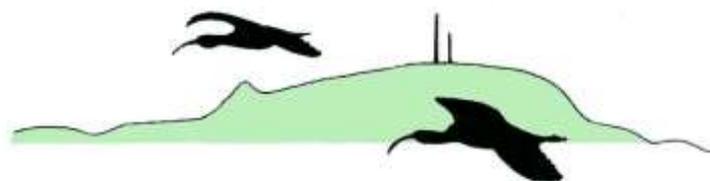


ORANGE FIELD NATURALIST AND CONSERVATION SOCIETY Inc



NEWSLETTER JULY 2019

NEXT MEETING

Thursday, 11th July, 7.30pm
SPEAKER: Nigel Hobden
TOPIC: Flying Foxes - friend or foe?

Senior Citizens and Pensioners Centre
(Opposite side of Woolworths carpark to
Harris Farm)

All welcome

EXCURSION
Sunday, 14th July

Canowindra Age of Fishes Museum
Meet at 9am Orange High School Bus Bay
See details below

Next Meeting: Flying foxes – friend or foe?
Speaker: Mr Nigel Hobden

In his role as Manager City Presentation at Orange City Council Nigel has had to ask many questions about flying foxes and will discuss them in his talk. Why do Grey-headed flying-foxes (below) appear in Orange? What are their characteristics, their biology, what part do they play in the environment? Can we protect the NSW Heritage listed Cook Park and its trees? Can we predict where, when and how many Grey-headed Flying-foxes will appear? Can we consider relocation of Grey-headed Flying Fox colonies and what successful attempts have occurred and what methods have been used?



After studying Environmental Science and working in several national parks as a seasonal ranger Nigel sought employment in Local Government. He completed a Diploma in Urban Horticulture at Ryde, worked at North Sydney Council and in roles at TAFE NSW before moving to his current position in 1991.

Nigel's interests are in all things environmental from bushwalking to nature photography and flora/fauna management, restoration and protection. Having travelled throughout much of Australia's east coast and heartland he has recently been bitten by the African bug after volunteering on a Rhino and Wildlife conservation property in Zimbabwe.

Next Excursion: Sunday 14th July
Age of Fishes Museum, Canowindra

Admission - \$10, concession \$8, \$8.50 pp for groups of 10 or more. Entry includes an audio or guided tour. Bring your lunch or stop at one of the local cafes.

A chance discovery near Canowindra in 1955 revealed an extensive fossil bed dating from the Devonian Period – the 'Age of Fishes'. This 360-370 million year old fossil deposit contains the remains of thousands of freshwater fish - armoured fishes, fishes with lungs, and some huge predators with jaws like crocodiles. Many were new to science. The best of the fossils so far recovered are now on display. We will visit the museum which is one of only two Devonian fish fossil museums in the world. Come and discover what lies beneath our backyard.



A section of one of the slabs taken at the dig in June 1993, photo Doug Stapleton.

Last Speaker: The Wonderful World of Fossils, Prof. Warren Somerville

Report by Rosemary Stapleton, photos by Helmut Berndt and Cath Stapleton.

Warren has a passion for fossils and minerals, and he is a hidden gem in Orange. Warren is an international expert and his collection of six thousand specimens is world class and contains many unique fossil specimens.

The twenty people who came to listen were privileged to see and touch some of the skeletons Warren has in his cupboards. He told us how his passion developed and about the specimens he brought along. He remembered the good ones and admitted to having some pets. One of his favourite pets is a 7.5m long Plesiosaur, a marine reptile from the Anti Atlas Mountains in Morocco that now lives in his garage.



Warren grew up on an orchard, where Harvey Norman now stands. His parents were keen tennis players and when he was about 6 years old, they went to Cadia to play. He said, 'while they wasted their time and energy playing tennis, he went searching across the nearby abandoned iron ore mine site.' This sparked his interest in minerals and he soon discovered that many of the other tennis courts at farms and villages were close to a mine or quarry. Some were on the limestone of the Molong Rise that is rich in marine fossils and these were gathered and added to his collection. Warren related how when someone from the Australian Museum visited Orange his mum asked them to sort through his collection in the hope that they would be of no value and could be thrown out. He said it was a dark day for his mum as most of his samples were of interest and he eventually filled up the orchard's cool room and packing shed.

After school Warren completed a number of degrees at first majoring in biology and then enrolling in geology. Through this course he was taken to meet Albert Chapman and Warren's passion for fossils came about as one of his lecturers was Dr Alex Ritchie who used the fossil collection at the Australian Museum for practicals.

When he was still in high school Warren started his life-long practice of going to fossil and mineral shows and trading with some of his specimens. Over the years he got to know other collectors, museum curators and directors and he became a roving ambassador for Australia. They showed him around their museums, and he took note of what specimens they didn't have. This allowed him to come back some years later and swap Australian specimens for others that he was keen to have. It seems that if you are a collector you always want what you don't have.

During his talk Warren went through the specimens he had brought with him, many of which were rare. There were crabs that looked as if they were caught yesterday and a fossil of a Lace Crab that is the only one in Australia ... which was passed around for us all to have a close look. There were insects in amber from the Dominican Republic and Madagascar, a fossil Stone Fly and a Dragon Fly from China . The specimens from larger animals included dinosaur eggs from Mongolia, the lower right jaw of a cave bear and the skull of a Sabre-Toothed Tiger (below), that was 10 million years old.



Another favourite of Warren's that we saw was a shrimp where you could see the top surface

of the shrimp and its long delicate feelers. Warren said it was one of the best fossils shrimps we will ever see ... and here it was on the table in front of us.

There were trilobites of all sizes with amazing appendages, fossil fish from Italy and Brazil and a 360 million year old armoured fish from a local deposit at Merriganowry (photo below).



We saw fossils of early birds. Warren told the story of the Solnhofen limestone deposit and the discovery of *Archaeopteryx* just when Charles Darwin had published his theory of evolution.



When writing this report I looked up fossil birds on the internet (<https://ucmp.berkeley.edu/diapsids/birds/birdf.html>). It says that *'The oldest known fossil unambiguously identified as a bird is still the dinosaur-like Archaeopteryx, from the Solnhofen Limestone of the Upper Jurassic of Germany. However, it was not the only bird of*

the time. Very recently, another bird of almost the same age was discovered in north eastern China and named Confuciusornis; Confuciusornis resembles Archaeopteryx in having wing claws, but unlike Archaeopteryx and like modern birds, Confuciusornis lacked teeth.' And guess what Warren had brought along a stunning specimen of *Confuciusornis!* (see photo). He said for a time the farmers in this area of China changed from farming to digging fossils to sell to 'crazy foreigners. I guess he was one of these, but the Chinese have now banned the export of these fossils.

Much of the time we are focused on species that are alive today and protecting them for future generations. Warren's talk made some of us reflect on the evolution of life and how species change and develop over eons. A visit to the Chapman Collection and the Bathurst Fossil and Mineral Museum extends this even further into geological timeframes and the formation of minerals and crystals.

Last excursion: Bathurst Fossil and Mineral Museum, Saturday 8th June

Report and photos by Jenny Medd and Rosemary Stapleton.

The excursion was brought forward a week so members could go to the opening day of the Chapman Collection at the Bathurst Fossil and Mineral Museum. This collection of minerals is normally housed at the Australian Museum but due to renovation will now be housed, for the next 2 years, in Bathurst with the Somerville Collection. Together the 1400 world class minerals make up the largest and most significant exhibition of minerals in Australia.

Jenny and Dick Medd went along and said it was well worth the trip to Bathurst, not just to see the Chapman Collection, but especially to hear Ross Pogson's floor talk and to chat with such a knowledgeable person. The display was expertly curated, featuring Australian specimens around the walls with the overseas material mounted in 3 large display cases in the centre of the room, and captions providing a wealth of information to complement the stunning visual impact. Ross, who is Collection Manager for Mineralogy and Petrology, added the personal background and shared many other anecdotal stories along with

scientific explanations prompted by questions from visitors.

It was also great to be able to re-visit the permanent displays of the Warren Somerville Collection which contain an equally impressive, perhaps an even more impressive, collection of specimens - in this case not limited to the rocks and minerals but extending to an amazing fossil collection as well. Our interest was sparked by quite a selection of fossils from "Mirrabooka", at Cheeseman's Creek, formerly owned by David Rutherford, a contemporary of Chris Pratten and an early OFNCS member; also by a "mould of leaves in volcanic ash" from Forest Reefs, dated to the Miocene age (24-25Ma).



Jenny, Dick and Paul listening to Ross Pogson talking about the Chapman Collection.

Paul found the story behind the collection most interesting with Albert Chapman being a mentor and friend of Warren. They often went fossicking together not just in Australia but around the world. Like Warren, Albert had an unusual beginning to his collecting which included fossicking among the breakwaters of the Parramatta River and the rocks from other countries that were ballast that had been dumped from ships that anchored there.



Albert Chapman and Warren Somerville outside Warren's earlier private gallery in Orange c1978.

Doug commented that collections like these take a lifetime to achieve yet that time is only a blink of an eye compared to the geological time it took to produce the world class minerals. I was amazed by the variety of the crystal forms, colours, textures, shapes and arrangements that demonstrated the art of nature. It is certainly worth a visit either to enjoy the colour and sparkle of the crystals or to learn more about their composition and formation.



Some overseas specimens from the Chapman Collection.

Committee News: the main items of business at the June Committee meeting were an update on Mt Canobolas SCA and the McPhillamy's Mine proposal. There was also discussion on a postcard to publicise the Society. The Committee agreed to be represented on a delegation to meet the new Minister for Energy and Environment, Matthew Kean.

Congratulations to President Geoff Selwood on being recognized for more than 50 years of distinguished service to fire fighting in the Queen's Birthday Honours. Geoff was awarded the Australian Fire Service Medal, the state's top firefighting award. See [photos](#) and a story in the CWD.

Spring Creek Reservoir: At a meeting on 25th June Orange City Council voted to rescind a motion to allow electric-powered boating and fishing on the reservoir. So, Spring Creek will still be a refuge for the waterbirds.

At the same meeting a motion to recognise a climate emergency was defeated.

Mt Canobolas Update: Part 4 **Fauna Survey Results (24/29 March 2019)**

Summary Report by Dr Anne Kerle, photos Rosemary Stapleton.

Kerle Environmental



I know the members of the OFNCS are all very aware of the biodiversity survey being run on Mount Canobolas. You've been involved in planning and participating in this survey in your back yard. So, it is time for an update on the fauna survey - what have we done and found?

There are two important components to a survey like this: a systematic survey that can be used to provide information that will help the NPWS manage the SCA to conserve its biodiversity. To do that they need to know the habitat preferences of the species and what effect fire might have on their survival. Not all species will be recorded in a systematic survey, so it is also critical to record all species that are observed on the Mount. This opportunistic survey will frequently be when the rare and threatened species will be recorded. Both are essential.

For the systematic survey 24 sites covering the main vegetation types and the intensity (unburnt, low, extreme/high) of the February 2018 wildfire have been established. These are all being surveyed for the plant survey and we selected 12 for the fauna survey (13 for birds). Mammals, (including micro-bats), birds, reptiles and amphibians are all the target of this survey. To do this we observed, trapped, spotlight, used bat detectors, listened, photographed and then recorded everything. The vagaries of the Mount Canobolas weather did restrict our activities, losing 2 nights trapping but did not stop us completely. And some of us found the hills and rocks a challenge (I'm not as fit as I once was!) but we all survived and had fun.

Did we find anything? There is still more analysis to be done but here is a summary:

Birds: 13 sites were surveyed by our diligent surveyors Rosemary Stapleton, Nella Smith, Tiffany Mason & Stephen Gross. A total of 42 species were recorded, 39 during the systematic survey and three during spotlighting. Of course, the most exciting for me was the Powerful Owl I saw AND

photographed on the Gum Ridge Trail (just ask Dick!). Steve Woodhall was quite pleased too.

It is too premature to draw any conclusions from this initial survey but here are some numbers: Site CPF23, had the highest number of species with 16, followed by site CPF19 with 14 and CPF09, CPF07 and CPF03 with 13 species each. For three sites (CPF13, CPF15, CPF17) there were only five species recorded. Interestingly there was no relationship evident between fire intensity and bird species diversity, but we haven't analysed the relationship with the vegetation community type yet.

Not surprisingly the most abundant species recorded were Crimson Rosella, Yellow-faced Honeyeater, Red Wattlebird, Sulphur-crested Cockatoo, Grey Fantail and Noisy Friarbird. Twenty-eight of the species were recorded less than 10 times. We need more surveys before it will be possible to tease out the relationship of the bird species with the range of habitats on Mount Canobolas and the impact of the wildfire.

Mammals: The four intrepid mammal survey teams did a fantastic job marking out the 12 2ha sites and setting out and checking 50 small mammal traps on each site. Small mammal trapping can often be unrewarding, but they all soldiered on despite finding few animals in the traps! Overall the trapping success was 2.2% varying from 0% to 10% (which isn't too bad!). Two species were trapped: Agile Antechinus, a small native carnivorous marsupial and House Mice. Happily, more individuals of the native species (14) were trapped than the feral mouse (10), an interesting result given that feral mice are often known to invade burnt habitat.



Watched on by Lesley Forward, Steve Woodhall and Anne Kerle, Mike Fleming retrieves an Antechinus so that it can be measured.

Of the six successful trapping sites, mature forest or woodland with a shrubby understorey appears to be the preferred habitat structure but this needs to be confirmed with a detailed habitat assessment for each site.

Identification of the *Antechinus* species was tricky given that two species are recorded from the Mount in atlas databases. The best known species is the Brown *Antechinus* which was reclassified into 4 species in 1998, one of these being the Agile *Antechinus*. They are not readily separated on general appearance so in order to know which species we had caught a range of external measurements were taken. From these measurements it is evident they are all the same species and smaller than the standard measurements for the Brown *Antechinus*. The inclement weather did provide us with an opportunity to verify the species with one individual being found dead in the trap, despite all required precautions to prevent this, as required by the trapping licence, being in place. The specimen is now lodged in the Australian Museum in Sydney.



Measuring the body length of an Antechinus (note the red on the face is texta to help identify it if it is retrapped).

A DNA analysis of this specimen and one from Mount Canobolas previously lodged by Cilla Kinross, has been carried out by the museum lab. The species has been determined to be *Antechinus agilis*, the Agile *Antechinus*.

Another 12 terrestrial and arboreal mammal species were recorded during spotlighting and from incidental observations. Of these, four were feral species.



Measuring skull size..... GRRRR!

Microbats: Murray Ellis and co from OEH Science section have surveyed microbats using acoustic detectors, AnaBat. They sampled 20 sites and have identified 12 species with a possibility of 14. Identification from the call signatures captured by AnaBat can be tricky with clarity of the recording being highly variable, each species having a few different calls and variation between calls in different locations. From this Mount Canobolas appears to have a high diversity of microbats although they have not been surveyed in many inland locations. Based on the number of calls allocated to each species identified, the Southern Forest Bat *Vespadelus regulus* is much more abundant than the other species.

Reptiles and Amphibians: No systematic survey of these vertebrates was done during the March survey due to insufficient time and inclement weather. Four species were recorded opportunistically: Copper-tailed Skink, Grass Sun-skink, Yellow-bellied Water-skink and White's Skink. We are very hopeful that expertise in these groups of vertebrates will be significantly improved for future surveys with a colleague being very keen to see what lives on Mount Canobolas.

Thanks: So, in conclusion, I want to express my very deep thanks to all the people who came and helped with this survey, whether for a little while or the whole week. It would not have happened without you. For a place as unique as Mount Canobolas, the results of surveys such as this will be critical for informed management of this extraordinary place. Thank you, Steve and Lesley, for the opportunity to be involved.

Now for the next one!

Proposed McPhillamys Gold Mine, Kings Plains, Blayney.

Report by Peter Toedter.

There have been various meetings and information days/evenings held by Regis Mining, the proponents for the mine, and by the Belubula Headwaters Protection Group (BHPG) over the last two months. The Community Consultative Committee (CCC) made up of company and community representatives has also had three meetings to date.

There have been a lot of discussions concerning the probable effect of the proposed mine and ancillary works on the environment and impacts on neighbouring properties, including the bulk transfer of water for processing of highly pollutant water from the Springvale Coal Mine and Mt. Piper Powerhouse across the divide. Most of what Regis proposes cannot be changed in any meaningful way and their concessions are just tinkering around the edges.

There is no getting away from the fact that the mine is being proposed for an established rural community and will affect at least 80 farms/households within two kilometres of the mining lease, some within 500 metres. Regis has bought the farms which are within the proposed site developments. They are causing a lot of uncertainty and angst among the local population as the mine would be a major disruption to their lifestyle and property values. The mine would be working 24 hours a day, seven days a week for at least 10 years.

The Environmental Impact Statement is due to be submitted to the Department of Planning and Environment some-time in July and released for public comment about a month after that. There will be no warning of its release. Any member of the public can make a brief submission on any aspect which they feel may impact on the environment, people's well-being or anything that may have been overlooked. The public can also attend the community consultation days. The more submissions the more likely the proposal will be examined in greater detail. It should not just be all up to the people living there. I realise that an orebody occurs where it does and cannot be altered, however it is not imperative that it has to be mined.

Dates for your Diary

Plastic Free July. Take the [pledge](#) for plastic free July or the [challenge](#). Keep an eye out for local activities.

HAVE YOUR SAY by 19th July 2019 on Management of activities in National Parks.

The NSW National Parks and Wildlife Service is seeking feedback on the [regulation](#) that details how activities are managed in national parks to ensure conservation values are protected and people can enjoy visiting parks in a safe and sustainable way. Feedback is invited until 19th July 2019.

Sightings around Orange

If you see anything interesting, please email orangefieldnats@gmail.com or post it on Facebook.

Orchids – rosettes of Greenhoods continue to be found in a few places within Mt Canobolas SCA. As they are not flowering, they cannot be definitively identified. Some *Chiloglottis trilabra* leaves have also been found.

Quail – if walking in grassy areas on Mt Canobolas keep an eye out for quail, including around the summit. They move fast and have not been identified and could be Stubble or Brown Quail or Painted Button-quail; none of which are on the bird list for the SCA.

Scarlet Robins – several females of this threatened species were seen on 20th June in the Mt Canobolas SCA.

Creature of the Month - Fossil Trilobites

Report by Peter Toedter, photos by Dick Medd.

In light of Warren Somerville's presentation at our June meeting the "creature of the month" for July is a fossil. The field of fossils is extremely large as remains or traces of any thing that has lived over 10,000 years ago and found in rock strata or preserved in amber is considered a fossil. Sometimes I feel that I just about qualify.

To illustrate some of the features of fossils a good example are the Trilobites which were a marine organism. One trilobite, *Lochkovella rutherfordi*, was named after one of our past members David Rutherford of "Mirrabooka". It was first described and named by Lawrence

Sherwin, a palaeontologist, who now lives in Orange. A specimen (below) is on display at the Bathurst Mineral and Fossil Museum. *Lochkovella rutherfordi* lived during the Silurian period, about 420 million years ago.



The word “fossil” is derived from the Latin *fossus* meaning *dug up*. Trilobites were arthropods, crustaceans, like crabs and lobsters but are extinct. Superficially they resemble horseshoe crabs or wood-slaters and when one looks at a well-preserved trilobite fossil they look as though they should be crawling around the seashore nowadays. They have an exoskeleton and like most insects, which also belong to the arthropods, they moult.

They are called trilobites because they have three distinct lobes running longways. The body is also divided into three segments but that is not the derivation of the name. They have a head (cephalon), a middle body (thorax) and a tail (pygidium).

The group Trilobite lived from the early Cambrian period (520 million years ago) to the end of the Permian period (252 million years ago). Trilobites were one of the great survivors, represented by 50,000 species found to date, but they met their demise at the Permian-Triassic Extinction (The Great Dying). There have been five major extinctions over the geological periods but none as severe as that which marks the transition between the Permian and the Triassic periods. 96% of all marine species and 70% of

terrestrial vertebrates died. Several reasons have been put forward for it happening. The most probable is the changed conditions caused by a massive lava flow, termed the Siberian Traps, which was a flood basalt event originally covering seven million square kilometres in Siberia which was the largest volcanic event on earth, as well as a large outpouring of basalt in China, termed the Emaishen Traps. These gave rise to prodigious amounts of heat, gases, aerosols, ash and caused a lot of burning. “Traps” is a dark-coloured fine grained intrusive or extrusive (lava) igneous rock. The term also refers to large outpourings of flood basalts.

Trilobite fossils range in size from 1mm to 72cm. They are relatively abundant in some parts of the world and have given rise to local trilobite specimen industries.



A 30cm trilobite, Bathurst Mineral and Fossil Museum.



A 465 Mya trilobite specimen that Warren brought to his talk.



Warren Somerville talking about his fossil specimens at the June OFNCS gathering.



Discussing the Chapman Collection in Bathurst; Paul Meeth, Dayna McGeeney and Ross Pogson from the Australian Museum and Doug Stapleton.

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