

Frogs

ALCOA FROGWATCH WORKSHOP

Workshop held in Falcon Hall, Saturday, 21st August 1999 - Organised by Museum W.A. and conducted by Dr Ken Aplin - Attended by about 25 people most of whom had obtained their information through local press.

BASIC FROG ECOLOGY

(1) Individual Needs

- (a) Clean Water. Importance of skin. Frogs don't drink. All water is absorbed through skin. They have rudimentary lungs but air is also absorbed through skin.
- (b) Food. Some have specialised diet but virtually anything that moves is eaten. Frogs prefer live, moving prey.
- (c) Need shelter from:
 - (i) desiccation through sunlight or wind. Skin must be permeable. Depends on whether aquatic or terrestrial.
 - (ii) predation by larger animals (Ibis, Tiger Snakes, Rats). It is a battle to stay alive long enough to breed. Frogs will eat tiny water spiders, beetles, centipedes but the larger of these varieties will, in their turn, eat small frogs.
- (d) Eggs and Tadpoles
 - (i) Correct oxygen levels) More sensitive than adult frogs.
 - (ii) Correct light levels) Whereas some light is necessary shelter is desirable so that light penetration is not too strong.

LIFE CYCLE

Female releases eggs into water and male releases sperm in vicinity. Eggs in large numbers - hundreds or thousands. Average for local species 500. Many into water and also moist soil. Some species fully develop in egg. Tadpoles remain in egg quite a long time and become moving food processing units. Algae feeding but will eat other tadpoles in situations of overcrowding. At this stage thin layer of skin. Change to frog (metamorphosis from a herbivore into a carnivore. The tail is absorbed; the skin changes and becomes thicker.

Importance of shelter to prevent desiccation paramount in young frogs.

Young recruited into adult population. A critical stage. Losses due to interruption at this time. Require high moisture areas for 2-4 weeks. Once metamorphosis complete frogs can move out of area.

(2) Needs of Population

South-Western - some live only a few years - some 20 years due to unpredictability of

climate. Only occasionally right conditions. Local frogs take advantage of cycle changes - hydrological Changes to do with water table. Some have liking for specific plants. Actually bush animals not aquatic or wetland dwellers. Surrounding areas become inhospitable (Creery Wetlands? Salt 6ppt). In Australia the shortest time from egg to frog - 14 days in the desert; the longest 8 Or 9 months.

Wastage Is significant - 5,000 eggs (2 batches in season). Some fail to develop. By the end of 3-12 months of development the number is not more than a few hundred. Large amount of protein being eaten (birds etc.)

The Swan Coastal Plain is dotted with wetlands (melaleuca wetlands) sometimes with a high level of nutrients or low in nutrients and low in frog numbers. Better areas open, fed by ground water in winter. Important to biology of species. Sandy areas that become waterlogged.

Classification - Frog or Toad?

Frogs - 30 different families - one toad. No fundamental difference. No indigenous toads in Australia - 4 families of frogs. Only 2 in W A: tree frogs - arboreal and terrestrial and ground frogs which do not have expanded toe pads. These are also arboreal therefore not a great difference between the two groups.

There are 28 frogs endemic to the South West of Australia... If they disappear they will be gone completely.



Slender Tree Frog



Banjo Frog

Please be aware that these photographs of frogs are copyright to Dr K Aplin, W A Museum. Our thanks to Dr Aplin for permission to use these pictures.

NB PPG now has copies of an audio tape of frog sounds for loan. Useful for identification.

For information about making Frog Friendly Gardens etc. go to Mandurah Wildflower Group's website [Mandurah Wildflower Group Inc](http://www.mandurahwildflowergroup.com.au)

MOTORBIKE FROG (*Litoria moorei*)



Motorbike frog in tree...



... and on my table

Description: A large, powerfully built frog with relatively long hind limbs. Back colour is extremely variable ranging from green with gold mottling to an almost uniform dark brown. The belly is a pale green to light brown. The ends of the fingers and toes have two obvious discs and the toes are partially webbed. Length up to 75 mm. Males have black 'nuptial' pads on outer surface of thumbs during the breeding season.

Distribution: Found from Port Gregory north of Geraldton, south to the Albany region, and inland to the western wheatbelt. In the local Perth region, most abundant in coastal plain habitats.

Habitat: Swamps, lakes, farm dams, and along vegetated watercourses.

Food: Often found foraging far from water and sometimes perching in low vegetation. Probably eats a wide variety of flying and terrestrial insects and other invertebrates, Often seen feeding on smaller frogs, including the young of own species.

Breeding: Often call from floating vegetation or within reed beds. May also call from more open areas around dams or from the branches of trees. Breeding season may begin in early spring and extend well into the summer months.

Call: A long, low growl made up of 3-4 parts sounding similar to a motorbike changing gears. Call does not carry any great distance.

Eggs: A large number of eggs are laid in clumps attached to floating or slightly submerged vegetation. Eggs are held together by a transparent 'jelly'.

Tadpoles: Length up to 80 mm. Body is a uniform dark brown above with a silvery metallic sheen below. Intestinal coils are not visible through the body wall. Tail fins are deep with flecks of dark pigment and the tail is distinctly pointed. Two upper and three lower labial tooth rows are present. Tadpoles usually hide amongst the weed in permanent water. Early stage tadpoles sometimes swim in 'schools'.

Other Notes: Although sometimes referred to as a 'Tree Frog', this species is primarily terrestrial or ground-dwelling. However, it is also a capable climber and can be found in low trees or shrubs and among rocks. Motorbike Frogs are often found considerable distances away from known wetland breeding sites and are probably the most commonly encountered frog in suburban gardens.

KOONACS, YABBIES AND FROGS



A visitor sent from Japan by T. T. who also provided the Koonac pictures



QUESTIONS VIA E-MAIL: *compatibility of koonac, yabby, frogs and tadpoles*

I am having difficulty in finding out the compatibility of koonac, yabby, frogs and tadpoles. Previous years tadpoles have bred well in my back garden pond but since the beginning of spring at the same time introduction of koonac and yabby I have only had half a dozen tadpoles hatch. I believe the motor bike frog which I have breeds over summer so am disappointed and feel may be the spawn is being eaten by them. Would you have any idea. I can easily empty the pond and start again but fear I am a bit late for breeding season. Look forward to hearing from you.

ANSWER VIA E-MAIL

The koonacs and yabbies are undoubtedly taking some of the spawn, but they would not normally be able to clean them out entirely. Many people seem to have both in their garden ponds. I suspect that something else (a waterbird?) has come in and had a big feed or the spawn has died off for some other reason. Perhaps Ann could try covering the pond with wire mesh during the next spawning period and see whether that has any effect. An alternative is to take some of the spawn out and rear it in some shallow containers before reintroducing them into the pond. I suspect that tadpoles are less liable to predation by crustacea than the spawn itself. Could you please forward these ideas to Ann for me.

RESPONSE VIA E-MAIL

Thank you ever so much for all that information. I have cleared the two ponds of all the koonac and while doing so found fingerlings covering my feet as I came to the bottom of the lower pond. Obviously it was a great breeding place for them. As I didn't want to let these loose anywhere I gave them to the local fish pond place. Now I have cleared the pond and back to square one, but feel heaps more confident. I also have been told to cover at least 75% of the pond with water plants. I may not get that far but remember I did have several water plants in the earlier successful breeding days and on some of the info I have, it says some spawn *emersed under the water on plants. I will also cover the pond and raise some in shallow containers as suggested by Ken Aplin. I will keep in touch and yes, if the next breeding season is successful then it would be handy information for anyone in same situation.

* emerge= rise or stand out of water

NB Gaylord (USA) has suggested that Koonacs could be responsible for the disappearance of frog spawn. In an e-mail (which I have unfortunately mislaid) he says that he knows the Sth West of WA well and has fond memories of the taste of Koonacs.

QUESTION VIA E-MAIL: *getting frogs to stay*

I have had trouble getting frogs to stay in our backyard so instead of getting frogs I want to get tadpoles. Is there anywhere I can get tadpoles in the Fremantle/Melville area?

ANSWER VIA E-MAIL

I understand that it is no longer legal to take tadpoles out of their natural habitat. The correct, and simplest, thing to do is to contact the WA Museum and join Frog Watch. They will have a list of people, who will have excess spawn, or, possibly, tadpoles for you. They will need to be within 3 kilometres of your place as frogs should not be removed too far from their natural habitat.