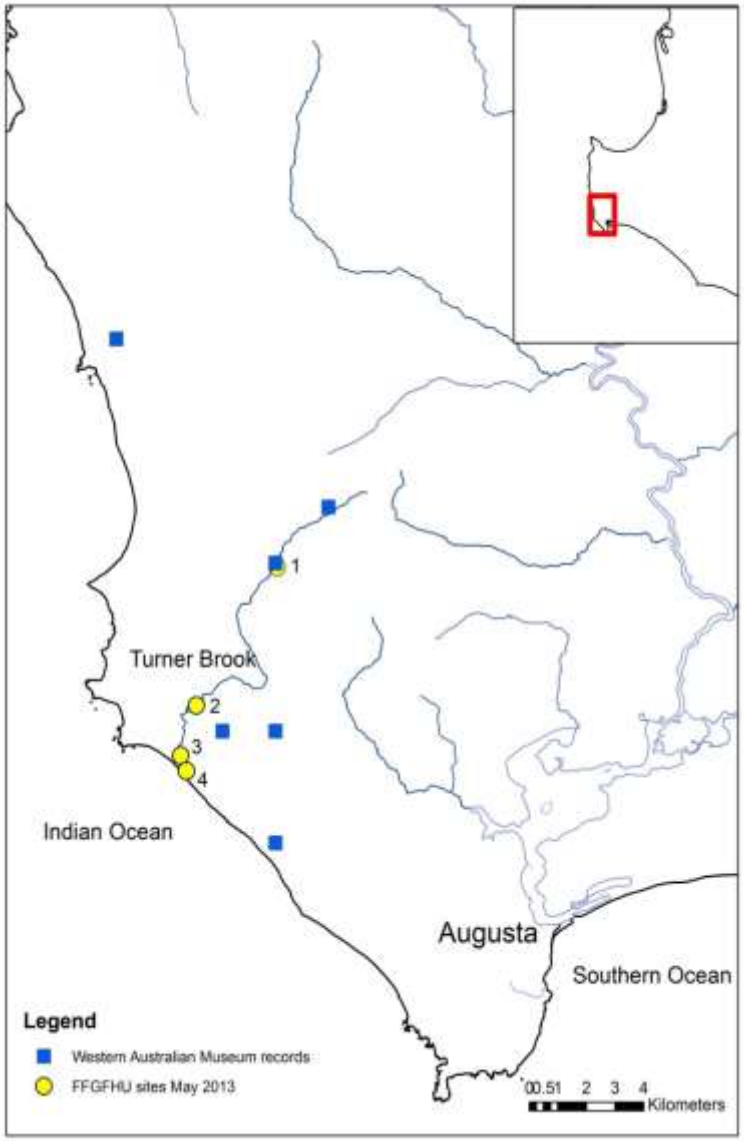
N
W E
S

0 1 2 3 4
Kilometers

Goodga River

Baseflow Refuge Survey (March 7 2013)

Turner Brook Balston's survey



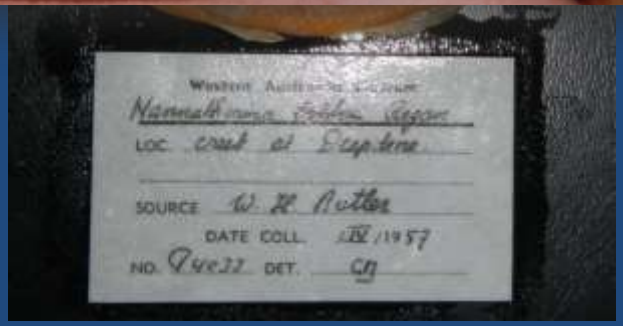








Western Australian Museum specimens – Turner Brook Balston's Pygmy Perch



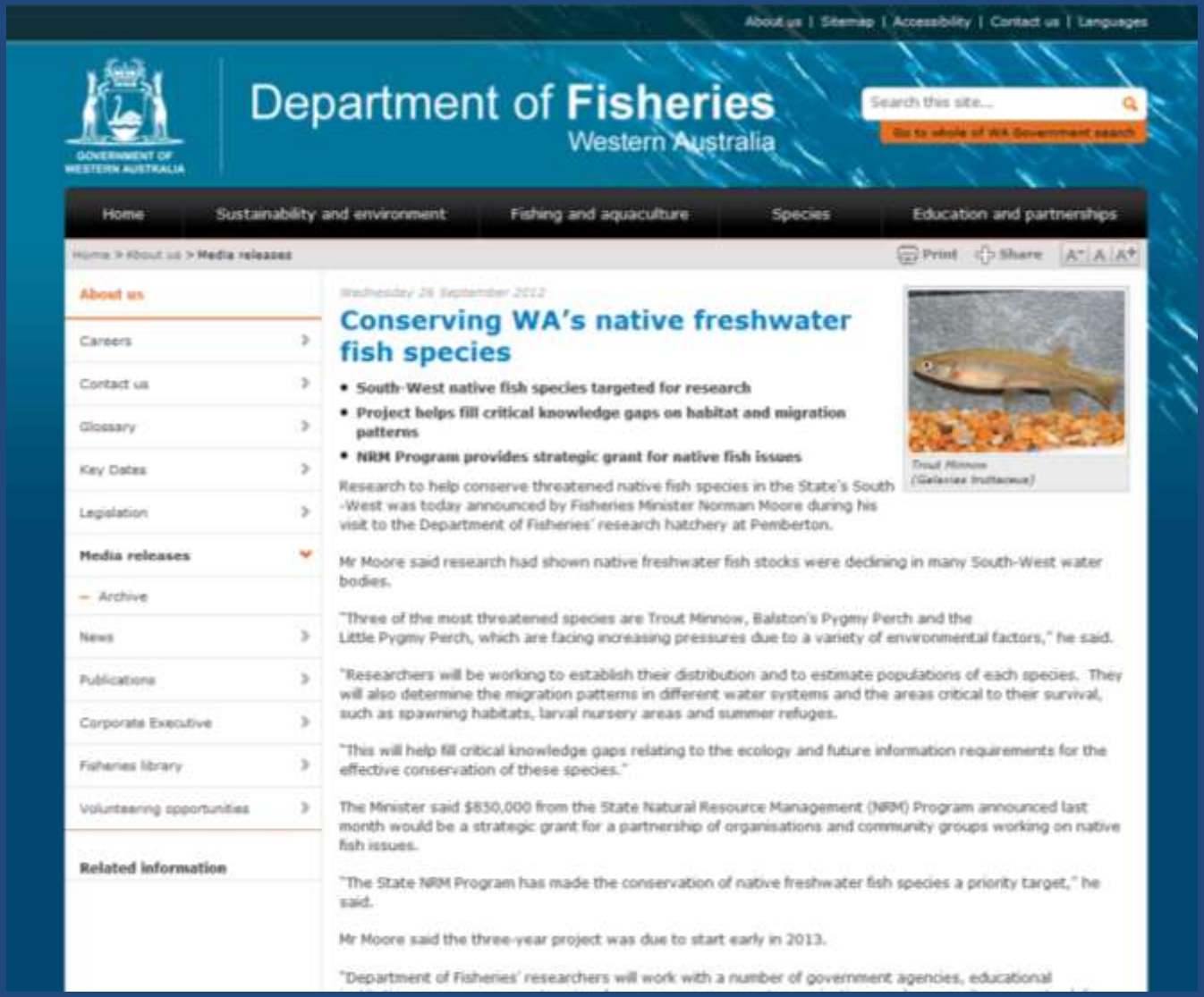
'black-spot disease' (possibly a trematode metacercarial cyst of Diplostomum sp.).

Western Australian Museum specimens – Turner Brook
Western Minnow, Nightfish, Western Pygmy Perch

Possibly lost 3 endemic fishes from the system

Activity 6

- Education and community engagement program



$850k to conserve rare freshwater fish

October 18, 2012

Print This Post

Murdoch University researchers have helped to secure an $850,000 grant to conserve three species of endangered fresh water fish native to the South-West of Western Australia.

The study by the Freshwater Fish Group and the Fish Health Unit will focus on Balston's Pygmy Perch, the Western Trout Minnow and the recently discovered species Little Pygmy Perch.

The funding comes from the State Government's Strategic Priority Projects and will be managed through the Natural Resources Management (NRM) office.

"As we only discovered the Little Pygmy Perch in 2009 near Denmark, we know little about it although we believe it to be one of the most restricted fishes in Australia," said Murdoch research fellow Dr Stephen Beatty.

"This makes it particularly vulnerable to threats such as salinisation and declines in habitat due to flow reductions associated with climate change."

Little Pygmy Perch (photo by Stephen Beatty)

Senior research leader Dr David Morgan added that their studies in the South-West over the course of 20 years had demonstrated that these unique species were also threatened by barriers to their migration and introduced species.

"There is also still much to learn about the distribution and threats to Australia's only critically endangered freshwater fish, the Western Trout Minnow, and this is an exciting opportunity to take a collaborative approach to obtain the knowledge required to sustainably manage all three endangered species," said Dr Morgan.

The study, to be run over three years, is led by the Department of Fisheries and partners include the University of Western Australia Albany, Department of Water, Department of Environment and Conservation and South Coast NRM along with other regional catchment groups.

More information on these and other freshwater fish in Western Australia can be found at the Freshwater Fish Group and Fish Health Unit's website.

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Murdoch researchers name new fish species

April 16, 2013

Print This Post

Researchers from Murdoch University's Freshwater Fish Group & Fish Health Unit and South Australian Museum have officially named Australia's newest freshwater fish: the Little Pygmy Perch (*Nannoperca pygmaea* sp. nov.)

Researchers have officially named Australia's newest freshwater fish: the Little Pygmy Perch. Photo: S. Beatty.

The Little Pygmy Perch was first discovered in 2009 near Denmark, WA, and has been the subject of conservation efforts since then.

"The Little Pygmy is the smallest of Australia's seven pygmy perch species, three of which are known only from the rivers and lakes of Western Australia's south-west," said Murdoch researcher Dr David Morgan.

"We believe it is also the rarest, having only been found in a very small section of river near Denmark.

"While its discovery has been very exciting, we now need to ensure that the species is afforded State and Federal protection.

"Recently, the WA Government has provided funding for the Little Pygmy and two other endangered freshwater fishes in the South-West through the State Natural Resource Management (NRM) Program.

"Part of these funds goes to getting the species listed and hopefully to locate it elsewhere and identify critical summer refuge habitats."

Dr Morgan said the State NRM funding was a significant investment and represented an important collaboration between government agencies (Department of Fisheries, Department of Water, Department of Environment and Conservation), NRM groups (South Coast NRM) and universities (Murdoch University and UWA).

The Little Pygmy Perch was officially named in an article published on April 12, 2013 in the international scientific journal *Zootaxa*, authored by Dr Morgan and Dr Stephen Beatty from Murdoch and Dr Mark Adams from South Australian Museum.

The article can be found here.

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Tel: (08) 9360-2491 | **Mobile:** | **Email:** r.payne@murdoch.edu.au
Categories: Domestic students, Future Students, International students, Murdoch achievements, Research, School of Veterinary and Life Sciences Research, Teaching and Learning
Tags: conservation, david morgan, fish health unit, freshwater fish group, little pygmy perch, south australian museum

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Nannoperca pygmaea, a new species of pygmy perch (Teleostei: Percichthyidae) from Western Australia

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[2]*Evolutionary Biology Unit, South Australian Museum, North Terrace, Adelaide, South Australia, 5000, Australia. E-mail: Mark.Adams@samuseum.sa.gov.au*

Abstract

A new species of pygmy perch (Percichthyidae) from south-western Australia is described on the basis of 15 specimens collected from the Hay River system. *Nannoperca pygmaea* **sp. nov.** differs from the sympatric congener *N.vittata* (Castelnau) by the absence of dark pigment on the ventral surface anterior to the anus, the possession of thin latero-ventral stripes, generally fewer dorsal rays and fewer anal rays, hind margin of scales on caudal peduncle without distinct pigment, and a more pronounced spot (ocellus) that is surrounded by a halo at the termination of the caudal peduncle. The new species is distinguished from congeners *Nannoperca australis* Günther, *N. oxleyana* Whitley and *N. variegata* Kuiter and Allen in possessing an exposed and serrated preorbital bone and jaws that may just reach to below the anterior margin of the eye, versus a smooth and hidden preorbital and the jaws reaching to at least below the pupil; and from the remaining congener, *N. obscura* (Klunzinger) in possessing a distinct haloed ocellus at base of caudal fin versus an indistinct barring, as well as a dark spot behind operculum, and the lack of dusky scale margins. It differs from the other sympatric pygmy perch found in the region, *N. balstoni* Regan, by the presence of an exposed rear edge of the preorbital (vs. hidden under skin), fewer transverse scale rows (13 vs. 15–16), small mouth (rarely reaching eye vs. reaching well beyond eye), ctenoid (vs. cycloid) body scales, generally fewer pectoral rays and smaller maximum size. Allozyme analyses unequivocally demonstrate that sympatric populations of *N. pygmaea* **sp. nov.** and *N. vittata* belong in different genetic lineages, display no genetic intermediates, and are diagnosable by fixed allozyme differences at 15 different loci. Due to its extremely restricted range, where it is known from only 0.06 km^2, *N. pygmaea* **sp. nov.** requires urgent legislative protection.

Key words: sympatric species, *Nannoperca vittata*, *Nannatherina balstoni*, Hay River, Mitchell River, South West Coast Drainage Division, endemic fishes

Introduction

The pygmy perches, *Nannoperca* and *Nannatherina*, are represented by six species that are restricted to southern Australia and are placed either within the Nannopercidae (e.g. Allen 1989, Kuiter *et al.* 1996, Allen *et al.* 2002) or Percichthyidae (e.g. Kuiter & Allen 1986, Jerry *et al.* 2001, Paxton *et al.* 2006, Unmack *et al.* 2011). Jerry *et al.* (2001) demonstrated that the pygmy perches are monophyletic with *Macquaria* and placed them within the Percichthyidae. Jerry *et al.* (2001) and Kuiter *et al.* (1996) suggest that the pygmy perch genus *Edelia* should be incorporated with *Nannoperca*, based on molecular genetic criteria and reflecting minor anatomical differences, such as the posterior margin of the preorbital bone being either hidden by skin (*Edelia*) or exposed (*Nannoperca*), however Allen *et al.* (2002) and Paxton *et al.* (2006) retain *Edelia*. Jerry *et al.* (2001), based on 12S rRNA, found no basis for recognising *Edelia*, with *E. vittata* and *E. obscura* being unmistakably sister taxa to *Nannoperca australis*, *N. oxleyana* and *N. variegata*. Unmack *et al.* (2011) in their phylogenetic revision of the pygmy perches support the use of *Nannoperca* for all species of pygmy perch except *Nannatherina balstoni*.

We accept that there are currently three described endemic species of percichthyid in south-western Australia belonging to three genera, *Nannoperca*, *Nannatherina* and *Bostockia* (Fig. 2b, c, d) (Morgan *et al.* 1998, Jerry *et al.*

Accepted by R. Pethiyagoda: 4 Mar. 2013; published: 12 Apr. 2013

DEC Bushland news Autumn 2013

Highlights

18 April–18 May
Western Australian Heritage Festival. There's Nothing Like Australia's Heritage: Community Milestones. Register online at www.nationaltrust.org.au and click on 'Get Involved'.

31 July–2 August
2013 WA State Coastal Conference, Esperance. 'Balancing Communities and Coasts'. Visit www.2013wacoastalconference.com.au

Bibbulmun Track Foundation events suit all ages and most fitness levels. From guided walks to learning how to cook on a fuel stove. Visit www.bibbulmuntrack.org.au/walk-the-track/events-calendar/.

Nearer to Nature events. Visit www.dec.wa.gov.au/n2n.

9 Sunday 9am–1pm
Planting at Market Garden Swamp, Pennlake Living Stream. Lunch provided. Contact **CoC**.

12 Wednesday 9am–12 noon
Planting at Napier Street foredune, **Cottesloe**. Morning tea provided. Contact **COTT**.

15 Saturday 9am
Planting at Key West Parking Station, **Mullaloo**. Contact **MBCG**.

15 Saturday 9am–3pm
Coastcare planting at Singleton Beach, **Rockingham**. Contact **CC**.

22 Saturday 9am–3pm
Coastcare planting at **Coogee Beach**. Lunch provided. Contact **CC**

23 Sunday 2pm
Planting at West View Bvd, **Mullaloo** coastal car park. Contact **MBCG**.

29 Saturday 9am-3pm
Coastcare planting at **Fremantle**. Contact **CC**

30 Sunday 9am–12 noon
Planting at **Mosman Beach**, Curtin Avenue. Contact Heidi bco@mosmanpark.wa.gov.au.

Threatened freshwater fishes in the spotlight

By Stephen Beatty

A collaborative research project funded by a State NRM grant has begun to examine the distribution, ecology and threats faced by three of south-west Australia's most unique and threatened freshwater fishes.

The freshwater fish fauna of the region has a very high rate (estimated 82 per cent) of endemism. It includes fascinating examples of adaptation to unique habitats such as salamander fish (*Lepidogalaxias salamandroides*) that aestivate to survive in seasonally inundated wetlands and Balston's pygmy perch (*Nannatherina balstoni*) that can leap from the water to catch terrestrial invertebrate prey.

Recently, Murdoch University's Freshwater Fish Group and Fish Health Unit discovered the little pygmy perch (*Nannoperca* sp. nov.) in an isolated area near Denmark. We suspect this new species has a very restricted distribution; however, almost no information exists on its biology or the threats it faces.

The western trout minnow (*Galaxias truttaceus*) and Balston's pygmy perch will also be the focus of this three-year study. They are listed as Critically Endangered and Vulnerable respectively under the *Environment Protection and Biodiversity Conservation Act 1999*. *G. truttaceus* is known only from the Goodga and Angove rivers (east of Albany) and a population in the Kent River. Increases in river salinity have reduced the distribution of *N. balstoni*. In the Blackwood River *N. balstoni* is highly restricted to low salinity habitats that are maintained through the contribution of fresh groundwater.

The project will examine species distribution and ecology (such as migration patterns and spawning habitats) and then undertake a full risk assessment of threats such as those associated with climate change and habitat loss. The project will be conducted by Murdoch University, The University of Western Australia (Albany) and Department of Fisheries as well as project partners including DEC, Department of Water, South Coast NRM, South West Catchments Council, Blackwood Basin Group and Denmark Environment Centre.

For more information contact Stephen at S.Beatty@murdoch.edu.au or 9360 2813.

Little pygmy perch (Nannoperca sp. nov.) is a new species which was recently discovered at Denmark. Photo – Stephen Beatty

Seeking environmental labourers *By Andrew Joske*

Ecojobs Environmental Personnel is the environmental labour hire division of Green Skills Inc, a not-for-profit organisation with a long record of successful environmental projects and ventures throughout WA. Ecojobs Perth completed more than 28,500 hours of environmental restoration and rehabilitation work throughout the metropolitan area in 2012.

Ecojobs is a great source of hands-on paid work experience for up-and-coming environmentalists, and provides opportunities for TAFE and university students to come into contact with various industry professionals from local government, NRM groups and the private sector. In 2012, we employed a total of 141 field staff.

Ecojobs continues to complete Bushland Maintenance over 20 reserves for the City of Melville and has been doing monthly green stock maintenance in the City of Cockburn to ensure a high survival rate from last winter's plantings. Over the hot summer months, Ecojobs has continued with wetland planting projects in South Perth and Victoria Park, and rabbit baiting for the City of South Perth. They also completed a mass weeding project for the City of Joondalup focusing on the hand removal of species including *Pelargonium capitatum*, *Euphorbia terracina*, *Tetragonia decumbens* and *Moraea flaccida*. Ecojobs is looking forward to taking on more casual staff in the lead up to winter and spring.

For more information contact Andrew on ajoske@greenskills.org.au or 9360 6667.

Perth Now

Weather: Perth 11°C - 23°C . Partly cloudy.

Western Australia

$850,000 grant to save rare WA freshwater fish

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- October 18, 2012 9:42AM

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NEW FIND: The Little Pygmy Perch, discovered near Denmark in the far south of the state in 2009. Picture: **Stephen Beatty, Murdoch University** *Source:* PerthNow

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The study by the Freshwater Fish Group and the Fish Health Unit will focus on Balston's Pygmy Perch, the Western Trout Minnow and the recently discovered species Little Pygmy Perch.

The funding comes from the State Government's Strategic Priority Projects and will be managed through the Natural Resources Management (NRM) office.

"As we only discovered the Little Pygmy Perch in 2009 near Denmark, we know little about it although we believe it to be one of the most restricted fishes in Australia," said Murdoch research fellow Dr Stephen Beatty.

"This makes it particularly vulnerable to threats such as salinisation and declines in habitat due to flow reductions associated with climate change."

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$850,000 grant to save rare WA freshwater fish

PerthNow October 18, 2012 12:42PM

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NEW FIND: The Little Pygmy Perch, discovered near Denmark in the far south of the state in 2009. Picture: **Stephen Beatty, Murdoch University** *Source:* PerthNow

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- More fish in the sea belief sunk *The Daily Telegraph, 23 Apr 2012*
- SA fishers warned against taking cod *Courier Mail, 30 Dec 2011*
- Premier releases threatened fish *Courier Mail, 3 Nov 2011*

Senior research leader Dr David Morgan added that their studies in the South West over the course of 20 years had demonstrated that these unique species were also threatened by barriers to their migration and introduced species.

"There is also still much to learn about the distribution and threats to Australia's only critically endangered freshwater fish, the Western Trout Minnow, and this is an exciting opportunity to take a collaborative approach to obtain the knowledge required to sustainably manage all three endangered species," said Dr Morgan.

The study, to be run over three years, is led by the Department of Fisheries and partners include the University of WA Albany, Department of Water, Department of Environment and Conservation and South Coast NRM along with other regional catchment groups.

More information on these and other freshwater fish in WA can be found at www.freshwaterfishgroup.com.

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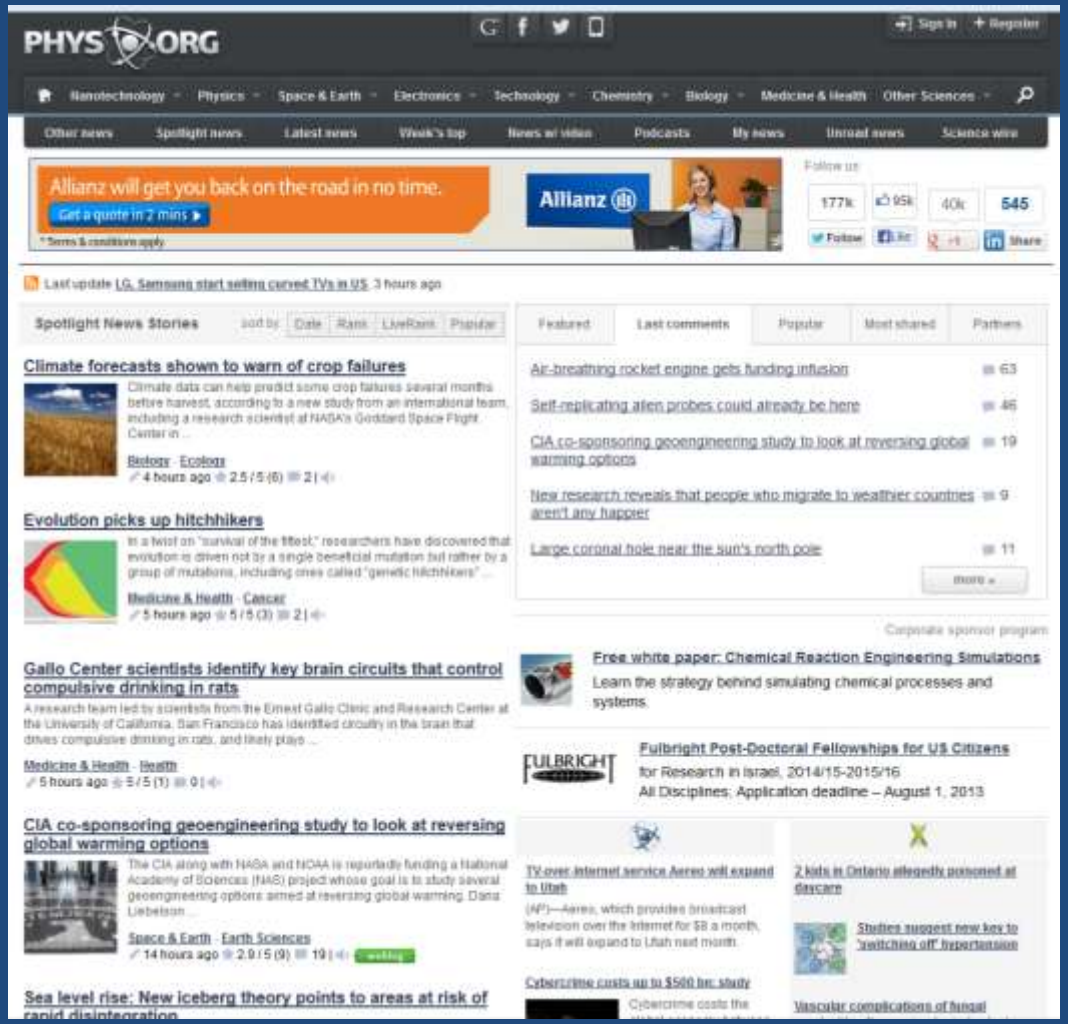

Researchers name new fish species

April 16, 2013

Researchers have officially named Australia's newest freshwater fish: the Little Pygmy Perch.

(Phys.org) —Researchers from Murdoch University's Freshwater Fish Group & Fish Health Unit and South Australian Museum have officially named Australia's newest freshwater fish: the Little Pygmy Perch (Nannoperca pygmaea sp. nov.)

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The Little Pygmy Perch was first discovered in 2009 near Denmark, WA, and has been the subject of conservation efforts since then.

"The Little Pygmy is the smallest of Australia's seven pygmy perch species, three of which are known only from the rivers and lakes of Western Australia's south-west," said Murdoch researcher Dr David Morgan.

"We believe it is also the rarest, having only been found in a very small section of river near Denmark.

"While its discovery has been very exciting, we now need to ensure that the species is afforded State and Federal protection.

"Recently, the WA Government has provided funding for the Little Pygmy and two other endangered freshwater fishes in the South-West through the State Natural Resource Management (NRM) Program.

"Part of these funds goes to getting the species listed and hopefully to locate it elsewhere and identify critical summer refuge habitats."

Dr Morgan said the State NRM funding was a significant investment and represented an important collaboration between government agencies (Department of Fisheries, Department of Water, Department of Environment and Conservation), NRM groups (South Coast NRM) and universities (Murdoch University and UWA).

The Little Pygmy Perch was officially named in an article published on April 12, 2013 in the international scientific journal *Zootaxa*, authored by Dr Morgan and Dr Stephen Beatty from Murdoch and Dr Mark Adams from South Australian Museum.

More information: www.mapress.com/zootaxa/2013/f/z03637p411f.pdf

Journal reference: Zootaxa

Science Alert

TOP SCIENCE JOBS: Evolve Scientific Recruitment

News

Introducing the little pygmy perch

MURDOCH UNIVERSITY
WEDNESDAY, 17 APRIL 2013

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The little pygmy perch is found in Denmark, Western Australia, and although recently discovered, it's already endangered.
Image: Murdoch University

Researchers from Murdoch University's Freshwater Fish Group & Fish Health Unit and South Australian Museum have officially named Australia's newest freshwater fish: the Little Pygmy Perch (*Nannoperca pygmaea sp. nov.*)

The Little Pygmy Perch was first discovered in 2009 near Denmark, WA, and has been the subject of conservation efforts since then.

"The Little Pygmy is the smallest of Australia's seven pygmy perch species, three of which are known only from the rivers and lakes of Western Australia's south-west," said Murdoch researcher Dr David Morgan.

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The article can be found **here**.

Editor's Note: Original news release can be found **here**.

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16 April 2013, 3.08pm AEST

New type of pygmy perch found

SOURCE

Murdoch University

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The Little Pygmy Perch, or *Nannoperca pygmaea*, is a new species of fish discovered in south-western Australia.

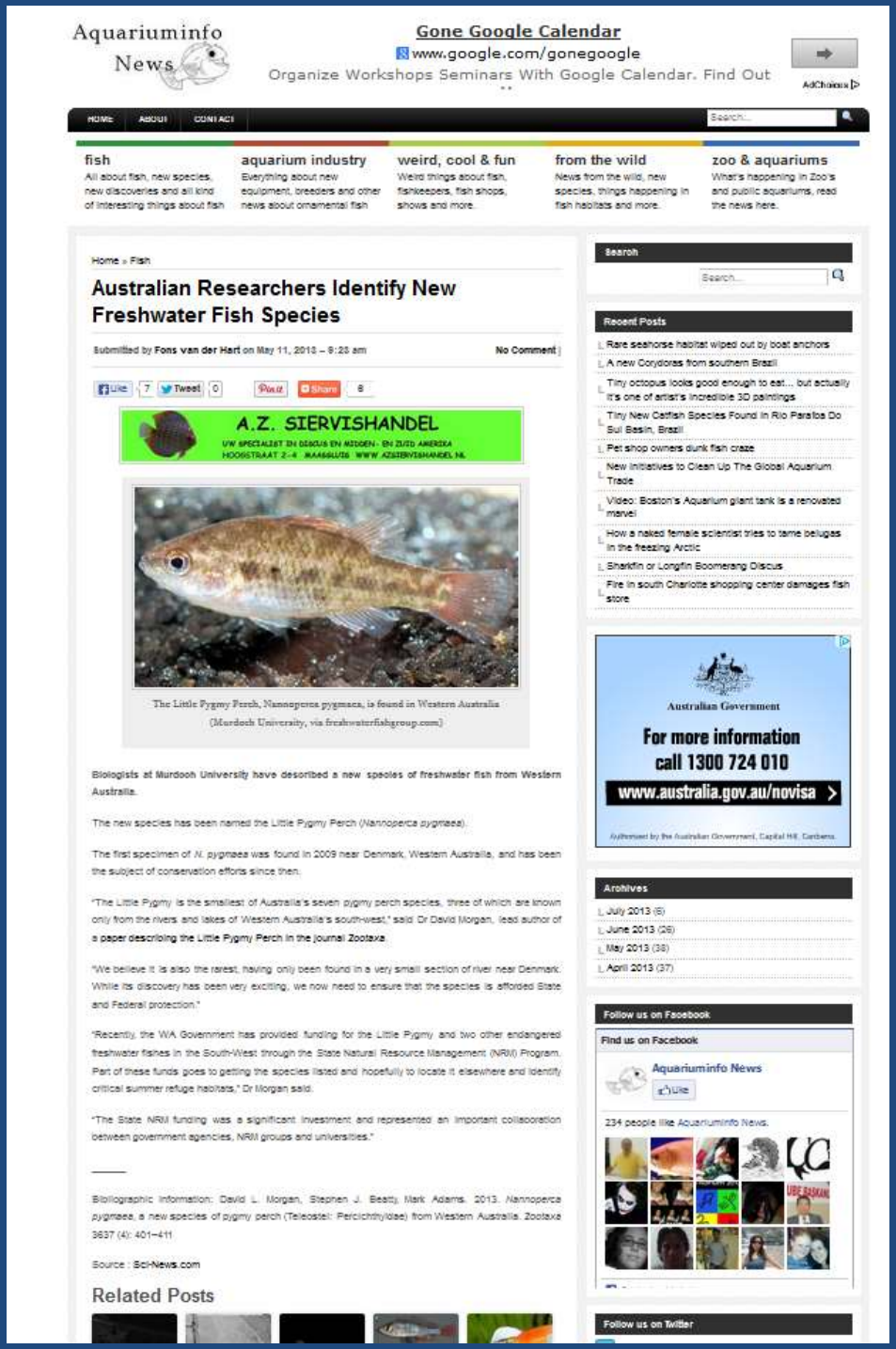
First found in 2009 near Denmark, Western Australia, the new species was recently named on April 12 in international scientific journal *Zootaxa*.

It is the smallest of the seven pygmy perch types found in Australia and one of three that live only in the rivers and lakes of Western Australia's southwest.

The WA government has started up a State Natural Resource Management (NRM) program in order to further study the Little Pygmy Perch and two other fresh water fish.

Read more at Murdoch University

Aquarium info (Netherlands)



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Australian Researchers Identify New Freshwater Fish Species

Submitted by Fons van der Hart on May 11, 2013 – 9:23 am No Comment

A.Z. SIERVISHANDEL
UW SPECIALIST EN DISCUS EN MIDDEN- EN ZUID AMERIKA
HOOGSTRAAT 2-4 MAASBLUIS WWW.AZSIERVISHANDEL.NL

The Little Pygmy Perch, Nannoperca pygmaea, is found in Western Australia (Murdoch University, via freshwaterfishgroup.com)

Biologists at Murdoch University have described a new species of freshwater fish from Western Australia.

The new species has been named the Little Pygmy Perch (*Nannoperca pygmaea*).

The first specimen of *N. pygmaea* was found in 2009 near Denmark, Western Australia, and has been the subject of conservation efforts since then.

"The Little Pygmy is the smallest of Australia's seven pygmy perch species, three of which are known only from the rivers and lakes of Western Australia's south-west," said Dr David Morgan, lead author of a paper describing the Little Pygmy Perch in the journal *Zootaxa*.

"We believe it is also the rarest, having only been found in a very small section of river near Denmark. While its discovery has been very exciting, we now need to ensure that the species is afforded State and Federal protection."

"Recently, the WA Government has provided funding for the Little Pygmy and two other endangered freshwater fishes in the South-West through the State Natural Resource Management (NRM) Program. Part of these funds goes to getting the species listed and hopefully to locate it elsewhere and identify critical summer refuge habitats," Dr Morgan said.

"The State NRM funding was a significant investment and represented an important collaboration between government agencies, NRM groups and universities."

Bibliographic information: David L. Morgan, Stephen J. Beatty, Mark Adams. 2013. *Nannoperca pygmaea*, a new species of pygmy perch (Teleostei: Percichthyidae) from Western Australia. *Zootaxa* 3637 (4): 401–411

Source : Sci-News.com

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May 07 2013

Newly described Pygmy Perch for WA

threatened species

Biologists at Murdoch University have described a new species of freshwater fish from Western Australia.

The new species has been named the Little Pygmy Perch (*Nannoperca pygmaea*).

The first specimen of *N. pygmaea* was found in 2009 near Denmark, Western Australia, and has been the subject of conservation efforts since then.

"The Little Pygmy is the smallest of Australia's seven pygmy perch species, three of which are known only from the rivers and lakes of Western Australia's south-west," said Dr David Morgan, lead author of a paper describing the Little Pygmy Perch in the journal *Zootaxa*.

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Original story at Sci-News.

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South Australian Museum (Facebook)

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April 17 at 11:08am ·

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Introducing the Little Pygmy Perch - Australia's newest freshwater fish!

Our researcher, Dr Mark Adams was involved in the naming of this cute little fish which sadly is already endangered!

Read more on ScienceAlert http://www.sciencealert.com.au/news/20131704-24273.html

Introducing the little pygmy perch (Science Alert)
www.sciencealert.com.au
The smallest of Australia's seven pygmy perch species has been named, but unfortunately it's already endangered.

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Dan Monceaux Would be great to see some freshwater fish surveys happening over your way Emie Borthwick.. never know what may be found!
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Emie Borthwick Yes must agree !!
April 18 at 10:47am via mobile · Like · 1

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Fishes of Australia (Museum Victoria)

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Summary | More Info | References | Classification

Nannoperca pygmaea Morgan, Beatty & Adams 2013

Other Names: Little Pygmy Perch

A Little Pygmy Perch, Nannoperca pygmaea, from the Mitchell River, Western Australia. Source: David Morgan / Murdoch University. License: All rights reserved

Summary:
A very small and recently described pygmy perch found only in the Hay River System of south Western Australia.

Cite this page as:
, 2011, , *Nannoperca pygmaea*, in Fishes of Australia, accessed 26 Jul 2013, http://www.fishesofaustralia.net.au/home/species/4864

Quick Facts

Habitat:	Freshwater
Max Size:	4 cm SL
Native:	Endemic

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Radio interviews

- ABC 720 16/2/2013 Saturday morning show
- ABC South Coast 22/4/2013
- Radiowest Albany 6/5/2013

Great Southern Science Council *Inspiring Australia* **Community Engagement Event**
July 6th Albany

Conserving WA's rarest fishes

South-western Australia is home to only 11 native freshwater fish species, nine of which are found nowhere else on the planet!

Western Trout Minnow

Freshwater fishes in the south-west are a vital component of aquatic ecosystems and benefit humans by consuming the larvae of pest insects.

Threats

These unique species are under threat due to salinisation of waterways, decline in surface flow and groundwater, riparian habitat degradation, instream barriers and introduced fishes.




Little Pygmy Perch

What are we doing?

This collaborative project is targeting the three rarest fishes in the south-west: the Western Trout Minnow, Balston's Pygmy Perch, and the recently discovered Little Pygmy Perch.

It aims to gather the information required to protect them and their environment by:

1) Determining the life-cycles of key populations.
2) Mapping their remaining distributions.
3) Identifying vital refuge habitats for protection.
4) Mapping barriers to their spawning migrations.
5) Developing and prioritising actions to help ensure their survival.

Balston's Pygmy Perch





Project funding: STATE NRM OFFICE
Natural Resource Management in Western Australia

Project collaborators: Government of Western Australia
Department of Fisheries
Department of Water
Department of Parks and Wildlife
SOUTHCOAST
SWCC
Freshwater Fish Group & Fish Health Unit
www.freshwaterfishgroup.com
Centre of Excellence in Natural Resource Management
www.cenrm.uwa.edu.au

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New knowledge helps save our endangered freshwater fish

Paul Close[1], David Morgan[2], Stephen Beatty[2] & Craig Lawrence[3]

1. The Centre of Excellence in Natural Resource Management, The University of Western Australia, Albany
2. Centre for Fish and Fisheries Research, Murdoch University, Perth
3. Western Australian Department of Fisheries, Hillaries Research Laboratory, Perth

The spotted trout minnow is Australia's only critically endangered freshwater fish – in Western Australia it is only known from three catchments around Albany. This small native minnow undertakes upstream and downstream migrations. Adults migrate upstream in rivers to spawn in Autumn. Newly hatched larvae then drift downstream to coastal lakes where they spend several months growing. In early summer, these fish then return to the river, migrating upstream to adult habitats.

The critically endangered spotted trout minnow

Barriers to migration threaten populations

In 2006, Western Australia's first vertical slot fishway was constructed on the Goodga River that now allows the spotted minnow to negotiate a small weir that previously restricted its distribution in the catchment to only a few kilometers.

The Goodga River fish ladder

Knowledge limits conservation efforts

While the fish ladder allows upsteam migration of adult and juvenile spotted minnow;

Do adults spawn successfully in newly colonised areas upstream?

How do larvae that drift downstream negotiate the turbulent water and sharp rocks around the weir?

And what effect do these structures have on the survival of drifting larvae?

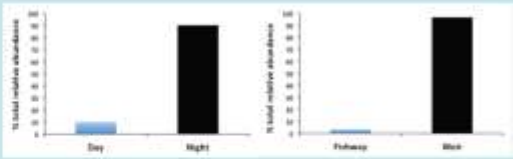
New knowledge benefits recovery plan

New knowledge, currently being obtained, will contribute to the recovery plan for the spotted minnow in Western Australia.

Newly hatched larvae of the spotted minnow were collected upstream of the weir demonstrating for the first time that adults migrating upstream through the fishway spawn successfully in upstream reaches of the catchment.

A newly hatched larva, 7 mm long

Most larvae drift at night. 96% of larvae collected upstream of the weir drifted over the weir, as opposed to down the fishway.



Proportion of total relative abundance of larvae collected during the day and night, and from the fishway and weir

Conservation implications

Successful spawning of adults in upstream reaches of the catchment will benefit the long-term sustainability of the population and demonstrates the effectiveness of fish ladders in recovery planning for the spotted minnow and other migratory freshwater fish in Western Australia.

The downstream drift of newly hatch larvae over the weir may represent a significant threat to the population. During the next 18 months, activities will investigate the effect of fish ladders and weirs on the survival of downstream drifting larvae.

Upcoming activities

2013

	Goodga	Angove	Kent	Mitchell	Blackwood	other systems
Jan						
Feb	ID	ID	ID	ID		Hay
						Hay
Mar	ID	ID	ID	ID	ID	Hay
Apr	Gt	Gt	Gt			
May	Gt	Gt	Gt			
Jun				Np/Nb	Nb	
Jul	Gt	Gt	Gt	Nb/Nb	Nb	
Aug						
Sep						
Oct	Gt	Gt	Gt	Np		
Nov	Gt	Gt	Gt	Np	Nb	
Dec						

2014

	Goodga	Angove	Kent	Mitchell	Blackwood	other systems
Jan						
Feb	ID	ID	ID	ID		
Mar	ID	ID	ID	ID	ID	
Apr	Gt	Gt	Gt			
May	Gt	Gt	Gt			
Jun				Nb	Nb	
Jul	Gt	Gt	Gt	Nb	Nb	
Aug						
Sep						
Oct	Gt	Gt	Gt	Np		
Nov	Gt	Gt	Gt	Np	Nb	
Dec						

2015

	Goodga	Angove	Kent	Mitchell	Blackwood		other systems
Jan							
Feb	ID	ID	ID	ID			
Mar	ID	ID	ID	ID	ID		
Apr	GIS	GIS	GIS	GIS	GIS	GIS	GIS
May	GIS	GIS	GIS	GIS	GIS	GIS	GIS
			.....				
			FINAL				
			REPORT				
			.....				
Jun			....				

adult migration, spawning and larval detection (fyke, fishway and larval tows - replicates over three 24 ho periods)

summer baseflow refuge identification and sampling (seine, fyke, electro - density estimates)

larval sampling in lakes (10-20 plankton tows/100m/lake)

juvenile migration (fyke nets x 3 days)

GIS GIS modelling and risk assessment

ID opportunistic photo-identification and PIT tag for mark-recapture (Gt, Nb)

Galaxias

Gt truttaceus

NB Nannatherina balstoni

Np Nannoperca sp.

2013/2014 activities

Activity 2 (cont)

Monthly 2013 :

- Movement and population biology of LPP and Balston's in Mitchell, Hay, Milyeannup
- Peak flow distribution of LPP and Balston's (broader Hay survey, Blue Gum Creek, Sheep Wash Creek)
- Spawning period and sites of LPP and Balston's

Activity 1 (cont)

Feb-March 2014:

- Re-survey refuge pools, additional Hay sites
- Mark-recapture Hay River refuge pool
- VIE tagging (100% survival WPP, high retention/readability) equivalent sized Western Pygmy Perch – Price (2009)
- Closed population modelling (Ken Pollock)
- Non-invasive identification study – 'spots and dots'

ECOCEAN

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Mike Pandey: Inclusive efforts will protect whale shark
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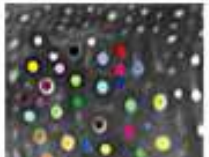
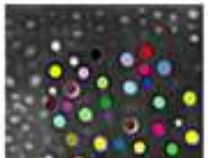
Photographing

Area to photograph



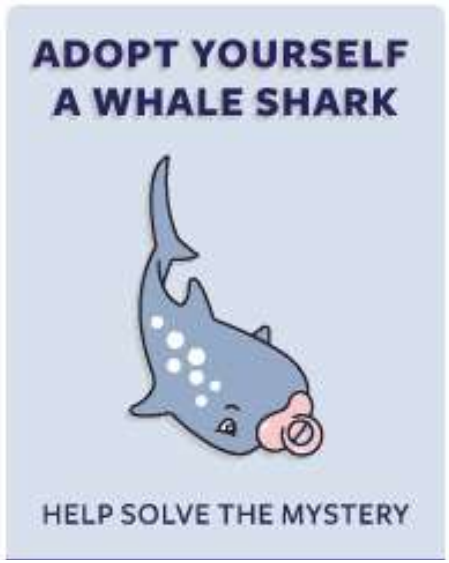


Report An Encounter NOW!

Introducing the ECOCEAN Whale Shark Photo-identification Library

The ECOCEAN Whale Shark Photo-identification Library is a visual database of whale shark (*Rhincodon typus*) encounters and of individually catalogued whale sharks. The library is maintained and used by marine biologists to collect and analyse whale shark encounter data to learn more about these amazing creatures.

The Library uses photographs of the skin patterning behind the gills of each shark and any scars to distinguish between individual animals. Cutting-edge software supports rapid identification using pattern recognition and photo management tools.



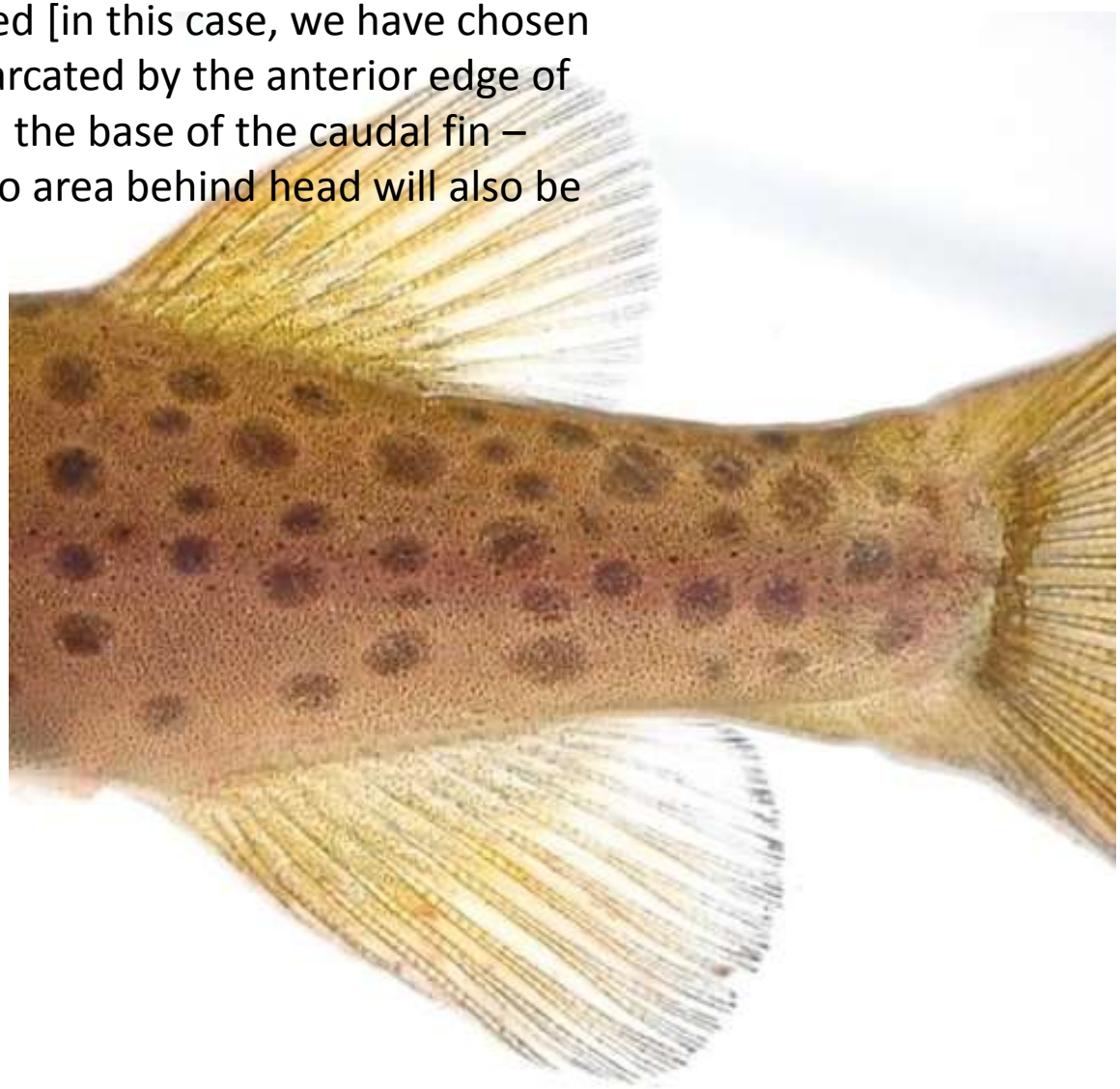
Can we help other endangered fishes?

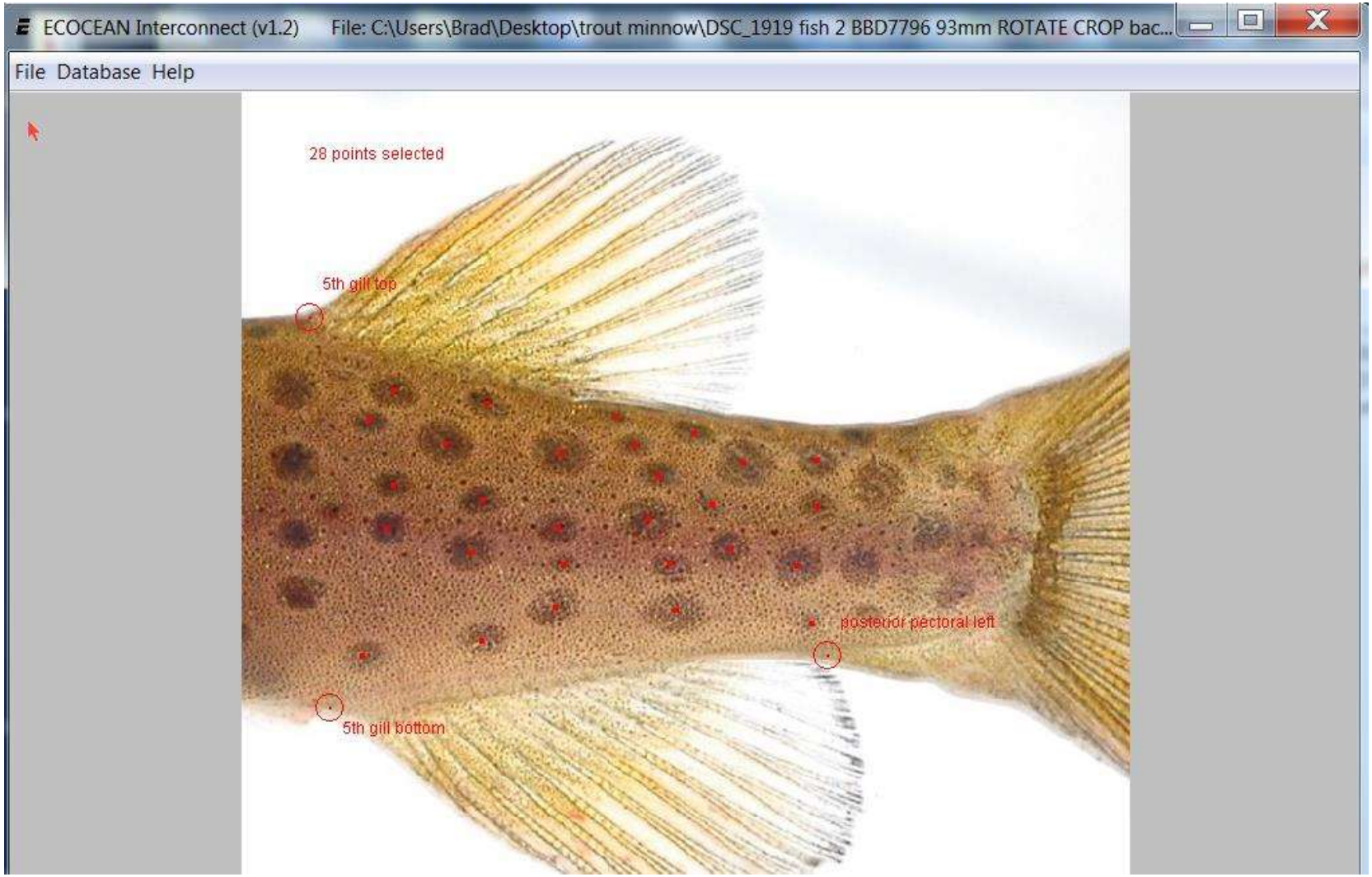
Trout Minnow *Galaxias truttaceus*

We select the original image

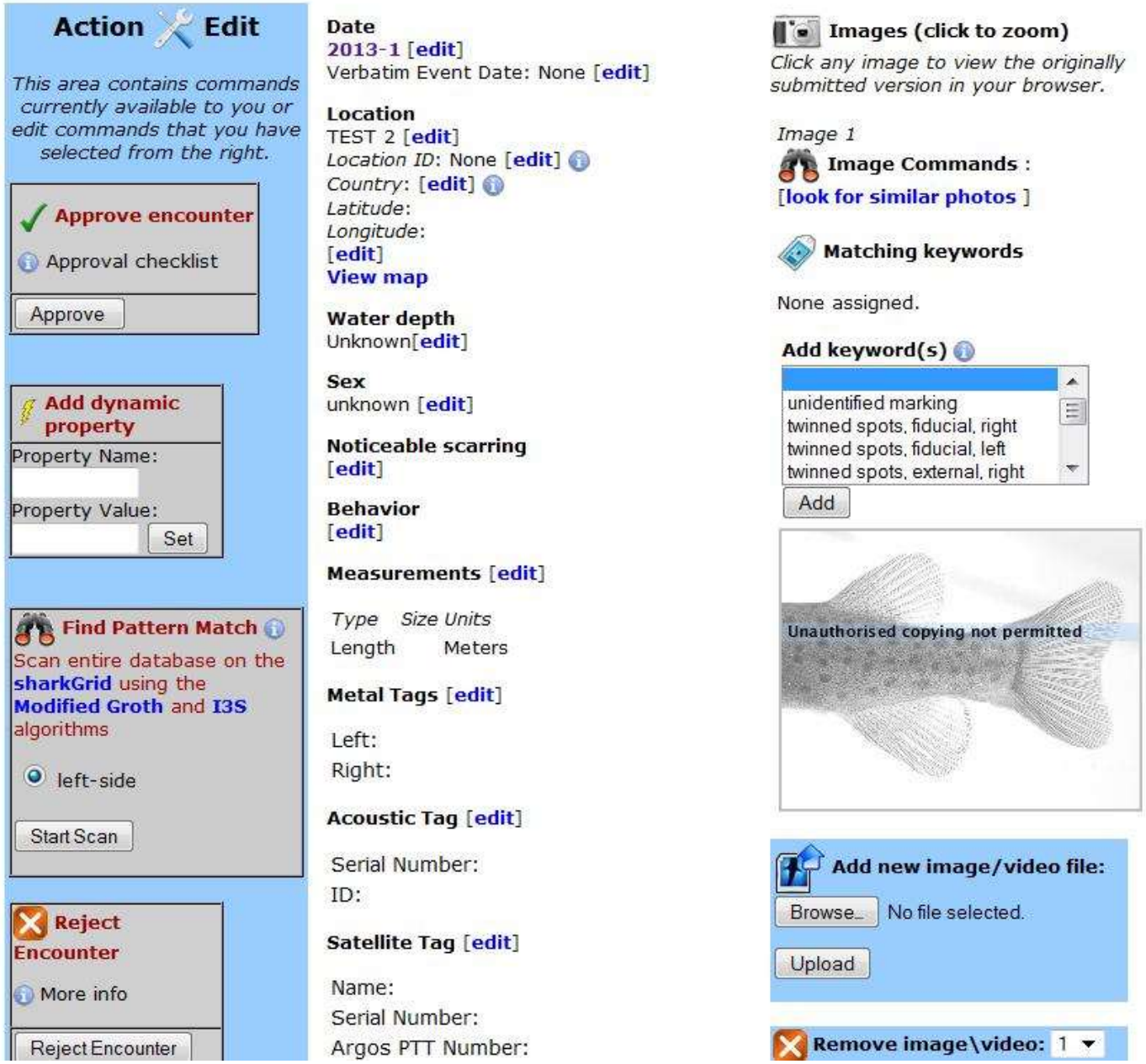
We rotate it so that the orientation is 180 degrees

The area used to identify individuals (fiducial area) is cropped [in this case, we have chosen the area demarcated by the anterior edge of the dorsal and the base of the caudal fin – comparisons to area behind head will also be made





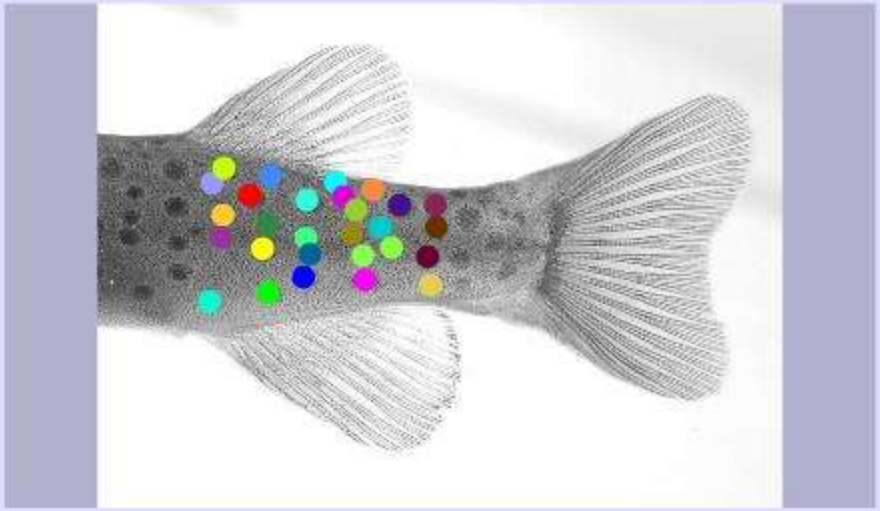
Special software program called ‘Interconnect’ is used to highlight reference points on the body of the fish and the additional spots within the fiducial area (that are used for identifying individuals). This ensures that the area on the fish to be compared with others in the Library is standardised

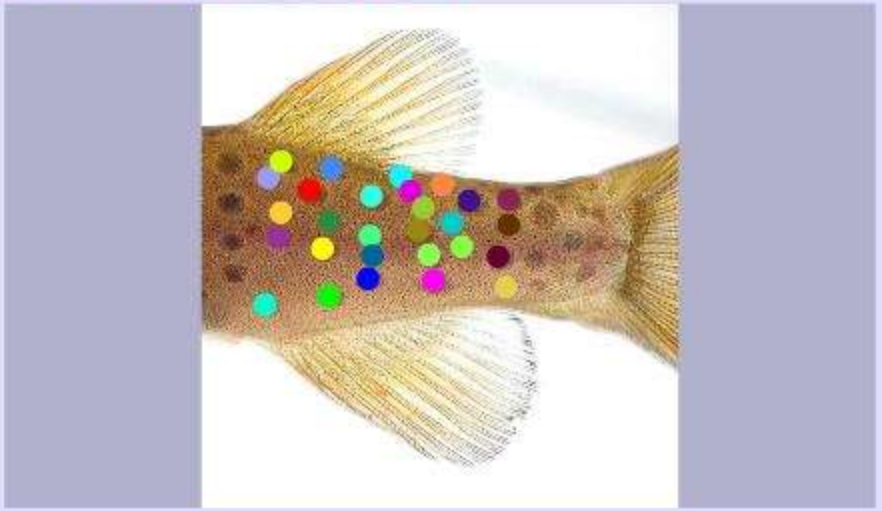


Sighting details; original fish image; Interconnect file included in a unique sighting submission to the online photo-id database

Visualizations for Potential Matches (as scored above)

Match Score: **4817.6** (Match 1 of 37)





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Date = 2013-1
Sex = unknown
Assigned to = Unassigned
Size = unknown
Location = TEST 2
Location ID = None

Number = **277201391432**
Date = 2013-1
Sex = unknown
Assigned to = Unassigned
Size =
Location = TEST
Location ID = None

PREVIOUS NEXT

The image taken e.g. today is ‘scanned’ against (potentially) hundreds of other trout minnow images (and associated spot pattern) to test for a match. If a successful match, a ‘resight’ can be confirmed.

Activity 6 (cont)

T/out 2013-2014:

Community extension continuation:

- Western Australian freshwater Fish Symposium November 8th
- Regional presentation ~December 2013 (Denmark Environment Centre)
- Website

Government of Western Australia
Department of Fisheries

Freshwater Fish Group &
Fish Health Unit

YOU ARE INVITED TO THE

WESTERN AUSTRALIAN FRESHWATER FISH SYMPOSIUM

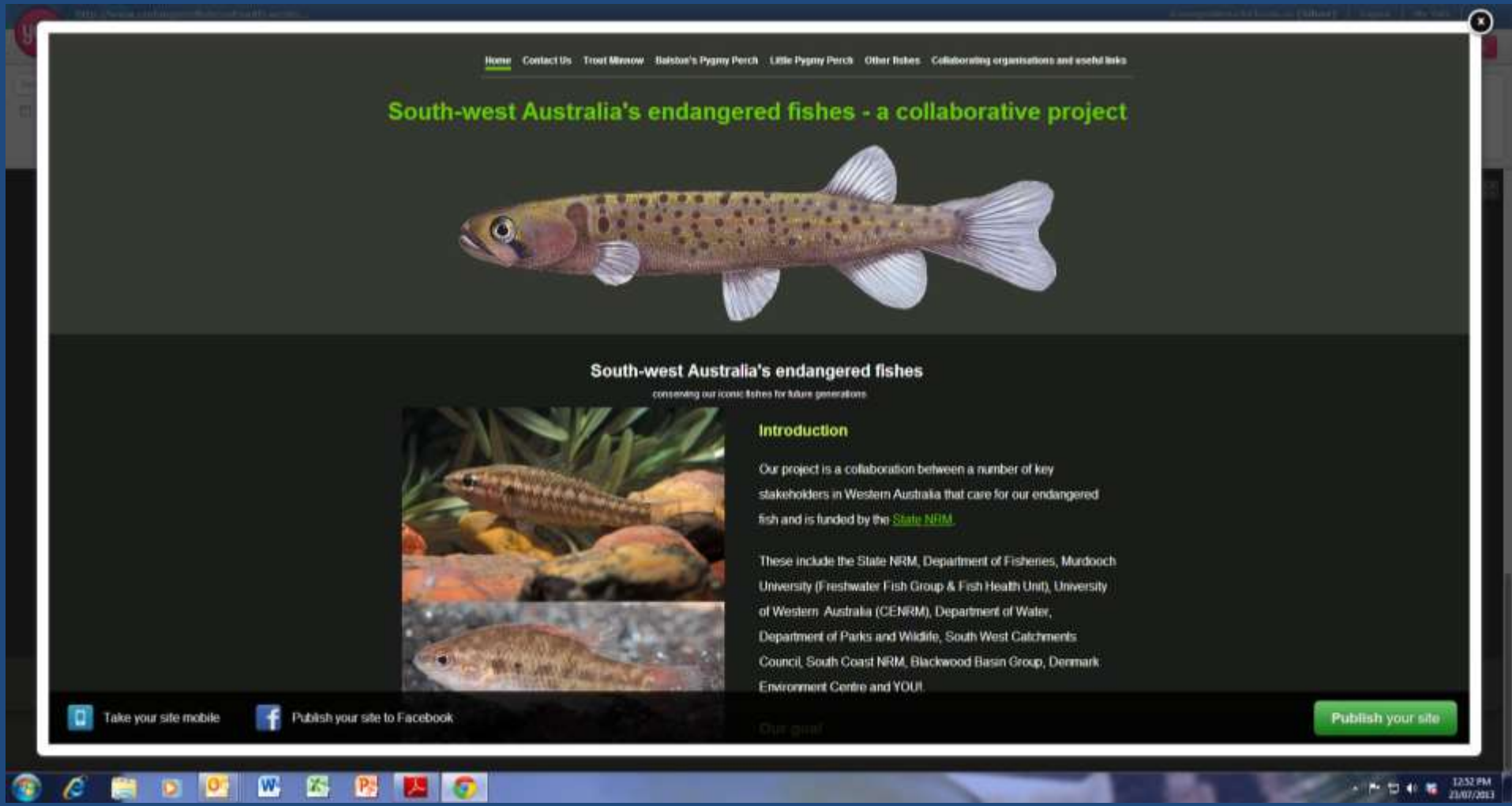
This symposium aims to brings researchers and managers together in translating research into effective freshwater fish management in WA.

Friday November 8th, 2013
Naturaliste Marine Discovery Centre, Hillary's Boat Harbour, Western Australia

For ABSTRACT submission and REGISTRATION details contact: fish@murdoch.edu.au

A selection of papers will be published in a special issue of the Journal of the Royal Society of Western Australia

Website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Balston's Pygmy Perch
Little Pygmy Perch
Other fishes
Collaborating organisations and useful links
South-west Australia's endangered fishes - a collaborative project
South-west Australia's endangered fishes
conserving our iconic fishes for future generations
Introduction
Our project is a collaboration between a number of key stakeholders in Western Australia that care for our endangered fish and is funded by the State NRM.
These include the State NRM, Department of Fisheries, Murdoch University (Freshwater Fish Group & Fish Health Unit), University of Western Australia (CENRM), Department of Water, Department of Parks and Wildlife, South West Catchments Council, South Coast NRM, Blackwood Basin Group, Denmark Environment Centre and YOU!
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