Friends of the Western Swamp Tortoise

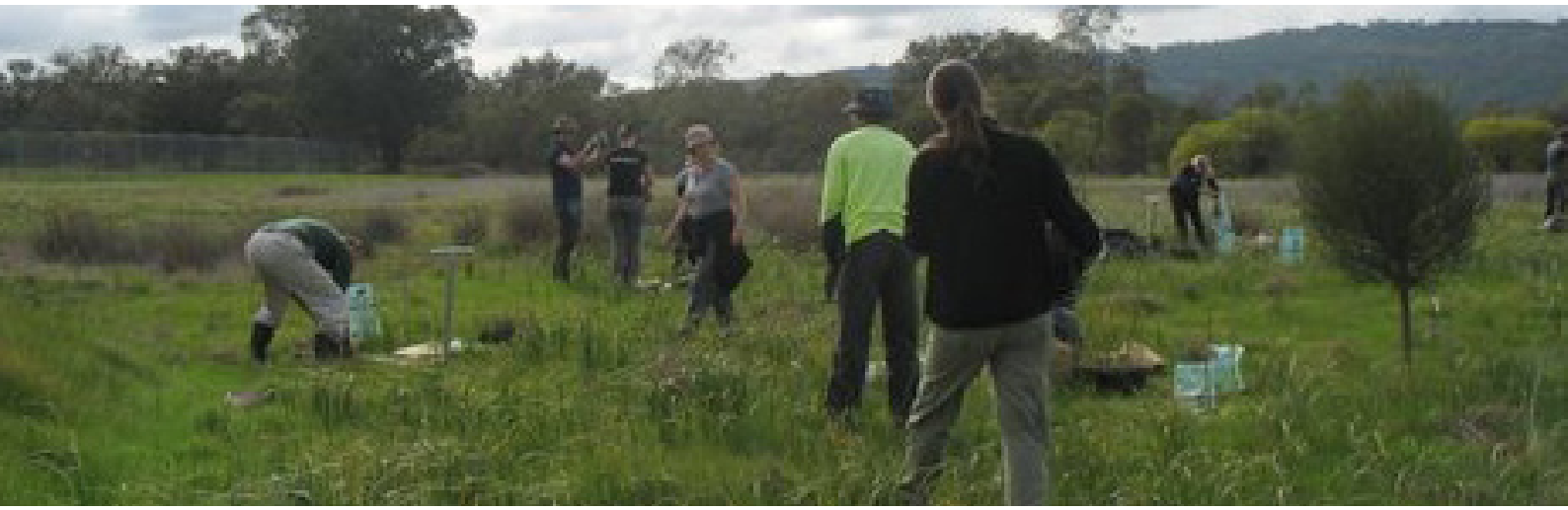
TORTOISE TALES

No. 10, 2009

FoWST planting day!

By Jan Bant

Sixteen members of the Friends group planted about 360 tube stock at Ellen Brook Nature Reserve on Saturday 8th August. Among a variety of plants put in were Melaleuca lateriflora and Melaleuca viminea. We worked hard from 10.15 to 12.00, and then the rain came down in buckets. At least we know our planting was well watered! The Conservation Volunteers Australia planted another 1360 over the following week, so the area has been well covered. It was rewarding to see the coverage of past years plantings in the degraded areas, which are becoming harder to distinguish from the natural bush. There are even some hardy survivors of a planting by Mirrabooka Primary School in 2007 when the ground was so hard it had to be broken with a pickaxe before planting. Thanks to DEC Operations Officer Sean Walsh, who managed to organise the work even with a cast on his ankle. After telling everyone all morning how hard it is to find a tortoise in the Reserve, Jan walked out of the gate and spotted one just sitting there. The Friends were excited to see and photograph the adult female.



Animals on the move – an integrated approach to selecting conservation reserves under climate change

A new project funded by the Australian Research Council and the Department of Environment and Conservation supported by Perth Zoo

Our increasingly fragmented landscapes mean that many species will be unable to find their preferred habitat as climates change. Vulnerable species of high conservation value may need to be physically translocated to climatically favourable habitats capable of supporting them in the long-term (known as assisted migration). This is a watershed in conservation policy, as there has previously been considerable reluctance to consider deliberate introductions to areas where the species has not occurred historically, due to the risk of introducing disease or the introduced species becoming invasive. A recent decision framework published by leading conservation biologists concludes that assisted migration is the only option available to species that are unlikely to migrate on their own. (Hoegh-Guldberg et al. 2008).

This project proposes to answer a key question facing conservation managers and policy makers: how can we identify translocation sites where species are most likely to survive under future climates?

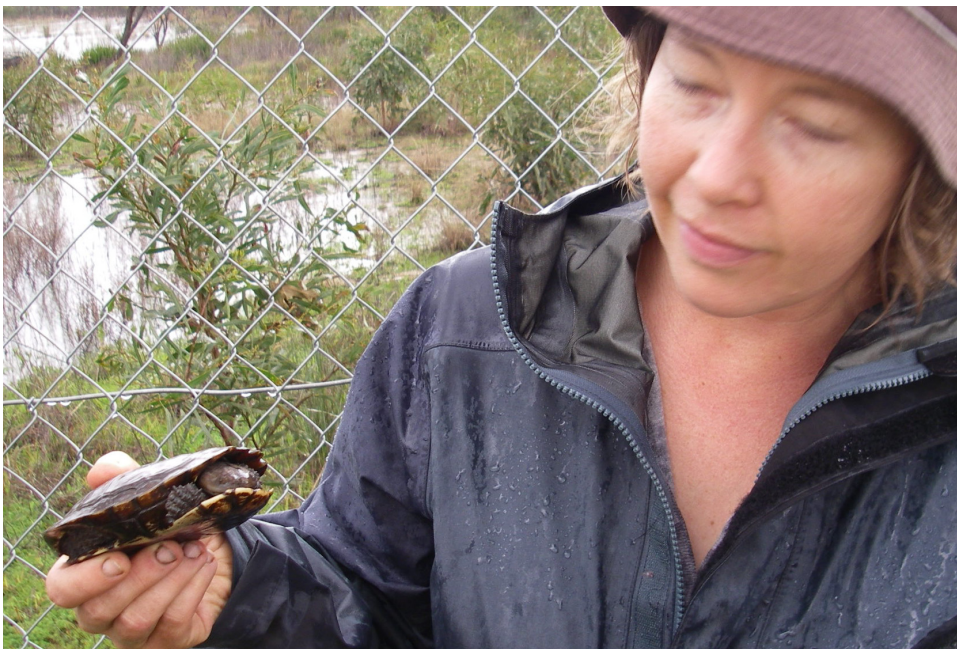
The project focuses on developing a multi-disciplinary, mechanistic approach that facilitates the prediction of future habitat suitability for a rare species - the critically endangered Western Swamp Tortoise. The tortoise is an ideal model for development of this approach because, 1) like other threatened species the tortoise has a restricted range and correlative modelling approaches cannot be used to predict future habitats, 2) the tortoise has specialised habitat requirements (ephemeral swamps on clay soils) that are naturally fragmented and has no ability to disperse at the pace required by contemporary climate change, 3) the climate of south-west WA has already demonstrated a notable shift over the past three decades and this has impacted on available tortoise habitat, and 4) translocations are technically feasible and have been practiced for at least ten years. Our novel approach will be to model the physiological constraints affecting the tortoise and to independently model the hydrology of the wetland habitat on which it currently depends. We will then integrate these models using a GIS framework and

run them under future climatic scenarios as predicted by global climate models to identify ideal translocation sites.

Global climate change will directly threaten the survival of the tortoise at current sites in two ways: 1) decreasing rainfall will shorten the hydroperiod of the clay-based perch swamp habitat, and hence could severely reduce the recruitment of juveniles into the population (Burbidge et al. 2008), and 2) increasing temperatures will alter the timing of mating and nesting behaviours, as tortoises appear to be sensitive to thermal cues (Kuchling 1993). Moreover, long generation times, slow rates of reproduction and low genetic diversity in the surviving population (Burbidge et al. 2008) means the tortoise is unlikely to rapidly adapt to a changing climate, and human intervention will be necessary to prevent its extinction.

This project will be the first to explicitly model the future climatic suitability of translocation sites for any species, and the approach we develop will have the potential to be implemented worldwide. We have a rare opportunity to validate the predictive capabilities of our models with reference to long term (36 year) historical records of habitat quality and reproductive success at two sites for our model species. Such a high quality biological data set is an enormously valuable resource that is currently available for only a handful of species.

The project will involve researchers from the DEC, Perth Zoo, the University of Melbourne and from the Universities of Wisconsin and Illinois in the USA. The project leaders are Assistant Professors Nicola Mitchell and Matt Hipsey from the University of Western Australia. Nicola is an expert on the ecophysiology of reptiles and amphibians and Matt has broad experience with hydrological modelling. They will take intellectual responsibility for the research, its conception and pursuit, and will supervise research assistants and PhD students.



We're in the News!!

By Jan Bant

The Western Swamp Tortoise has been featured in both television and radio this month. On Tuesday evening 25th August, Channel 10 showed an item on the 5pm news about the release of 30 hatchlings to the Mogumber area. Most of the faces were DEC and Zoo personnel, but the story mentioned the Friends Group and was very positive. Gerald spoke to the reporter, and there were some lovely shots of animals waiting to be released.

On Saturday 8th August, I was interviewed by 6PR radio host, Steve Gordon. Steve had a lot of background information, so it was quite an in depth live interview, with a few curly questions, lasting over 15 minutes. I hope we were able to get the message across.

Farewell to some friends

The Recovery Team is losing a long time member **Rod Martyn**, a Senior Nature Conservation Officer with Department of Environment and Conservation, Swan Region. Rod has been instrumental in several projects with The Friends Group, including revamping the Ginger's Gull WST Garden, and the sponsorship of Edgecombe Brothers Winery. We wish him all the best in his retirement.

Farewell also to one of our founding members, **Helen Pitman**, who is travelling to Cambridge to take up a position as communications manager at Fauna and Flora International. Helen's enthusiasm and contagious good humour will be sadly missed by the Friends Group, and we hope that her new position further consolidates her career.

Where are they now???

As we move through spring and into summer the Western Swamp Tortoises are also on the move, out of the drying swamps and into aestivation tunnels. Aestivation is a type of hibernation that occurs over summer and the Tortoises use natural or artificial aestivation tunnels. Aestivation protects the tortoises from the hot Western Australian summer and any bushfires that may occur. It is also the place where eggs are laid and incubated for hatching the following winter.

Friends of the Western Swamp Tortoise

For more information on any of the group's activities contact Jan Bant on 08 9344 2872, 0408 024 800, westernswamptortoise@yahoo.com.au or check out the website www.westernswamptortoise.com.