February 2010

Biddip

Newsletter of the Toodyay Friends of the River

Volume 4, Number 1

2009 was an exciting year of fulfilment for the Friends! Large amounts of silt removed from river pools, an inaugural Honorary Life Membership presented and the winning of the prestigious award, 'The River Rats State Rivercare Award,' presented at the State Landcare Conference held in Geraldton during late October.

The team of Friends has worked steadily over the years for the betterment of the Avon River. Originally, a 'River Care Plan' was developed. It has been used over the past fifteen years to assist in the re-establishment of the Avon, and its tributaries, to former health.

As the original country State Landcare Conference (held in Geraldton in 1997) was entitled, 'Who cares - wins', the Friends can feel justifiably proud of their 2009 achievements.

Editor: Desraé Clarke

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L to R: Greg Davis, Department of Water, Wayne and Desraé Clarke, and Rex Edmondson AO, the '*Father of Landcare*' in Western Australia

The Friends of the River wish to acknowledge the Department of Water for on-going support in printing our newsletter

Presidents Page

by Gaven Donegan, President

Hello, and welcome to the 'Biddip' Newsletter volume 4. Desraé and Wayne Clarke have been very busy attending meetings and functions that TFOR have been invited to and also putting together the 'Biddup' newsletter. This year has passed with sad memories, challenges and memorable achievements.

At the Annual General Meeting, held on August 16th, Wayne Clarke received an Honorary Life Membership of the Toodyay Friends of the River for the years of outstanding work. Wayne was a foundation member in 1994 and has held all positions on the committee; he is the first member to receive this award. Congratulations, Wayne - well done!

On October 5th TFOR were pleased to hear that our organisation has been recognised as meeting the criteria to be a member of the Wheatbelt Natural Resource Management Incorporated (Wheatbelt NRM); this committee was formerly known as the Avon Catchment Council. This has given us voting rights during any of the public meetings. On October 22nd the Wheatbelt NRM held its inaugural Annual General Meeting at the Bridgley Community Centre in Northam. I attended the meeting and found it interesting and very informative on many issues.

On Saturday October 10th at the Toodyay Show we had a display set up in a marquee showing TFOR working along the river and dealing with problems in the river areas.

The TFOR took on the job of cleaning up the showgrounds on the Sunday morning and also at the end of the Show. The TAS pays community groups for doing this work. The money we earn will go to paying our insurance for 2010.

Congratulations to all members for sixteen years of working along our Avon River section from Katrine to the Great Northern Highway Bridge, upper Swan, by winning the Western Australian Department of Water 'River Rats Living Streams Award' I asked Desraé and Wayne to represent TFOR at the Geraldton State Landcare Conference held October 28th to 30th - it was all smiles when they arrived back in Toodyay with the winning award!!! In November our working day changed to the end of the year breakfast at Duidgee Park - to have a photo taken with our winning prize and celebrate the occasion.

I would like to thank the Department of Water for its continued support of our projects along the Avon River in the Toodyay Shire. The project with Greg Warburton, a DOW employee in charge of the Green Corps Programme, was a great success in our section of the river. Greg, and his crew of young workers, was able to do many jobs the TFOR members were not able to do; I would like to see the Green Corps Programme happen again in 2010. Greg was keen to see more of the Avon River from the main channel so he entered the Avon Descent for the first time. He said it looks easy from the banks but it's a lot harder when you come to do it!

We will miss hardworking and dedicated members of our TFOR working group, Val and Neville Tanner who lived alongside of the Toodyay Brook where it runs into the Avon River; they have moved to live alongside a river in the south west of our state. Val and Neville have worked on many of the Friends projects at Lloyd's Reserve, the Seed Orchard Group, the banks of the River, the building of a riffle on two occasions in Toodyay Brook and reported on their 'River section', Washpool to Roaches Brook. I would also like to thank you both for the many wonderful times the Friends have had on your beautiful property and for all the hard work and support you have put in over the time you have lived in Toodyay. On behalf of all the members and myself I wish you both in your new environment all the best - ***we will miss you!!!***

The TFOR members attended the Australia Day celebrations at Duidgee Park. We had on display our work trailer, our new work sign (a frame showing our Logo and colours) also our winning certificate from Western Australia Department of Water River Rats Living Streams Award, 2009. When the celebrations had ended we all moved across the river to the home of Beth and Bob Frayne for a meeting and lunch. After lunch a draft was set out for our work programme for 2010; a copy will be sent to all members. Thank you, Beth and Bob, for making your home available.

The December 29th 2009 bush fire, that started near River Road, west of Toodyay townsite, ended up being brought under control east of Nardie Hill (off the Toodyay/Northam Road). We were very fortunate the Avon River was saved from any fire damage. It did get close at times. I would like to thank all the volunteer fire brigades, farm units, and volunteers for fighting the fire and bringing it under control in extreme conditions. WELL DONE EVERYONE!!!

I would like to remind all members it is time to do your survey of your river section and to have your report in ready for our April meeting - date to be advised.

Finally, I hope 2010 is a good year for everyone, good rainfalls and good health.

A Potted History of the Toodyay Seed Orchard

Researched by Beth Frayne and Wayne Clarke with recent activities by Bethan Lloyd
Compiled by Desraé Clarke

A subcommittee of the Toodyay Friends of the River (Inc), the Toodyay Seed Orchard, has a long and varied history commencing in the late 1980's. A group of community members, under the leadership of Patti Christianson, saw a need to provide native and locally endemic plants for revegetation projects and to establish seed orchard sites from which to collect seed for these projects. *The initial seed orchard site was in Hamersley Street near the railway crossing.* A shade house to propagate plants was required by the volunteers. The Shire of Toodyay and Greening Australia (GAWA) provided assistance in setting up these sites and APACE built the shade house at the Shire's parks and gardens depot.

18th May 1990 - A teacher at the Toodyay District High School, Terry Martino, expressed interest in the GAWA project that involved schools but he requested technical advice. The Regional Manager of the Narrogin Nursery contacted Terry at the school. Terry also expressed interest in joining the Toodyay Land Conservation District Committee (LCDC).

July 1990 - To boost the number of trees ordered from the School Nursery, the LCDC ordered a further 4,000 trees from Alcoa for projects within the Shire.

13th October 1990 - The LCDC, and including the seed nursery, held its first display at the Toodyay Agricultural Show,

30th November 1990 - It was reported to the LCDC that the school nursery was progressing well with seeded pots to be available by the end of the school year..

30th November 1990 - Kevin Hutchings, President of the LCDC, reported on a letter from Martine Scheltema, GAWA (dated 30th October 1990) that the value of trees being sold be less than $1.00 per tree.

18th February 1991 - A number of species of trees have been sown in the School Nursery, under the leadership of Terry Martino, with many of the school children participating in the project. Approximately 8,000 trees were to become available for sale at a cost of 50 cents each.

13th August 1991 - The Minister for the Environment, Bob Pearce MLA, opened the School Nursery

6th November 1991 - The School Nursery Financial Report was presented at the LCDC meeting with a copy sent to GAWA.

4th October 1996 - The Toodyay LCDC accepted the offer from GAWA to manage the Understorey Seed Farm in Hamersley Street, Toodyay. Two members of the LCDC, Wayne Clarke and Rob Smith, agreed to assess the condition and fire breaks of the area, and complete the fencing.

3rd April 1997 - The LCDC applied to the Natural Heritage Trust (NHT) for funding to employ a Community Landcare Co-ordinator (CLC) for a period of three years. Included in the funding application the main activities were to be as follows:
Involvement in the development of revegetation strategies within the Shire of Toodyay
Working with the school in landcare activities
Co-ordination of a seed orchard and seedling nursery.

5th January 1998 - Steven McCabe commenced as the CLC; a CLC Management Committee was created to oversee the position.

16th January 1998 - At the LCDC meeting John Carter, Conservation and Land Management (CALM) suggested to look at the Mundaring Plan of the subsidy of trees - Steven McCabe (CLC) was asked to make enquiries. It was then suggested by Cr. Tony Maddox that a five-year plan be developed to put to council. A sub-committee was formed to meet on 30th January 1998 to develop the plan.

17th July 1998 - Steven McCabe tabled correspondence from GAWA and Geoff Cockerton on seed banks and the seed farm.

22nd September 1998 - The School Nursery continued to progress; a caretaker was required over the summer school holidays.

25th November 1998 - The CLC reported on the Shire's Native Tree and Understorey Scheme with the shade house almost complete and the Understorey Seed Farm Group volunteers now meeting on the weekends only.

24th February 1999 - The Toodyay Seed Orchard Group formally joined the Toodyay Naturalists' Club as a sub-committee..

February 2000 - Steven McCabe resigned from the position of (CLC).

July 2000 - Position of the Landcare Coordinator (now to be known as the Community Landcare Support Officer - CLSO) advertised. Bethan Lloyd was appointed in that position.

2000/01/02 - The Shire operated the Local Native Tree and Understorey Scheme by which the local landholders were able to purchase plants at a subsidised rate of 50%.

2001 - The Seed Orchard Group established a second seed orchard site, with some funding from Envirofund, at the Lloyd Reserve with this site proving very successful and not necessitating the collection of seed from road reserves.

10th December 2002 - The Shire advised the LCDC to take over the running of the Native Tree and Understorey Scheme. Support had been received through NHT and the Landcare Service Charge that would support the scheme for that year; it was to be hoped that it would be self-supporting in the future.

2003 - Funding was successfully sought from Lotterywest to build a shed next to the Shadehouse.

2008 - The Shire required the seed orchard area for other purposes, something that required the Seed Orchard Group to re-negotiate the use of the area. Times for working in the area were restricted to 6pm to 6am. An agreement was made between the Shire and the Seed Orchard Group for occupation of the Shadehouse for two years.

The Seed Orchard Group will have to move from this site at a future date; the Shire has allocated space to build a new Shadehouse and relocate the shed to the new Shire Depot site on Railway Road.

Landholders who have received seedlings, and also members of the group, have established seed orchard sites on their properties, a great resource for seed collection .

Plants are supplied for gardens as well as revegetation projects and, over the years approximately **40.000** plants have been provided to farmers and small landholders.

The Saga of Boyagerring Brook by Robyn Taylor

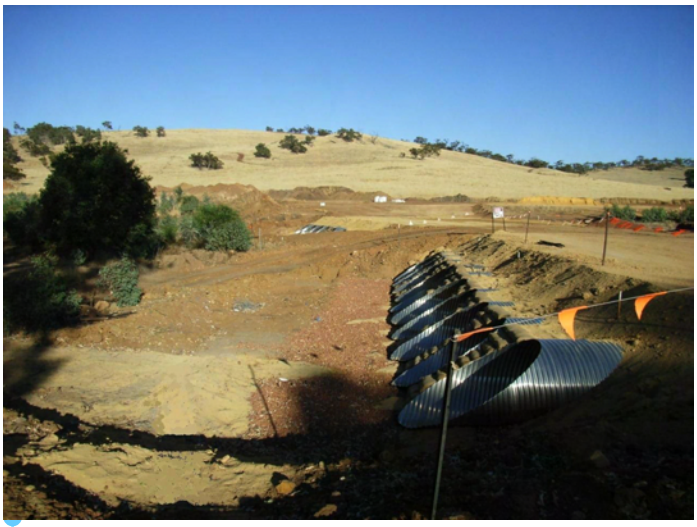
During the last months of 2009 there were some interesting developments along the 'track' that crosses the Boyagerring Brook. Also called River Gum Walk, the track, or more correctly a dirt road, begins along the gravel end of Drummond Street and makes it way across the brook ending up at the district high school carpark. This has always been a 'no through road', but as it offered a quicker way to the school than driving through town, it was much used. In wet weather the road turned into a quagmire of mud and slush with a good deal of soil making its way down the steep approaches to the crossing.

In May 2006, with assistance from the Dept of Water in Northam, TFOR built a riffle across this section of the brook. This was to help filter sand and silt before the brook flowed into the Avon. While the riffle proved effective for a time, it couldn't cope with the constant illegal passage of vehicles. The 'no-through' signs were constantly pulled out, and a large tree trunk placed across the road at the school end was moved just enough to allow vehicles to pass through. It was a hopeless situation.

In the weeks leading up to Christmas there was a flurry of road works adjacent to then joining River Gum Walk. At first this raised alarm bells as a new gravel road was being constructed that went across the brook wiping out what remained of the riffle. However, the road was subsequently narrowed and asphalted into what appears to be a bike and walking track with a wide flat top concrete pipe laid across the brook. The larger rocks that had been placed on the upstream side of the riffle are still there, and the steep approaches have now been concreted, though water running down the sides of the path and into the brook could still be an issue unless these areas are stabilized. While this will be a more successful solution to what has been an on-going problem, it will be interesting to see if the pipe will be sufficient to carry the water load following solid winter rains. Walkers and school children will probably still have to take off their shoes and wade across as they have always done, or more precariously, do a balancing act along fallen branches and makeshift stepping-stones. As this is still a work in progress, it will be interesting to see if barriers will be erected to prevent vehicles from using this short cut.

Robyn Taylor

Postscript: Since writing the above there has been major works upstream where a broad road has been built across the brook with two sets of large metal pipes installed to carry water under the road.



Inaugural Honorary Life Membership - Wayne Clarke

How did landcare and rivercare become such a ruling factor in the life of Wayne Clarke, inaugural recipient of Honorary Life Membership of the Toodyay Friends of the River? It is a long story.

Wayne was born in Melbourne and lived in the inner city suburb of Windsor; he was the youngest of three boys. All three boys belonged to a wonderful youth organisation known as Lord Somers Camp and Power House. The aim of the group was to integrate boys from all walks of life to live, play and work together as a team of mateship with the motto 'it's only the game that counts'. (Wayne is a Life Member of the Club)

The organisation had a Boys Club and a variety of sporting teams including athletics, hockey, cricket, rugby, rowing and competed against teams in and around the city.

The Camp was located at Somers on Westernport Bay and bordered by a small creek, Tulum Creek. During the Christmas holiday break an annual camp was held known as the Big Camp and in 1961, at the age of 14, Wayne attended his first 'Big Camp' - a very exciting experience! Also at the 'Big Camp' was the Camp Naturalist, former Governor of Victoria, John Landy AC, MBE, (naturalist, agricultural scientist, author, photographer and environmentalist!) John, along with other camp members, enthused the boys in natural history observations and learning.

It was during those years at Somers that the boys also began to observe the destruction that could result from disturbance to the foreshore and little Tulum Creek. They learnt the values of foreshore management, prevention of erosion and restoration of the sand dunes that have resulted from changing weather patterns, winds, storms, change in tide regimes, etc. However, these changes in the area around Somers were exacerbated by the excavation of a channel through the bay to allow the super tankers to operate from the shallow Port at Crib Point, a nearby oil refinery. With the heavy seas of Bass Strait and the human interference of the shoreline the boys learnt what destruction could result. They saw the eventual decline of the sand dunes and the little creek - that had provided so much fun - now practically non-existent.

It was from this humble beginning that Wayne became immersed in all aspects of natural history. Among other organisations, he became a member of the Avon River Management Authority (ARMA) 1993-2002, (a statutory board of Government) and the Avon Waterways Committee (AWC) 2002-2009. He became Secretary/Treasurer of the Toodyay Land Conservation District Committee (LCDC) in 1991 to the present day. This committee fostered the Catchment Groups of Toodyay, assisted the Ribbons of Blue with the Toodyay District High School and developed a Fire Protection Policy for the Avon River. From 2000-2004 Wayne was Deputy /Chair of the Avon Catchment Council (ACC) and Chair from 2005-2007. The ACC, (now known as the Wheatbelt Natural Resource Management - Wheatbelt NRM) supports many rivercare projects in the Avon basin.

In 1994 Wayne took up the challenge to develop the Toodyay Friends of the River, a vision he had of an organisation to monitor the health of the Avon River. A great amount of preparatory work was completed to result in the first get together of interested community members in February 1998; the group became incorporated in September 1998 to be known as the Toodyay Friends of the River (Inc).

Wayne's belief is that to achieve a healthy river system, all our natural resources need to be managed in a sustainable way. This includes managing for fire, feral animals and weeds, along with our soils; farming is an integral component in that system. It is only with this collaboration a healthy river system will be achieved!

Desraé Clarke

Above: President Gaven Donegan presents Honorary Life Membership to Wayne Clarke at the August 2009 Annual General Meeting.

The Avon Molluscs

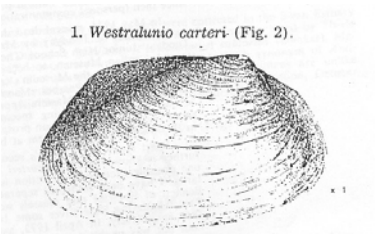
By George W. Kendrick

(Reprinted by permission of the WA Naturalists Club)

Aquatic molluscs were recorded from the Avon soon after the establishment of the Swan River Colony. The collector J.A.L. Preiss (see Glauert, 1948) obtained two species, a thiarid snail and a naiad or freshwater mussel while in the York district between 1838-42. His specimens were presented to C.T. Menke, the German conchologist, and recorded (Menke, 1843) under the names *Melania lirata*, new species and *Unio australis* Lamarck respectively. However the names applied by Menke to these particular specimens are no longer recognised. The first was a homonym of *M. lirata* Benson and was replaced by Brot (1862) with the new name *Melania incerta*. Latterly, Australian snails of this group have been placed in the genus *Plotiopsis* Brot. Their taxonomy is unsatisfactory (see McMichael, 1967) and the correct name for the Avon specimens is uncertain but I follow Hedley (1916) provisionally, in the use of the name *P. australis* (I. and H.C. Lea, 1850) for Western Australian occurrences. Menke's other name was a misidentification of the species now known as *Westralunio carteri* Iredale (see McMichael and Hiscock, 1958). The present whereabouts of Menke's specimens is unknown; they may be lost (Dance, 1966).

A second early record from the Avon concerns a specimen of *W. carteri* presented to the British Museum (Natural History) by Mrs. J. Gould (McMichael and Hiscock, *ibid*), which was probably collected by John Gilbert while in the York or Toodyay districts during 1839-1840. Whittell (1954) records that Gilbert's consignments to Gould in the latter year, at the close of his first visit to Western Australia, included three boxes of shells.

These few records from the pioneering days of the last century (with the sole exception of Main, 1968: 58) appear to comprise all that has been published hitherto on the mollusc fauna of the Avon. Recent collecting has revealed the presence of a further 5 species, making a total of 7 species from the river. These 7 are the bivalves *Westralunio carteri* Iredale and *Anticorbula amara* (Laseron), the prosobranch snails *Potamopyrgus* sp., *Coxiella glabra* Macpherson and *Plotiopsis australis* (I. and H.C. Lea) and the pulmonate snails *Physa* sp. And *Physastra* sp. The status of these species, past and present, is discussed separately.



This clam has a large, robust shell up to 8cm long, with a rounded-oblong outline, a dark brown outer surface and a nacreous interior. The animals are active substrate burrowers and feed on detritus and micro-organisms filtered from internally circulated water. Reproduction in *W. carteri* has not been studied but presumably resembles that in other hyriid species (McMichael and Hiscock, *ibid.*). In these, the sexes are separate and fertilization is internal, the young larvae being discharged from the female as free-swimming glochidia, which must locate and temporarily parasitise a teleost fish. On completion of larval growth, the young clams leave the fish to adopt a burrowing habit in the substrate.

W. carteri is the only naiad to occur in south-western Australia and inhabits (mainly) river pools from the Moore south to about the Kalgan, It is usually a common and conspicuous element of stream faunas. The complete absence of any record of the species from the Avon since the 1840s, either in publications or scientific collections, seemed anomalous, prompting concern for its status there. Regrettably, this concern appears to be well founded for *W. carteri* now seems to have disappeared or become rare at places along the Avon where it used to be common only a few decades ago.

In April 1973, Mr. Brian M. Clifton of "Gwambygine", between York and Beverley, told me that in his younger days around 1912, *W. carteri* was commonplace in Gwambygine Pool but that a decline became evident during the 1940s, the last specimen being seen there by him around 1950. The freshwater catfish or cobbler, *Tandanus bostocki*, declined similarly, the last at Gwambygine Pool to his knowledge being caught in the 1950s. This may be significant in view of the reproductive dependence of the naiad on fish.

Mr. James Masters of "Glen Avon", between Northam and Toodyay, informed me (personal communication, April 1973) that *W. carteri* was fairly common in pools there from 1924 to 1930. Large numbers of shells were evident after winter runs of the river until about 1947 but declined noticeably from then until about 1960. A single dead but fresh specimen was noticed at the Glen Avon Pool in 1971 and odd fragments have been seen occasionally since. He concludes (*ibid.*) that "from the rarity of old shells here, the creature exists in extremely small numbers nowadays". Mr. Masters had noted that the Black Bittern, *Dupetor flavicollis*, had apparently disappeared from the river there since 1952 and had ceased to breed locally by about 1948. The preferred diet of this bird comprised naiads and the Jilgie, *Cherax quinquecarinatus*. Over the same period, Jilgies had decreased greatly in the Avon, though still common in adjacent dams and soaks. This and other changes in bird life along the river have been discussed by Masters and Milhinch (1974).

Similar observations have been provided by Mrs. M. Jeffreys of "Spion Kop", Toodyay, who recalled seeing naiads at the West Toodyay bridge and at Redbank Pool near Toodyay around the year 1930, but never since then (personal communication, 1971).

In May 1971, several dead shells of *W. carteri* were found in the Avon on both sides of Toodyay by Mr. Denis. F.

TABLE 1. – SYNOPSIS OF APPARENT OR INFURRED CHANGES IN THE OCCURRENCE AND DISTRIBUTION OF MOLLUSCS IN THE AVON RIVER, 1840-1975

Species	*Past status*	*Present status*
1. Westralunio carteri	*Originally common and widespread. In pools above York, common up to the 1940s, then in decline; last seen about 1950 in Gwambygine Pool. Between Toodyay and Northam common up to about 1960, subsequently rare.*	*Probably extinct above Northam except for remnant population in Spring Pool, by Dale River. Below Northam rare, perhaps close to extinction. Present but uncommon in Wooroloo Brook, 1971.*
2. Anticorbula amara	*Prior to 1900 probably wholly estuarine. Below Northam rare in the 1920s, increasingly abundant since*	*Common in the Swan estuary and abundant upstream to beyond York*
3. Potamopyrgus sp.	*Unknown; possibly once widespread.*	*Living near the Wooroloo Brook confluence since 1969*
4. Coxiella glabra	*Unknown but may have been originally restricted to saline/brackish lakes in the northern headwaters of the drainage basin; present in the Mortlock (North Branch), 1958.*	*No records since 1958*
5. Plotiopsis australis	*Originally common and widespread at least upstream to York, but not reported from there since about 1840. Between Northam-Toodyay, common up to the 1950s; subsequently in decline there.*	*Probably extinct from York upstream; recently living in Burlong Pool but now possibly extinct between Northam and York. Uncommon between Northam – Toodyay. Common in Darling Range, notably around Wooroloo Brook confluence and downstream to Guildford.*
6. Physa sp.	*Introduced species.*	*In Burlong railway dam, 1968; in Avon near Wooroloo Brook confluence, 1969*
7. Physastra sp.	*Unknown but probably once wide-spread. Collected in 1950 from "soak near Beverley".*	*In Brockman River and in Spring Pool near Dale River.*
8. Ferrissa (Pettancylus) petterdi	*Unknown; past presence inferred.*	*Unknown; recent decline or extinction possible.*

Pember and students of the Toodyay Junior High School. These specimens were presented to the Western Australian Museum, to become the first representation of the species from the Avon in the Museum's collection. Further empty shells have since been found by Mr. Pember at another pool below Toodyay. These records seem to confirm Mr. Masters' appraisal of the present status of the species below Northam. No living specimen has been reported from there for some years and the long term prospects of whatever population still survives in this tract of the Avon seem at best to be poor.

Apart from Mr. Clifton's recollections of Gwambygine Pool, nothing further is known about *W. carteri* in the Avon above Northam and, with one possible exception, extinction is indicated there and in all local tributaries. I have been informed separately by Mrs. N.I. Doncon and Mr. C. Bennett of Beverley that mussels were known by them to occur in Spring Pool, beside the Dale River some 16km SSW from Beverley in 1968 and 1958 respectively. In April 1973, assisted by Mr. Bennett, I visited Spring Pool but was unable to obtain positive evidence that *W. carteri* was still present. However the water was fresh and unpolluted and the species may well be living there. Subsequently Mrs. Doncon located a specimen of *W. carteri* collected at Spring Pool around 1960; this has been presented to the Western Australian Museum. If extant, the Spring Pool population may be the only survivors of *W. carteri* in the Avon System above Northam. I have occasionally found fragments of naiad shells in the Avon near the Wooroloo Brook confluence, but these may be derived from that tributary, where a small population of *W. carteri* still occurs.

The salinity tolerances of *W. carteri* and its host fishes are unknown but these may now be exceeded in water along most if not all of the Avon for a significant part of each year. Circumstantial evidence presented below (Figs 10, 11) suggests that raised salinity has been the principal cause of the catastrophic decline of the species since the 1940s.

This is a small, brown, modioliform clam up to about 16mm long, with a concave, slightly twisted ventral margin and a toothless inge. It lives attached by byssal fibres to submerged wood, stones, coarse sand, etc., and presumably is a filter feeder. It inhabits the estuaries of south-eastern and south-western Australia and in the latter has been found tolerant of sea-

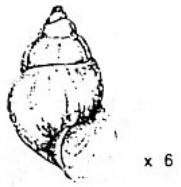
2. *Anticorbula amara* (Fig. 3).

water (E.P. Hodgkin, personal communication, 1975). There are no wholly marine records and, considered as an estuarine species. *A. amara* should be regarded as a brackish-water element (Green, 1968). However in Western Australia, this species ranges far above the limits of tidal influence, having been collected in the Avon as far upstream as Gwambygine Pool and in the Moore near "Cowalla".

Mr. Masters (*ibid.*) considers that *A. amara* has become common in the Avon near his property only in recent years, being rare there during the 1930s. It seems not to have been collected by Preiss at York arounf 1840, though now consistently abundant there. The evidence suggests that, since the turn of the century, *A. amara* has extended its range upstream from the Swan Estuary in response to changes in the river environment. Though present in the Swan near the Helena confluence, *A. amara* seems never to have become established in the latter stream, which has remained fresh throughout this period.

Specimens presumably of *A. amara* were collected in the Swan Estuary at Guildford by the Hamburg Expedition in 1905 and are listed by Thiele (1930) under the name *Modiolus (Fluviolanatus) subtortus* (Dunker). McMichael (1967) considers *Fluviolanatus* Iredale to be a synonym of *Anticorbula* Dall. The anatomical characters of local specimens are unlike those of the Mytilidae (B.R. Wilson, personal communication, October 1971); their affinities seem to lie with the Lyonsiidae.

3. *Potamopyrgus* sp. (Fig. 4).



This is a minute snail with a shell up to 4mm high, dark brown, elongate-conical, with slightly convex, smooth whorls; operculum thin, corneous. Records are from streams in south-western Australia between the Moore and Franklin Rivers, it being found on submerged sticks, bark, stones, etc. In the Avon, *Potamopyrgus* sp. is known only from pools in the Walyunga National Park. These are situated in the Darling Range immediately below the confluence with the comparatively fresh Wooroloo Brook; records date only from 1969. It seems likely that this species once occurred more widely along the Avon and tributaries but positive evidence of this is lacking.

4. *Coxiella glabra* (Fig. 5).

One of the Salt Lake Snails (Macpherson, 1957), this species has a small, smooth, elevated, light brown shell, usually with a decollate spire and a height of up to 7mm; occasional non-decollate shells may reach to 11mm. The operculum is corneous and thick. *C. glabra* inhabits saline to brackish lakes and streams from the Murchison district south into the central wheatbelt. From the Avon River System, it is known only from one sample collected in May 1958 from a "creek bed beside the Goomalling road 8 miles N of Jennacubbine", evidently the north branch of the Mortlock River. It is uncertain whether this record represents a long standing presence in the Mortlock or a recent extension of range from the salt lakes in the district, such as Lake Ninan, in which *C. glabra* occurs and which connects with the Mortlock near Wongan Hills (Fig. 1).

5. *Plotiopsis australis* (Fig. 6).

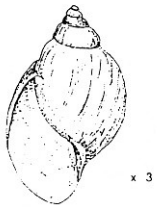
This is a small to medium sized snail with a shell up to 30mm high, the spire high, apex decollate, and with shouldered convex whorls, which usually bear both spiral and axial sculpture. The columella is thickened and the aperture roundly cut out at the base. It is coloured yellowish-brown, with or without reddish axial streaks; colours are often concealed beneath a blackish-brown encrustation. The operculum is corneous, thick and dark brown. *P. australis* occurs in river pools generally throughout Western Australia south to the Avon.

Since its discovery at York by Preiss around 1840, *P. australis* has not been recorded again from there or from any further upstream locality; it has never been noticed by Mr. Clifton at Gwambygine Pool. Mr. Masters informs m (*ibid.*) that it "existed in extremely large numbers in Avon pools in this area (between Northam and Toodyay) until at least 1947 or 1948 and could still be found … to at least 1956". So common was it during the 1920s that shells were bagged and fed to the farm poultry. In contrast, present populations along this section of the river appear to be scattered and live specimens uncommon. Mr. Masters estimates that *P. australis* and *A. amara* have changed inversely in abundance near "Glen Avon" over the past 50 years.

In April 1973, I found numerous shells of *P. australis* in

what remained of Burlong Pool, near Northam. All were dead and apparently only recently so; this appears to be the most-upstream record for the species since the time of Preiss. Living *P. australis* are still common in the Avon where it traverses the Darling Range, e.g., near the Wooroloo Brook confluence, and range downstream to Guildford. Elsewhere along the Avon, the species has declined in numbers and contracted downstream similarly to *Westralunio carteri*, though apparently later and to a somewhat lesser degree. The period of greatest decline seems to have been the 1950s.

6. *Physa* sp. (Fig. 7).



This is an introduced pond snail with a small, ovate, pale-brown shell, up to 14mm high, sinistrally coiled, with a short, acute spire and smooth, polished, translucent whorls. There is no operculum. The shell resembles that of the following species, *Physastra* sp., and reliable separation of the two depends on anatomical characters. The animal of *Physa* sp. has a series of finger-like processes along the mantle margin; seen through the shell, the mantle has a reticulate pattern and the blood is colourless.

This appears to be an introduced species, first recorded from Western Australia at Perth in 1952 (Hubendick, 1955) and now acclimatised throughout much of the south-west of the State. It was collected from the Burlong railway dam near Northam in 1968 and from the Avon near the Wooroloo Brook confluence in 1969. *Physa* sp. is commonly kept in local aquaria and its acclimatisation probably followed release from these. The Physidae were originally Holarctic in distribution and local stocks are probably derived from either Europe or North America.

7. *Physastra* sp. (Fig. 8).

Like the preceding species, this pond snail has a thin, sinistrally coiled shell but may reach a height of 28mm. Fresh shells are usually a medium to pale shade of brown and are more opaque than those of *Physa* sp.; there is no operculum. The mantle margins are smooth, lacking processes and the blood is red. *Physastra* sp. is a common, generally distributed snail in fresh inland waters throughout south-western Australia.

However the only known occurrence from the Avon system above the Darling Range is in Spring Pool near Beverley. This pool, which stands above and beside the main channel of the Dale River, holds fresh water. *Physastra* sp. has recently been collected from the Brockman River at Chittering and there is a sample in the W.A. Museum collection from "a soak near Beverley", presented in 1950. Whether the species was ever generally present along the Avon is uncertain but the evidence of these few peripheral occurrences, together with its general distribution elsewhere within the region, suggests that this was probably so.

8. An ancylid freshwater limpet of minute size, up to 5mm long and tentatively referred to the "form group" *Ferrissia (Pettancylus) petterdi* (Johnston) after Hubendick (1967) occurs widely in lakes, streams and other water bodies of south-western Australia. There are no known records from the Avon, but this may reflect either the unobtrusive nature of the animal, or insufficient collecting, or a recent decline. Distribution records from the Western Australian Museum collection suggest that *F. (P) petterdi* either is or was probably part of the Avon fauna and justify its qualified inclusion in this summary.

This is the last of a series of articles appearing in 'Biddip'.

One of the contributors to the article was the late Jim Masters, a foundation member of the 'Friends'.

The article is reprinted from *"The Western Australian Naturalist,"* Vol. 13, No. 5, April 14, 1976, pp 97-114.

"THE AVON: FAUNAL AND OTHER NOTES ON A DYING RIVER IN SOUTH-WESTERN AUSTRALIA"

By George W. Kendrick, Greenwood.

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The full publication is available from the W.A. Naturalists' Club.

Email address for the Club is: wanats@iinet.net.au

The article commenced in Volume 2 Issue 2, and there have been a total of four instalments since.

The Avon Molluscs

By George W. Kendrick

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Above: GreenCorps team with the vermin-proof Weatherall Bin

Above: Entertainment by our smallest member.

Below: Selling the Friends at the Street Party in 2009

Below: The wood-cutters. Greg (l), and Gaven (r)

The Avon Waterways Committee… gone?

The past…

Management of the Avon River has undergone many changes since European occupation of the Avon Valley. With flooding a major issue from the very early days of settlement, moves to make the river more manageable were being considered.

The European practice of building towns along the waterways was hard to break, and each new settlement was located on the river banks. No consideration was given to this extraordinary topography, and the possible flooding associated with building on land within the floodplain.

Rather than moving away from the river, the option was to change the river's impact. To do this, the *River Training Scheme* (RTS) was implemented in the late 1950s - a project that was to dramatically change the river's functions permanently.

Efforts to stop the destruction of this unique landscape were almost entirely undertaken by one person - the late Jim Masters OAM, an inaugural member of the Toodyay Friends of the River (TFOR). It was not until the 1970s, when a number of other locals were motivated into action, that the RTS was ceased. Then the repair work, again motivated by the community, commenced.

The Toodyay Lions Club, led by Dr. Hayden Dyer (a former Toodyay medical practitioner) encouraged the Toodyay Shire to hold a meeting to discuss how best to restore the river, and manage it into the future. From these meetings came the *Avon River System Management Committee*, a steering committee that in 1993 developed a Management Strategy for the Avon River System. There were 6 Primary Objectives and 116 key recommendations to its sponsor (The Waterways Commission - WWC) for the future management of the river, and the river basin.

The Management Strategy included the establishment of an *Avon River Management Authority* (ARMA), '… responsible for the overall management of the waterway and its foreshores…' The ARMA was gazetted under the *Waterways Conservation Act 1976-1982,* and first met in December 1993.

By the end of the '90s, the WWC had been replaced by the Water and Rivers Commission (WRC) as the host agency, and a new structure, at a state-level, had been implemented. One of its recommendations was to disband the Management Authorities, however ARMA was given the opportunity to re-constitute as a new committee under the *Associations Incorporation Act 1987*, but remain a Committee of the Board of the WRC.

On December 6th 2001, ARMA held its last meeting. It adopted the Constitution of the new Avon Waterways Committee (AWC), and set the date for the first meeting as February 7th 2002. The AWC continued to be the voice of the community in waterways management.

In the following years, the host agency underwent a number of name changes. This created a certain amount of instability within the AWC, but also indicated that the future may not be as stable as first envisaged. Various packages of Water and Structural Reform were introduced, and the final straw came on December 2nd 2009 when the AWC was dissolved as a committee of its ultimate government sponsor, the Department of Water (DoW).

The present…

Thus ends an era of community involvement with waterways management.

Since its inception, the AWC was unable to contribute a great deal towards fulfilling its objects. It needed to have a shared vision that it could strive towards, and have the resources to achieve. Those resources available to the AWC were scant from the beginning, and they had basically been surviving on a year-to-year basis, without any commitment to financial support into the future.

Those of us who have a vision for the future management of our waterways are extremely disappointed with this decision. Community involvement will now be limited to those groups who have a vision for the waterways within their own jurisdiction.

The future…

The AWC has not been 'dissolved', as it is a stand-alone organisation that is incorporated under the *Associations Incorporation Act 1987*. A new constitution is being drafted that will regularly bring those community groups involved in waterways management along the river together through forums or other means, to exchange ideas and enthusiasm. The Department of Water, Northam, has offered its meeting room if required and has offered to assist, whatever structure evolves, in some way.

The future of community involvement in coordinated waterways management doesn't look promising. The AWC will no longer have direct DoW input into its decisions, and will need to wait approval for projects or actions they decide, as the DoW will not be sitting at the table with them when they make decisions. None-the-less, there is a commitment to try and, with the support of the TFOR, the AWC may not be 'dead in the water'.

Like many other issues that go full circle, there will come a time when the community's input is again valued, and its advice sought. In the meantime, it is important that those who have been on the merry-go-round do not lose heart, but encourage change - for the better.

Wayne Clarke

January 2010

Walking Boots to Supershoots - Part one.

Working with the Friends of the River we, as members, get to know our patch pretty well and indeed become not only familiar with it but quite protective - even territorial! Of course, the health of any river is determined by what occurs along its entire length and throughout its catchment. There is no doubt that the degradation of the Avon is an environmental tragedy on a massive scale. The folly of land clearing combined with the River Training Scheme (RTS) has created massive problems. Those that have known the River all their lives lament the loss of the wildlife, vegetation and deep, permanent pools.

I was determined to get to know the Avon River a little better. So, in May 2008, with a 20 kg rucksack on my back and with my dog, Rafi, for company I set out from Yenyenning Lakes in the Brookton Shire. I intended to trek along the river banks 170 kms back home. Over the planned 10 days of the walk I would pass through the towns of Beverley, York, Northam and Toodyay.

Most of the River is now unallocated crown land (UCL) but many of the old sub-divisions go into, or right across, the river. Although never far from a road it seemed very secluded along the River with some beautiful campsites to be had. Drinking water was hard to find as the river water is far too salty. I relied on farm dams mostly.

It was encouraging to see the profusion of water birds that congregated on some of the pools. Herons, Grebes, Mountain Ducks along with Pelicans and Swans. Other wildlife was scarce with only the occasional Grey Kangaroo or a Euro sighted. Unfortunately, foxes were common.

The historical evidence of degradation was all too evident. There were large piles of spoil on the banks from the RTS, rusting farm machinery and other rubbish dumped on the banks. I passed through vast areas of dead Flooded Gums and Melaleucas who had succumbed to the rising salt levels of the River and were now replaced by thick stands of salt tolerant She-oaks. Abandoned wells, rotting wooden bridges and ruined farm buildings were reminders of a time when the River was much healthier and a life line for the settlers that hugged its banks.

Grazing and cultivation still occurs along the river banks but many farmers, with the help of the government, are fencing off the River and re-vegetating it. I passed miles of such fencing sporting "Good River Manager" signage from the Department of Water. I came across staff from the Department at Eyre's Pool conducting a sediment survey and saw the huge piles of sediment dredged from iconic pools such as Kokeby and Katrine.

When I finally limped home I reflected on the journey and how forgiving nature seemed. Despite the mistakes of the past the Avon River, with help, can remain a special place and a vital eco-system.

Above: Two members, Rafi and Greg pose for the camera along the way. Rafi has really earned his rest, trying to keep up with the longer legs

Below: The grass is greener, so home must be near.

Did Rafi take this photo, or is he neatly packed away on Greg's back?

The next stage of my River journey was to be a walk from Toodyay to Perth. But I decided to trade my rucksack for a kayak and compete in the 2009 Avon Descent instead. *A VERY DIFFERENT EXPERIENCE!!! TO BE CONTINUED IN THE NEXT EDITION!!!*

Adventures on the Avon River by Greg Warburton

Avon Valley Spiders by Vivian Street

Spiders are fascinating and wonderfully varied creatures and have made full use of human habitation to find food and shelter. Here in the Avon Valley surrounds of our home I took these photos on a day in December when the temperature was 46 degrees. Spiders everywhere hanging out to cool!

Red Back *Latrodectus hasseltii* *(photo below)*

A spider whose notorious reputation makes its life precarious around humans. They are not an aggressive spider and choose retreat over attack when disturbed. The female is the most noticeable at 12mm, the male tiny at 3mm. She IS venomous, being related to the Black widow, but does not seek out human prey, preferring to crouch out of sight in dark corners in a tangled and sticky ended web, waiting for prey to walk in and then biting

Golden Orb Weaving spider *Nephila sp.*

Hard to miss these long debris-filled webs, used as camouflage for the spider as well as her larder and constantly repaired. The smaller male lives on the margins of the web and is in daily danger of becoming her next snack. *(photo below)*

Wheel Weaving Garden spider *Eriophora transmarine*

A harmless chunky hairy spider in a variety of colours and patterns and with the typical and beautiful spiders web we see everywhere in the early mornings in summer. It is a timid spider, hiding during the day, crouched against the building usually with one leg extended on the web. It appears in the evening to build or repair its strong web and anchored on its safety line, ready for night flying insects of all sizes. *(Photo below)*

Christmas or Spiny spider *Austracartha minax (photo below)*

A beautiful unspidery sort of a spider also known as the jewel spider or 6 spined for obvious reasons. The spider appears appropriately before Christmas on webs strung between bushes and in large communities. They catch all kinds of flying insects because of the profusion and close proximity of webs and seem to share the spoils. A far fiercer hunter than their looks imply.!

Black House spider *Badumna insignis (photo below)*

A timid spider who builds a dense permanent web in a dark corner, where she hides in a retreat tunnel, darting out to kill after a quick tug on her web entangles the prey. They seem to be the most susceptible to the heat and many die after a scorching day.

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"Make *Friends* with our Avon River"

Toodyay Friends of the River

The objects of the Toodyay Friends of the River are to work towards the conservation and rehabilitation of the Avon River and its environs. In the bigger picture of natural resource management, we are committed to implementing the Avon River Management Program and its associated River Recovery Plans for each of the four sections of river that pass through Toodyay.

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Avon Valley Spiders by Vivian Street (...cont)

Daddy Long Legs *Pholcus Phalangloides*

(spindly spider at top, above)

These fragile long legged spiders overrun us in summer when the food source flies to the house lights. Their webs are dry, untidy and sprawling with all sorts of silk packaged insects festooning them. They vibrate rapidly as a warning and distraction when approached and despite their wispy appearance will predate all sizes of insects and other spiders, including their companions when food becomes scarce. They abandon their webs when they become dirty-- a labour-saving form of housekeeping.!!

Vertical Wheel Web spider *Argiope*

(spider at bottom, left)

This was a beautiful shimmering colour (have I identified her correctly?).

Backobourkia!!

Identified from an internet site as the above mentioned new genus. I think he must have been joking. I thought it was another variety of garden spider. Does anyone know what it is.?

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