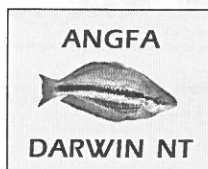


**AUSTRALIA NEW GUINEA
FISHES ASSOCIATION**

INCORPORATED

**DARWIN CONVENTION 2007
NORTHERN TERRITORY AUSTRALIA**



The 2007 Convention is proudly hosted by:
The ANGFA Darwin Organising Committee

CONVENTION PROGRAMME

FRIDAY JUNE 8

Registration from 7pm in the Signatures Room of the Crowne Plaza followed by a General Meeting from 7:30 to 8:30pm. Members invited to come along and discuss matters related to the club and the hobby.

SATURDAY JUNE 9

Morning Programme:

- 8.00-9.00 **Registration & Coffee.**
9.00-9.30 **Convention Opening.**
Convention Opening Video followed by VIP Speech and Welcoming Speech by Master of Ceremonies and ANGFA National President Glenn Briggs
- Session 1:** Introduction by Session Chairperson.
9.30-10.00 **Helen Larson –**
"An Introduction to the Fishes of the Northern Territory".
10.00-10.15 **Ron Bowman –**
"How the new ANGFA book 'Questions & Answers ... the Bowman Letters' came about".
10.15-10.45 Morning Tea
- Session 2:** Introduction by Session Chairperson.
10.45-11.15 **Brad Pusey –**
"Research underpinning sustainable development in northern Australia".
11.15-11.30 **Mark Kennard –**
"Protecting Riverine flow regimes: a key to freshwater fish conservation in Australia".
11.30-11.45 **Lizzie Sullivan –**
"Daly River Fish & River Flows Project".
11.45-12.30 **Heiko Bleher –**
"Aru and Kai, islands with new discoveries in April 2007 – but, is it sustainable?".
12.30-1.30 Lunch.

Afternoon Programme:

- Session 3:** Introduction by Session Chairperson.
1.30-2.00 **Glenn Schipp –**
"Is using fishmeal in aquaculture feeds sustainable?".
2.00-2.20 **Graeme Sawyer –**
"Terminating toads Territory style".
2.20-2.40 **Michael Hammer –**
"Goby discoveries on Adelaide's back doorstep!".
2.40-3.10 Afternoon Tea.
- Session 4:** Introduction by Session Chairperson.
3.10-3.30 **Binh Thai –**
"Molecular taxonomy and evolution of common carp".

3.30-4.30

David Lawson –
"What is this thing called 'sustainable use'".
End of Day Address.
Convention Dinner at "10 Litchfield Street Restaurant" (a.k.a. Tim's Surf & Turf).

4.30

7.30

SUNDAY JUNE 10

Morning Programme:

- 8.30-9.00 **Registration & Coffee.**
9.00-9.15 **Convention Opening.**
Convention Opening Video followed by Start of Day Address.
Session 5: Introduction by Session Chairperson.
9.15-9.45 **Dion Wedd –**
"Wildlife utilization for sustainable conservation".
9.45-10.15 **John Humphrey –**
"Translocations and disease incursions".
10.15-11.00 Morning Tea
- Session 6:** Introduction by Session Chairperson.
11.00-11.30 **Angus Duguid –**
"Fish habitat and distribution in Central Australia".
11.30-12.00 **Shaun Winterton –**
"The Secret life of aquatic plants".
12.00-12.30 **Blair Grace –**
"How sustainable is the Northern Territory aquarium fishery?".
12.30-1.30 Lunch.

Afternoon Programme:

- Session 7:** Introduction by Session Chairperson.
1.30-2.00 **Bruce Sambell –**
"A hobby gone mad".
2.00-2.20 **John Seyjagat –**
"Australian challenges in Baltimore: keeping the River Gorge".
2.20-2.40 **Chris Humphrey –**
"Use of fish communities to monitor and assess mining impact in Kakadu National Park".
2.40-3.10 Afternoon Tea.
- Session 8:** Introduction by Session Chairperson.
3.10-3.40 **Keith Martin –**
"Monitoring aquatic ecology at the Batu Hijau mine site in Sumbawa, Indonesia".
3.40-4.40 **Andrew Lo –**
"A fish lover's search for ecological sustainability".
4.40 **End of Day/Convention Address.**
5.15 **Depart for Post-Convention Party at TWP – All Welcome** (further details provided at Convention).



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Binh Thai	20
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SPECIAL NOTICE:

**ALL MEMBERS AND VISITORS TO
THIS CONVENTION ARE REQUESTED
TO ENSURE THAT MOBILE PHONES
ARE SWITCHED OFF DURING
CONVENTION PRESENTATIONS.**

CONVENTION ORGANISERS

The 2007 ANGFA National Convention has been organised by the ANGFA Darwin Organising Committee (Alan and Heidy Rubin, Dave and Robyn Wilson, John and Jenny Grylls and Helen Larson).

The support of our sister clubs and their committees, sponsors and members also deserves special mention. Without their support and help our task would have been just that little more difficult.

Mention should also be made of Cathy Preddy and the staff at Crowne Plaza Hotel Darwin for their support and patience in helping to ensure this convention will be a success.

Territory Wildlife Park, together with Dion Wedd and the National Aquarium in Baltimore, together with John Seyjagat, are also to be thanked for sponsoring and helping to organise the post-convention party on Sunday evening ensuring our visitors something extra special.

This publication has been designed and produced by Ken Smales. Special thanks to Dave Wilson for use of his "Goyder River" image throughout this publication.

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WELCOME!!

Please use this weekend to exchange information and make new friends and contacts.

Use the pages at the back of this Souvenir Convention Booklet to record their names and addresses.

Take notes, ask questions.

This is a unique opportunity to increase your knowledge of our aquatic environment.

Please join in and enjoy yourself



Mark Adams

Talk – Cryptic biodiversity in the Australian freshwater fishes: our biggest challenge to setting conservation priorities?

Abstract of talk:

Several physical, ecological or biogeographical explanations are widely acknowledged to account for Australia's low number of freshwater fish species when compared to other continental land masses of similar size. However, one possible contributing factor is rarely considered. The advent of molecular genetic techniques has made it abundantly clear that many organismal groups harbour considerable "cryptic biodiversity", both at species level and below. Importantly, many of the cryptic species thus identified are diagnosable by traditional means once their existence has been acknowledged. This prompts the fundamental question: to what extent is the paucity of Australian freshwater species simply an artefact of an overly-conservative, species-level taxonomy? This talk will summarize what molecular genetic data have already revealed and are likely to reveal about cryptic biodiversity in our freshwater fishes plus discuss why any conservation program that does not address this issue is unlikely to succeed.

Brief biography:



Mark Adams is a Senior Scientist with the South Australian Museum's Evolutionary Biology Unit and has notched up 30 years and 130 scientific publications on the use of molecular genetic techniques to resolve taxonomic and evolutionary problems within the Australasian fauna. His major research interest is the detection of "cryptic" species in Australia's vertebrate fauna and he is currently in the first year of a PhD assessing cryptic biodiversity in the Australian freshwater fishes.

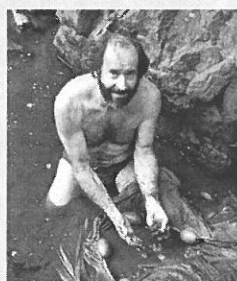
Heiko Bleher

Talk – Aru and Kai Islands with new discoveries in April 2007 – but is it sustainable?

Abstract of talk:

Heiko will show a powerpoint presentation about his discovery 100 years after the first exploration and the discovery of rainbowfishes and blue eyes on these remote islands. He will show the introductions and destruction of some of those habitats and questions how they can be sustainable. The presentation will also include still untouched flora and fauna areas and a trip to Western Kalimantan, where Heiko found new species on a new looger road, ready to plant rubber- and palm oil trees....

Brief biography:



Heiko Bleher is one of the best known aquarium fish collectors in the world. Heiko travels the world seeking new fish, and has had many varieties of fish named after him, including **Chilatherina bleheri**, so beloved of rainbow-fish enthusiasts.

Born in war torn Germany in 1944, into a family with a history of collecting aquatic plants and fish, Heiko followed on from his grandfather and mother in developing Frankfurt's largest aquatic plant and fish establishment.

Heiko spent much of his youth in Rio de Janeiro and the Brazilian interior with his Mother and siblings. Fluent in seven languages, he has authored articles which have appeared in more than 100 publications, including **Aqua Geo** which he set up himself to highlight studies of aquatic environments worldwide.

Heiko uses the "Heiko-mobile", a go-anywhere vehicle, built to his specifications, in quests to the last unexplored places on earth that may reveal new aquatic species. His expeditions into New Guinea have provided us with much of the knowledge of New Guinea species we have today.



Ron Bowman

Talk – How the new ANGFA book “Questions & Answers ... The Bowman Letters” came about

Abstract of talk:

Ron will give a brief explanation on how this historical record happened ... and how it eventually came to be published to fill a pre-angfa gap in the recording of some of the early quest for information about Australian and New Guinean fishes.

Brief biography:



Born in 1925, Ron bred his first goldfish in 1937, discovered tropical fishes in 1955. He joined the Aquarium Society of Victoria at that time and eaves-dropped on the many informal discussions between the older, experienced fish breeders in the Society meetings. A Graphic Artist by profession, Ron was soon elected to the Committee and produced the first magazine for that Society which he designed and named **finchat**. This soon evolved into the first letterpress printed Aquarium Society publication in Australia containing reproduced photographs and eventually attracting subscribers and contributors

from several Australian States. During his 23 years with A.S. of V. Ron bred over 170 species of fish ... a fascination with fishes which became a passion.

In 1983 Ron met Neil Armstrong who took him to see Barry Crockford's collection of New Guinea rainbow fishes. Ron, already with several Australian species in his fish rooms was fascinated. Attending a meeting of native fish enthusiasts in Melbourne, Ron offered to edit a magazine for the proposed group, suggested the name for the group with the acronym ANGFA.

Ron designed and edited **Fishes of Sahul** with the support of the professional typographic skills of the ever reliable Ken Smales and the photographic expertise of Neil Armstrong until the end of 2000.

A system of posting fish eggs to various overseas ANGFA members was developed by Ron and this, along with his many other ANGFA activities, led to him being honoured with ANGFA Life Membership in 1995.

Ron has also used his observation and illustrative skills to produce several fish illustrations and a major study, “TWELVE MORPHS OF *Pseudomugil gertrudae* – THE SPOTTED BLUE-EYE” – the originals of which are now in the Museum and Art Gallery of the Northern Territory collection.



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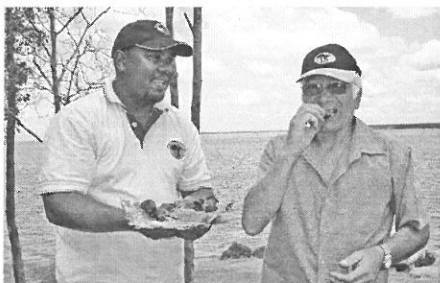
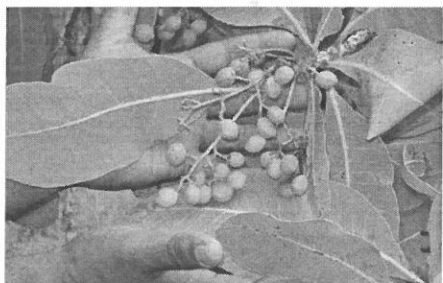
Unique Indigenous Land Tours is an Aboriginal owned and operated business, providing tours with a focus on the indigenous and non-indigenous perspective.

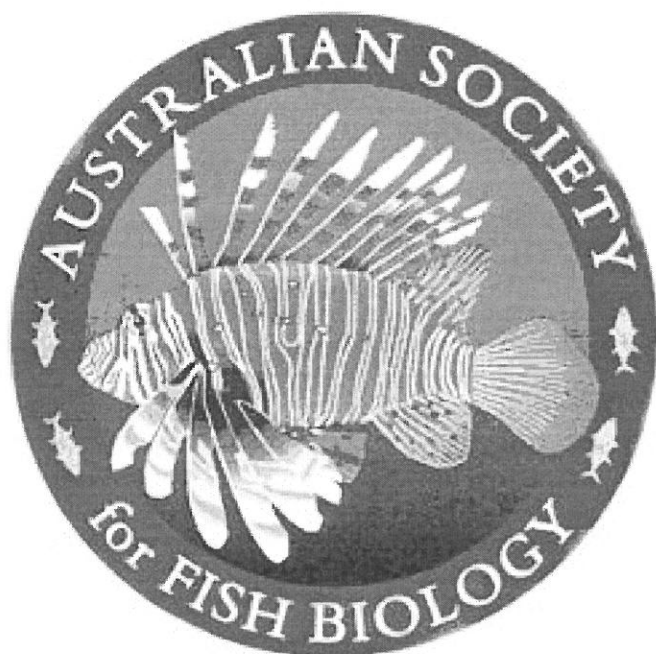
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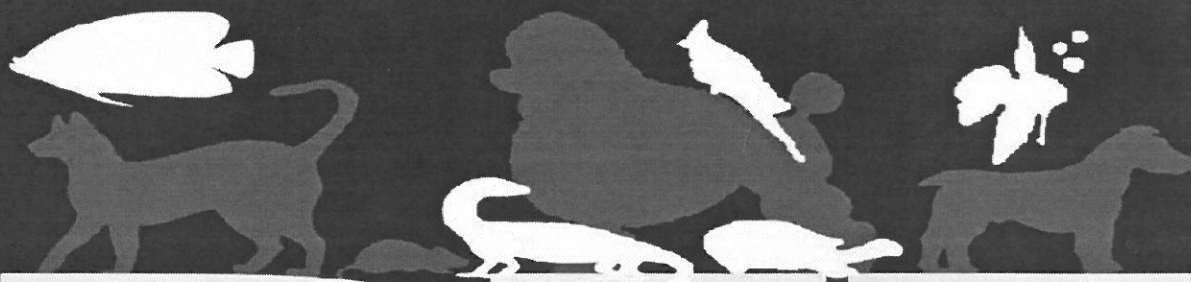
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Angus Duguid

Talk – Fish Habitat and Distribution in Central Australia

Abstract of talk:

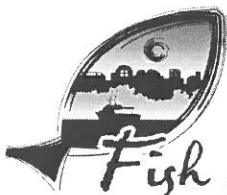
The arid southern half of the Northern Territory has some of the most inhospitable landscapes for fish in the continent. However, rocky upland areas focus the occasional rainfall sufficiently to form rivers and around a dozen species of fish naturally occur. There are also several species that have been introduced to dams and waterholes with as yet unknown consequences. None of the rivers runs on a regular basis and it is rare for any of them to run for more than a few days or weeks after heavy rain. Fishes must survive in the longer lasting waterholes and in extended droughts their populations will contract to just a few permanent holes in each river system. Discharging water from aquifers is known to be a significant reason for the persistence of some of these waterholes and has an important influence on fish species diversity.

Brief biography:



Angus Duguid is a scientist with the Parks and Wildlife Service of the Northern Territory (Department of Natural Resources Environment and the Arts). He has lived in Alice Springs for 15 years and worked on fire ecology and management, rare plants, groundwater dependent

ecosystems, geographic information systems (GIS) and wetlands survey. An extremely wet period from November 1999 to April 2001 coincided with NHT funding for an inventory of arid zone wetlands. The surprising prospect of surveying wetlands that were actually wet, ignited a dormant spark of interest in arid zone fish and how and where they survive.



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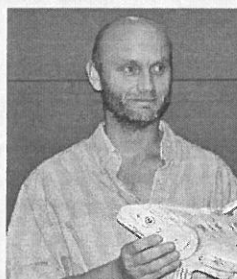
Blair Grace

Talk – How sustainable is the Northern Territory aquarium fishery?

Abstract of talk:

This talk briefly describes the NT aquarium fishery; who takes fish and other aquatic organisms from the wild, how much is taken and what are the important species. How the sustainability of the industry is assessed by the Department of Primary Industry, Fisheries and Mines will also be mentioned. Lastly, Blair will give a brief rundown of surveys of Top End freshwater fish that are underway.

Brief biography:



Blair is fairly new to fisheries (6 months at time of conference). He has a PostGrad Dip in Aquaculture, looking at redclaw and a PhD in population ecology of pasture plants. He has worked on plant population dynamics in pastures in Switzerland and has spent 4 years working with wetland weeds in the NT. He is interested in understanding relationships between environments, plants and animals.

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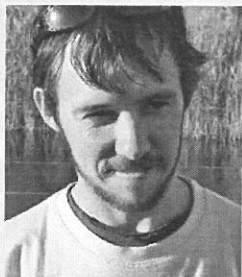
Michael Hammer

Talk – Goby Discoveries on Adelaide's Back Doorstep!

Abstract of talk:

The Port River estuary is a large system interconnected within Adelaide, a capital city in central southern Australia (population over one million people). The estuary has a rich aquatic community but is also heavily influenced by industrial and residential structures and activities (including shipping). This talk presents the results of a recently published study that investigated a specific part of the local fish community, the diminutive and cryptic gobies (Family Gobiidae). The study reports on the discovery and habitat of four gobies new to the region (three new to the state of South Australia). What's more all sampling involved the humble dip net, torch and even hand capture (plus the novel Gobytron 2000TM), so there are plenty of ideas on how you might be able to make similar finds in your area. The second part of the presentation involves a pictorial and fact filled coverage of southern Australian freshwater and estuarine goby species, including well known species such as the desert goby, and some other less known species like the glass goby and Glover's goby.

Brief biography:



Michael is currently completing his PhD at the University of Adelaide and South Australian Museum on the molecular systematics of southern Australian fishes. He is also actively involved in conservation, management and assessments of aquatic biodiversity, especially

freshwater fishes but also dabbling in near shore and estuarine ecosystems and decapod crustaceans. This involvement stretches from baseline surveys, through to long-term monitoring of important populations, with a priority on the publication of results in scientific papers or management documents.

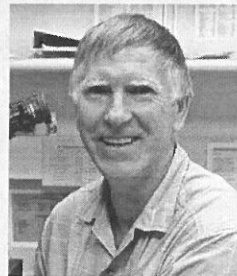
John Humphrey

Talk – Translocations and Disease Incursions

Abstract of talk:

A long and sad history of disease incursion accompanying translocations of fish exists. In many cases, such incursions have resulted in significant adverse social, economic and environmental impacts. It is likely that many incursions have gone unrecognised, however, DNA sequence data is now being used to confirm the origin of specific introduced diseases. This paper looks at disease incursions accompanying translocation of finfish, the consequences of such diseases and mechanisms whereby disease incursions may be avoided.

Brief biography:



Dr. Humphrey is currently Manager, Aquatic Animal Health in the Department of Primary Industry, Fisheries and Mines, Northern Territory. He holds the degrees of Bachelor of Veterinary Science, Master of Science and Doctor of Philosophy and is a Member of the Australian College of Veterinary Scientists. Prior to his present position, Dr Humphrey has held a number of positions in Australia, Papua New Guinea, Canada and United Kingdom relating to disease diagnosis and research in a diverse range of terrestrial, aquatic and avian species. In the mid-1990's, Dr Humphrey undertook a review of Australian quarantine policies and practices for aquatic animals and their products for the Australian Government. He is the author of an FAO Technical Paper on aquatic animal quarantine and health certification in Asia.



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The NT ANGFA Convention Planning Committee would like to thank the **National Aquarium in Baltimore** and **Territory Wildlife Park** for their generous donation and coordination of the post-convention party. Join us on Sunday evening for a trip out to the **Territory Wildlife Park** for a catered meal and exclusive look at some of the park's exhibits. Convention participants and their families are welcome.

On behalf of all of the committee and ANGFA members, we say **thanks!!!**



NATIONAL AQUARIUM IN BALTIMORE

The **National Aquarium in Baltimore** is a world-class aquatic institution dedicated to environmental education and stewardship. Its living collection includes more than 11,000 animals from more than 600 species of fish, birds, amphibians, reptiles and marine mammals that live in award-winning, recreated habitats.

Opened on August 8, 1981, the Aquarium played a key role in helping to transform Baltimore's Inner Harbor from a blighted port area to a thriving attraction for tourists and residents. Today the Aquarium is one of the most-visited destinations in Maryland.

In late 2005, the Aquarium opened its largest expansion ever. The new building houses the impressive new exhibit **Animal Planet Australia: Wild Extremes**, highlighting Australia's Northern Territory; the Aquarium Cafe and Aquarium Shop. Outdoors, visitors will also simulate a journey from Maryland's Eastern Shore to the Allegheny Mountains in the Harry and Jeanette Weinberg Waterfront Park. For more information please see <http://www.aqua.org>



TERRITORY
Wildlife Park
DARWIN

The **Territory Wildlife Park**, operated by the Parks and Wildlife Commission of the Northern Territory, demonstrates the relationships that exist out in the wild, between the unique native plants and animals of the region. It offers an amazing and unparalleled insight into the diversity of tropical Australia and should definitely be your first stop during any visit to the Top End. Renowned for incredibly beautiful, even surreal looking landscapes the Northern Territory covers an area of some 1.346 million square kilometres. The **Territory Wildlife Park** near Darwin opened in 1989 and has now hosted well over one million visitors from Australia and around the world. Here, a 6km easily walked path meanders through natural bushland and immerses visitors in a variety of typical Top End habitats. The nature trail for example, leads to a bird-hide that overlooks a natural billabong called Goose Lagoon. Wild animals come and go freely according to the season and while standing in the hide, you could be forgiven for thinking you were in the middle of Kakadu or Litchfield or any number of national parks in the Top End. Combining natural features with man-made exhibits like an aquarium, reptiles and nocturnal house, the nature experience is high quality and guaranteed.

Visitors' wander through seasonally changing habitats between exhibits often experiencing chance encounters with animals roaming wild within the confines of the Park. Set in 400 hectares, a free shuttle also links all exhibits opening the Park up to all levels of fitness.

For more information please see <http://www.territorywildlifepark.com.au/>



AUSTRALIAN Aquarium

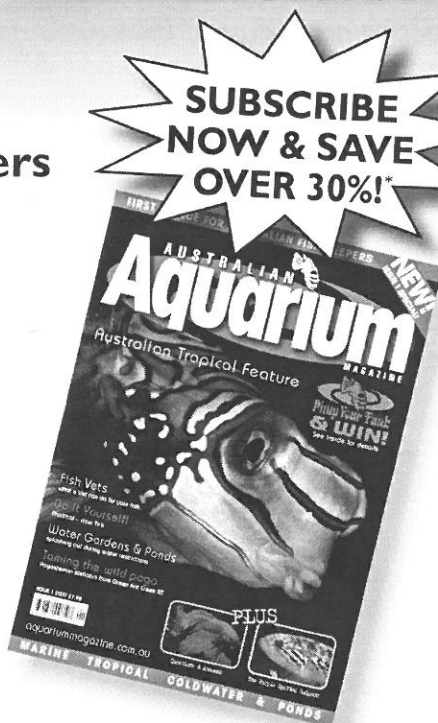
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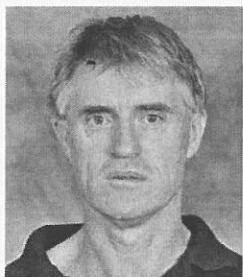
Chris Humphries

Talk – Use of fish communities to monitor and assess mining impact in Kakadu National Park

Abstract of talk:

The Environmental Research Institute of the Supervising Scientist (eriss) conducts independent research and monitoring of the Ranger Uranium Mine which is situated on a lease within the World Heritage-listed, Kakadu National Park. The surface water monitoring program comprises a battery of physical, chemical and biological techniques for early detection of adverse effects and assessment of the ecological importance of any such effects. Fish studies are an integral component of biological monitoring; results of these studies, in combination with other results, provide 'multiple lines of evidence' and assurance of sustained, downstream ecosystem health. Fish communities have been monitored in Magela Creek billabongs since 1978 and have provided particularly valuable assurance to local traditional owners who utilise fish downstream of the mine as a food source. Early fish community monitoring used gill and seine net capturing methods. However, increases in aquatic vegetation in many of the billabongs in the early-mid 1980s as a result of the removal of water buffalo prevented further use of these methods. Visual census and pop-up-trap methods were implemented in their place and have provided non-destructive, quantifiable fish community sampling since at least the mid 1990s. Since the initial deployment of these methods, crocodile size and numbers have increased in the billabongs forcing modifications to sampling methods and equipment to improve personnel safety.

Brief biography:



(Dr) Chris Humphrey has spent the past 25 years investigating tropical freshwater ecosystems of northern Australia, and leads the eriss Aquatic Ecosystem Protection Program. This program develops and implements biological and chemical methods to monitor and assess the impact of mining upon aquatic ecosystems of the Alligator River Region, which includes the World-Heritage-listed, Kakadu National Park. His professional and research interests include: ■ Biodiversity and conservation values of wet-dry tropical freshwater ecosystems ■ Development of bioassessment techniques for tropical freshwater ecosystems ■ Ecological surveys of wet-dry tropical streams, including macroinvertebrates and fishes, on a consultancy basis.

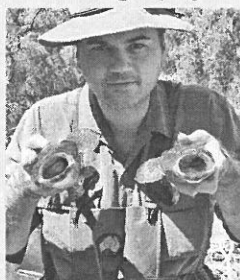
Mark Kennard

Talk – Protecting riverine flow regimes: a key to freshwater fish conservation in Australia

Abstract of talk:

The natural flow regime is widely regarded to be the key driver of river-floodplain ecosystems. However, population growth and associated water demand are causing unprecedented changes in flow regimes and are a serious and continuing threat to the ecological sustainability of rivers and their biota. Projected climate change impacts on river flows are an added stress, with critical implications for the long-term integrity of aquatic biodiversity and productivity. Fish are a key component of aquatic ecosystems and many aspects of their biology and ecology are intimately linked with variation in river flows through space and time. Therefore, fish are particularly vulnerable to human-induced changes to river flows. These issues collectively represent a critical challenge for freshwater fish conservation in Australia. Using data from our own studies in north-eastern Australia and the work of researchers elsewhere, I briefly review: 1) why flows are important for Australian freshwater fish; 2) how flow regimes in Australia have been altered by human activities; and 3), what this means for conserving Australia's unique fish fauna.

Brief biography:



Mark Kennard is a Postdoctoral Research Fellow in the Australian Rivers Institute at Griffith University. His research interests include the ecology of freshwater fish, environmental flow management and river bioassessment in northern and eastern Australia.



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Helen Larson

Talk – An Introduction to the Fishes of the Northern Territory

Abstract of talk:

The fish fauna of the Northern Territory occupies several biogeographical regions, which include the Sahul Shelf and internal river drainages. There are probably about 1,300 fish species in the Northern Territory, in 205 families, and a number of these fish are undescribed. Over 100 Northern Territory species belong to the enormous fish group, the Gobioidae (gobies and gudgeons), which have greatly diversified in coral reef and mangrove habitats. Some knowledge has been accumulated on local fish species assemblages, but many sampling gaps remain and the basic biology of most species is unknown.

Brief biography:



Helen Larson has been Curator of Fishes at the Museum and Art Gallery of the Northern Territory, Darwin, since leaving the Australian Museum in 1981. Her research interests are the taxonomy, systematics and ecology of Indo-Pacific gobioid fishes (gobies, gudgeons, mudskippers), Indo-Pacific mangrove and coral reef fishes and northern Australian freshwater fishes. Much of her recent work has focused on the estuarine fish fauna of northern Australia and South-east Asia. Helen is the author of 100 publications, including two books, and has the dubious honour of being the recipient of 10 eponyms. She has carried out fieldwork and research throughout much of Australia, also in New Guinea, Malaysia, Indonesia, Guam, Micronesia, Japan and South Africa (all places where there are many gobies and birds).

David Lawson

Talk – What is this thing called 'sustainable use'?

Abstract of talk:

'Sustainable use' was the conservation 'flavour of the month' before climate change took over as the hot topic. Developed as a concept since the 1970's, sustainable use is actually the oldest conservation concept in the world with all tribal human groups attempting to achieve it throughout history. The modern development of sustainable use as a conservation tool has been marked by controversy, acrimonious dispute and misinformation. Only now has it become respectable to talk about it for all sorts of natural resources. But what is 'sustainable use'? How should it be implemented and how can we stop unsustainable use? Sometimes a little lateral thinking is required and sometimes we should all agree that it is the wrong tool to use. Only by properly viewing it as a conservation tool that is sometimes useful and sometimes not will we avoid the disputes and arguments that have dogged and delayed the development of useful laws and institutions to pursue true sustainability. This 21st century will ultimately show if we can achieve 'sustainable use'.

Brief biography:



Born in England (a long time ago) and educated there as well doing his first degree at London University. Then off to the Amazon for a few months to gain 'foreign' experience and back to the UK for a post-grad teaching qualification. Then a year in the Seychelles on Aldabra atoll and a chilly return to Aberdeen University for a self-funded MSc. On completion took his new wife off to live in Africa where he got a PhD at the University of Natal. Went off to Zaire to set up a new National Park and then back to SA for Post Doctoral work on sheep predators. Went from there to Botswana where he had a dream job in the wildlife department. Nine years later came to the NT and became an adopted Australian and stayed for 7 years. Three years ago took up the challenge of a conservation job in South East Asia and now works for the TRAFFIC organization there.

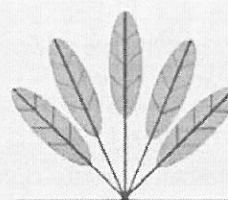
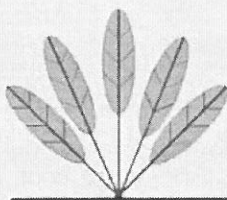
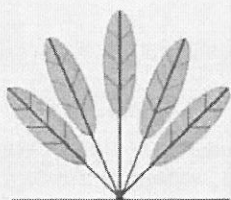


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Andrew Lo

Talk – A Fish Lover's Search for Ecological Sustainability

Abstract of talk:

The market driven industrial economy, which provides us with our daily bread, is a wholly owned subsidiary of the "Great Economy": the economy that sustains the total web of life on Planet Earth. The talk will focus on current challenges as well as positive developments that may enable these two life support systems to become good bedfellows, with complementary sweet dreams for the future of the planet, rather than having separate nightmares. The PowerPoint presentation will be based on the personal perspective of a passionate native-fish lover who has a day job as a dispassionate environmental academic bean counter.

Brief biography:



Andrew is a Hong Kong born and bred Australian Chinese. Andrew came to Australia as a tertiary student and he completed his B.A. (Hon) at the University of Melbourne in 1968 and his M.A. (Hon) at the University of NSW in 1971. He subsequently became a member of the UNSW's academic staff. Andrew taught environmental economics for many years to students in the School of Economics, as well as the University's Institute of Environmental Studies. Andrew was Secretary of NSW ANGFA at its inception and he has been involved in an ongoing campaign with members of the Save Manly Dam committee since 1998 to conserve a landlocked population of *Galaxias brevipinnis* in the Manly Dam catchment.

Andrew also has a night job as a Chinese brush and ink painter of the Australian bush and his nature based art works have been exhibited in China, Hong Kong, Singapore, Korea, Japan, London and New York.

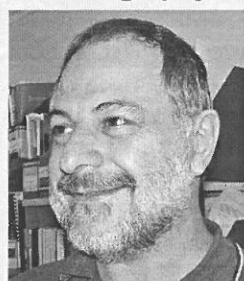
Keith Martin

Talk – Monitoring aquatic ecology at the Batu Hijau mine site in Sumbawa, Indonesia

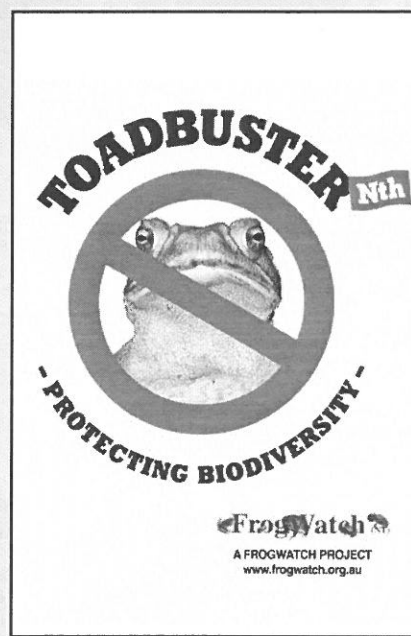
Abstract of talk:

Since 1996, PT Newmont Nusa Tenggara has been undertaking an aquatic monitoring program at its Batu Hijau gold/copper mine on the island of Sumbawa, in eastern Indonesia. The program is designed to monitor populations of fishes, crustaceans, macroinvertebrates and plankton in four coastal streams draining the project area, two of which are influenced by the mining operations. The presentation will describe some of the main findings of the studies, and give a general overview of the aquatic life, habitats and ecology of Sumbawa Island.

Brief biography:



Keith Martin is a Senior Environmental Scientist with the consulting company URS Australia and has been working with Newmont at Batu Hijau since exploration of the site began in 1993. His work has taken him to some of the remotest streams of Indonesia and northern Australia. Now based in Cairns, Keith is a keen native fish aquarist. He previously lived in Darwin for over 20 years, during which time he co-authored the book **Freshwater Fishes of the Northern Territory** with Helen Larson of the NT Museum.





Brad Pusey

Talk – Research underpinning sustainable development in northern Australia

Abstract of talk:

The presentation will introduce the audience to a new and comprehensive collaborative research initiative entitled **Tropical Rivers and Coastal Knowledge (TRACK)** aimed at providing scientific information on the nature of, and important processes in, the aquatic environment of northern Australia in light of recent calls for expansion of agriculture and increased harvesting of water in the region. The presentation will focus on two research projects; 1. Daly River Fish Flows project which aims to combine existing and new scientific knowledge with knowledge gained from traditional owner groups to allow and assessment of the environmental flow needs of the river; and 2. the Northern Australia Freshwater Fish project, which aims to provide high resolution spatial information on the distribution of freshwater fishes, and on patterns of endemism, high conservation significance etc. across northern Australia. These data will be used to develop statistical/mathematical models of how these patterns are influenced or determined by discharge regime and landscape structure.

Brief biography:



Brad Pusey is a Senior Research Fellow in the Australian Rivers Institute of Griffith University. He undertook his doctorate in Western Australia examining the ecology of freshwater fishes in seasonal wetlands of the south-west of WA before moving to Queensland in 1988 to study fish ecology in subtropical and tropical rivers. During his time in Queensland he worked on many different aspects of fish ecology but with a strong focus on the ecological importance of river flows and the environmental water needs of fishes. Brad is the author or coauthor of about 50 scientific papers and along with his long time colleagues Dr Mark Kennard and Professor Angela Arthington, produced **Freshwater Fishes of North-eastern Australia** based on the results of this research. His research interests are now focussed on fish in the wet/dry tropics of northern Australia.

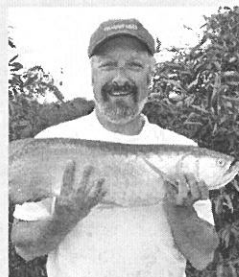
Bruce Sambell

Talk – A Hobby Gone Mad

Abstract of talk:

Bruce, with the aid of many pictures, will take us to the bush to collect brood fish for his farm. From the Cape York to the Lake Eyre system we will see how the species are collected and then used to produce millions of offspring. This will include Coen River trifasciata, the desert rainbow from the Barcoo River, and the Barcoo grunter. You will see breakthroughs with species like yellow-eel tail catfish from the Coen River and freshwater archerfish spawned for the first time in captivity!

Brief biography:



Bruce is the president of the Aquaculture Association of Queensland Inc. He also sits on a number of Government bodies as an industry consultant. As Bruce puts it, "About forty-five years ago someone carelessly gave me a goldfish. I was immediately **infected**". From that day on Bruce's fascination with fish and the aquatic world has dominated his life. About 30 years ago his amateur status was lost when he entered the industry at a professional level. Working as a sales rep for a wholesaler to the pet and aquarium trade, then as he puts it "the dream job", manager of an aquarium retail outlet. In 1978 he moved from Melbourne to Sydney where he owned three retail aquarium shops. This was where he became hooked on Australia's native fishes. Finally in 1988 Bruce established a fish farm in Queensland. The farm, on 200 acres is the largest of its type in Australia. Features include 129 ponds, 4 dams, and a large hatchery building. A large variety of Australian native fish are produced on this farm, including a range of native perch for the table fish sector and recreational angling. The farm also produces many native aquarium species including, Saratoga, gudgeons, blue-eyes, and as Bruce puts it, "heaps of rainbows", which are his first love.



Graeme Sawyer

Talk – Terminating Toads Territory Style

Abstract of talk:

FrogWatch has been at the forefront of the fight to minimise the damage cane toads cause to the ecosystems of the top end. They have achieved a remarkable level of community awareness and have been able to prevent cane toads from overrunning Darwin so far.

Cane toads are however in huge numbers across the NT and our ecosystems are being heavily modified at all levels by this pest. The talk will explain the way the community government partnership has unfolded to create something quite extraordinary across the top end community and what we have learnt about cane toads and controlling them through community action.

Brief biography



Graeme has worked extensively on cane toads over the past five years, including being a member on the National Cane Toad Taskforce, the key organiser for the FrogWatch initiative and also as a consultant to the Stop the Toad Foundation in WA. He has a background in education

and the Information & Communications Technology fields, science teaching and in educational research, with a passion for environmental education.

He has been actively involved with Frogwatch since 1990 and has worked on many projects in relation to the natural resources of the NT. He has a broad general interest in the top end environment and has been involved in research about cane toad control utilising volunteers and also traps which he has pioneered the development of. He invented the clear fingered gate, the basis of most of the cane toad traps and has also worked on attractants such as types of lights with different wavelengths and audio attractants.

He has also presented at National Environmental Education conferences and have conducted Environmental Education seminars for teachers and worked on national projects such as the National WWF – Rio Tinto frogs programme as a member of the Education Panel, and FrogZone as a member of the National project panel and the NT Co-ordinator.

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Glenn Schipp

Talk – Is Using Fishmeal in Aquaculture Feeds Sustainable?

Abstract of talk:

The sustainability of using small, wild, fish for the production of fish meal and fish oil for later incorporation into formulated diets to feed to farmed fish and crustaceans is a hotly debated topic. Many believe that the practice of feeding wild fish, in the form of fish meal and fish oil, to farmed fish species has the potential to cause conflict between the use of these resources for aquaculture, their use as direct food for humans and their value in the ecosystem.

Two central questions in this debate are how many kilograms of wild fish, turned into fishmeal and fish oil, it takes to produce one kilogram of farmed fish and whether or not the fishmeal resource is sustainable?

Opponents of fish meal based diets for aquaculture argue that the practice of feeding 'fish to fish' is inefficient and wasteful and that it can take between three and twenty kilograms of wild fish to produce one kilogram of farmed fish. They say this is particularly true for the culture of carnivorous fish species such as tuna and salmon and therefore believe that it is better for the aquaculture industry to focus on the production of omnivorous species such as tilapia or better still, herbivorous species such as carp and milkfish which have a reduced requirement for fish meal and oil.

Supporters of the use of fish meal diets believe that only focusing on the conversion rate of wild fish to farmed fish is simplistic and misleading. Factors such

as the sustainability of the fish meal and fish oil resource, trends in fish meal usage; current research into fish meal and fish oil replacement and the fact that the process results in the conversion of small, bony, wild fish that are mainly inedible to humans into high quality, healthy, fish fillets; must all be taken into consideration when assessing the environmental impacts of using fish feeds derived from wild fish stocks.

So which argument is correct? This talk will attempt to explain some of the complexity of the fish meal debate and highlight some of the research and industry developments that are underway to address these issues.

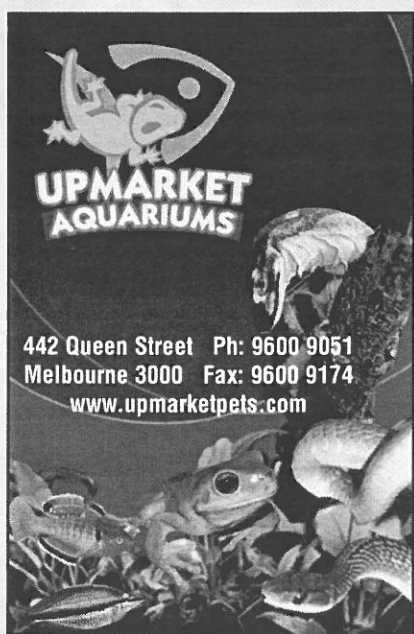
Brief biography:



Glenn is the Manager for Aquaculture of the Department of Primary Industry, Fisheries and Mines. After his university undergraduate degree was completed at the ANU in Canberra in 1984, he worked for a couple of years for the CSIRO mouse plague research program. This was followed by a stint overseas in Sweden working on a rainbow trout farm, until eventually he got a 'proper' job with the NT Government in 1988 setting up the R&D program for barramundi at the new aquaculture centre at Stokes Hill.

Since then it has been nearly 19 years of highs and lows, wins and losses as they set about developing a local marine farming industry from scratch. There have been many highlights including improving production systems for barramundi, obtaining his Masters degree whilst working on barramundi reproduction, working with the aquaculture team to design a new research hatchery and the successful culture of golden snapper which at the time was a very difficult fish to breed. He was also fortunate to have a far too brief, but very enjoyable, interlude in Hawaii between 2002 and 2003 to conduct more research into reef and aquarium fish culture.

His current position has moved him away from the 'hands on aspects' of marine fish production research and development, but hopefully not for ever!





John Seyjagat

Talk – Australian Challenges in Baltimore: Keeping the River Gorge

Abstract of talk:

The National Aquarium in Baltimore opened its newest exhibit "Animal Planet Australia: Wild Extremes" in December of 2005. The exhibit features the recreation of a Northern Territory river gorge. This exhibit is the only one of its kind in the western hemisphere and boasts of being the most authentic and diverse Australian animal collection in a zoological setting in North America. This 165,000 square foot exhibit maintains 5,500 gallons of water and supports 2000 animal specimens representing 92 species. Australia, a land of plenty, is a land of flood, drought and fire, and the animals that live here have had to evolve to suite this harsh environment. The exhibit is all about animal adaptations and the balance of prey and predators in a fragile ecosystem. This exhibit poses many challenges from mimicking the hot dry conditions in the summer, to maintaining compatibility between prey and predators to keeping species that change sexes. It is an exhibit of animals and challenges of wild extremes!

Brief biography



Born in Trinidad West Indies, John Seyjagat started his animal management career at the Emperor Valley Zoo, Port of Spain, eventually being appointed Head Keeper in 1980, a position he held for 10 years. John, with the guidance and approval of the Zoo's Director and Zoological Council, transformed the zoo into a local treasure highlighting the many native species of indigenous fauna.

In 1988 he was presented with an award for outstanding contribution to natural history preservation by the Trinidad and Tobago Tourist Bureau.

In 1990 he left the Emperor Zoo and migrated to the USA where he started out as Head Keeper at the Lube Foundation Inc. 1993 saw John appointed Director of the Lube Foundation and under his direction he turned the institution into the world's most renowned centre for Old World fruit bat conservation with the most diverse bat collection in captivity and 5 field stations situated around the world.

In 1995 the Lube Foundation was awarded the American Zoo Association's (AZA) most significant contribution to bat conservation and John Seyjagat was presented the AZA's Bat TAG's award for most outstanding service.

John left the Lube Foundation in 2003 and joined The National Aquarium in Baltimore to get back into animal management, mainly reptiles and aquatics.

As the Curator of Australian Exhibits he is responsible for the operations of NAIB's soon to be opened new exhibit "Animal Planets Australia – Wild Extremes". His responsibilities include the procurement and management of a very diverse animal collection indigenous to Northern Australia including a handsome fish collection.

The exhibit proposes to display some 40 species of fresh water species numbering over 1000 specimens. The exhibit would display such jewels as Empire gudgeons, numerous species of Rainbow fish, blue eyes, hardy heads and giant glass fish. The exhibit represents a northern river gorge and the evolution and adaptation of the northern fauna as it faces the extreme conditions from drought and fire to flood. The exhibit is also a platform for the development of partnerships for conservation, research, education and training.



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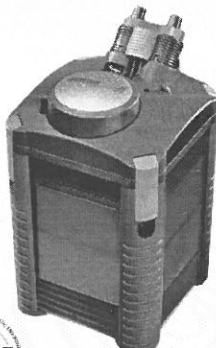
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Lizzie Sullivan

Talk – Daly River Fish & River Flows Project

Abstract of talk:

Although there is growing interest in the water resources of Australia's northern rivers, we currently have limited capacity to predict the consequences of increased development on aquatic plants and animals. We are undertaking a project that will provide information about the flow requirements of fish in the Daly River and will contribute to water allocation planning in the wet-dry tropics. A central feature of the project is the collaboration between research scientists and Aboriginal traditional owners. The project aims to use both the scientific data and the expert knowledge gained from Aboriginal people to determine the flow requirements of fish in the Daly River and to explore the outcomes of changes in river flows. The project will also improve the record of Indigenous knowledge about fish and will develop educational tools for transferring this knowledge within, and where appropriate, beyond language groups in the Daly River. The project will enhance capacity of Aboriginal people to participate in water allocation planning and decision-making processes and to gain greater recognition and appreciation of the value of Indigenous knowledge by western scientific researchers and natural resource management agencies. (AUTHORS: Michael Douglas, CDU; Sue Jackson, CSIRO; Mark Kennard & Brad Pusey, Griffith University)

Brief biography:



Lizzie Sullivan is a Wagiman representative and a member of the Daly River Aboriginal Reference. She has worked for the Pine Creek Aboriginal Advancement Association and Wagiman-Guwardagun Rangers and currently works for the Wadeye Council. Lizzie has been involved

in the Daly River fish project as a research collaborator in the field and in the planning and oversight of the project through the project Steering Committee.

Binh Thai

Talk – Molecular Taxonomy and Evolution of Common Carp

Abstract of talk:

Common carp is the most widespread freshwater fish in the world and is important for food security in a number of developing countries; however, taxonomically, it is a most confusing species. Several alternative taxonomies exist for common carp, its natural distribution and geographical origin is disputed, and a wide range of domesticated breeds and strains have been developed and widely translocated. To examine the taxonomy and evolutionary origin of common carp, 17 samples of carp from Vietnam, Hungary, Czech Republic, China, Indonesia, and Israel were sequenced for the mitochondrial DNA **Cytochrome b** and **D-loop** gene regions and combined with twenty four sets of **Cytochrome b** and **D-loop** region sequences of common carp available on GenBank. Although nucleotide divergence of common carp samples was low, it was sufficient for phylogenetic analysis. The **D-loop** region is substantially more variable than **Cytochrome b** region but both markers showed levels of variation sufficient for intraspecific comparisons. Asian common carp showed significantly more genetic diversity than European common carp. Among the Asian common carp, Chinese common carp showed the most diversity closely followed by Japanese Koi carp. While Vietnamese common carp were distinct, they generally showed relatively limited variation. Phylogenetic analyses did not support any of the current taxonomic hypotheses. The pattern of holotype diversity was found to be consistent with an Asian origin for common carp with at least one translocation event to Western Europe.

Brief biography:



Dr. Binh Thai is from Vietnam. He has been working for Research Aquaculture No 1 for over 14 years. He finished PhD in Charles Darwin University in 2006. His research is interested in molecular genetic and fish breeding.



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Dion Wedd

Talk – Wildlife Utilization for Sustainable Conservation

Abstract of talk:

Conservation through the sustainable use of our natural resources is a very broad subject, but essential to the zoo industry. The use of animals to educate and entertain the broader public about our environment is paramount to the success of zoos and conservation. The trend in modern zoos is shifting from a passive educational experience to a far more immersive one. Stimulating senses and overcoming fears provides a greater more memorable experience than viewing animals in boxes and cages. The Territory Wildlife Park is incorporating these methods in a modern approach to allow education and entertainment through subliminal messages derived through a life changing experience.

Brief biography:

Dion is the Curator of Life Sciences at the Territory Wildlife Park and has been working at TWP for the past 11 years. He was previously employed by the department of Fisheries in Aquaculture research where he worked closely with the developing mud crab industry. Prior to this he worked on commercial aquaculture farms working with Barramundi, prawns and mud crabs. After graduating with a degree in science, he owned and operated a small business collecting and wholesaling native aquarium fish. His love for the aquatic environment has been a major factor in his work and recreation life.

Shaun Winterton

Talk – The Secret Life of Aquatic Plants

Abstract of talk:

Aquatic Plants are widely used as ornaments in aquaria and ponds, often as an after-thought to the fish. Consequently, most people are unaware of the interesting lives that many plants lead beyond these confines. Most significantly is the fact that most are actually flowering plants, often with spectacular and interesting flowers, made secret by the way they are treated. Given a few minor adjustments to the way we maintain aquatic plants in aquaria we can more fully appreciate them, including amphibious growth forms and flowers. A new online identification and information guide to Aquatic Plants has just been released. **'Aquarium and Pond Plants of the World'** by Shaun L. Winterton and Julia Scher, will be presented for the first time in it's recent upgraded and expanded format.

Brief biography:



Shaun was born and raised in Brisbane, Australia and grew up keeping native Australian fishes and growing both native and exotic aquatic plants in outdoor ponds. He completed an undergraduate degree in Zoology and Chemistry at the University of Southern Queensland and later a PhD in insect evolution and molecular biology at the University of Queensland. Shaun has worked on aquatic weeds for CSIRO (Australia) studying the biology and ecology of aquatic weeds such as water hyacinth (***Eichhornia crassipes***) and fanwort (***Cabomba caroliniana***). He moved to the United States in 2000 working at North Carolina State University on insect evolution, but maintained a keen hobbyists' interest in aquatic plants, co-founding the Carolina Aquatic Plant Enthusiasts (CAPE) with Neil Frank in North Carolina. Working for the USDA, Animal and Plant Health Inspection Service (APHIS) and California Department of Food & Agriculture, Shaun developed an interactive identification guide to the genera of aquatic plants cultivated and collected for sale in the aquarium and pond plant trade around the world. Shaun has recently moved from California to Brisbane to work as Principal Entomologist for the Queensland Department of Primary Industries & Fisheries.

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