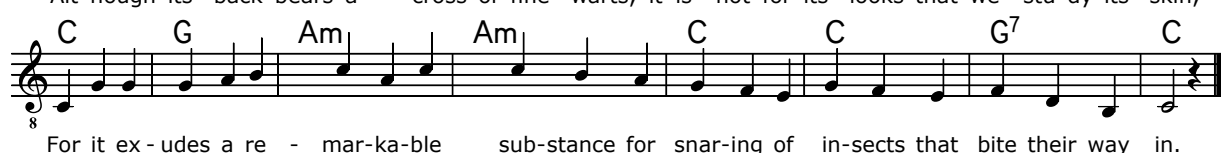
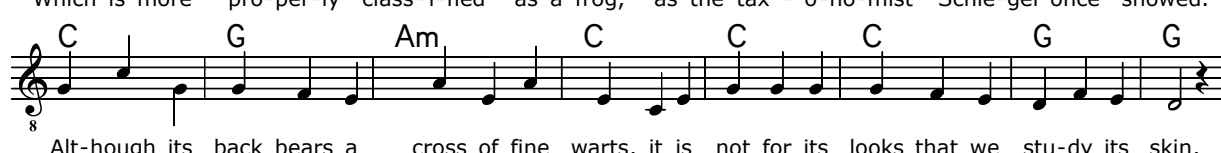
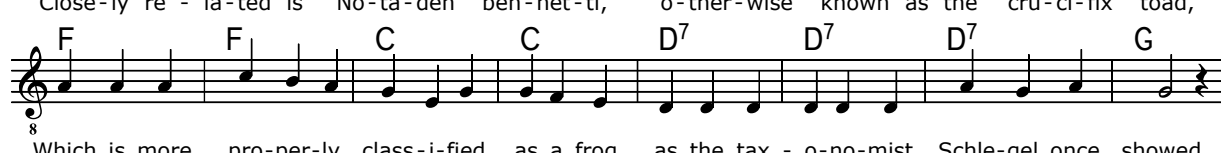
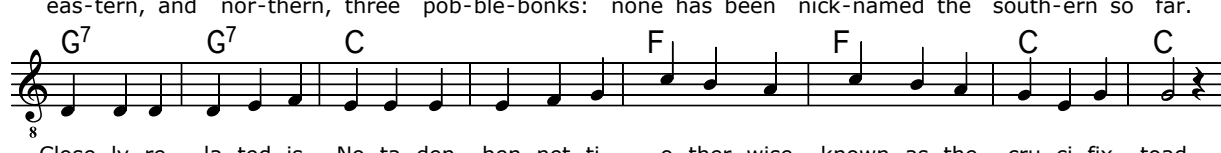
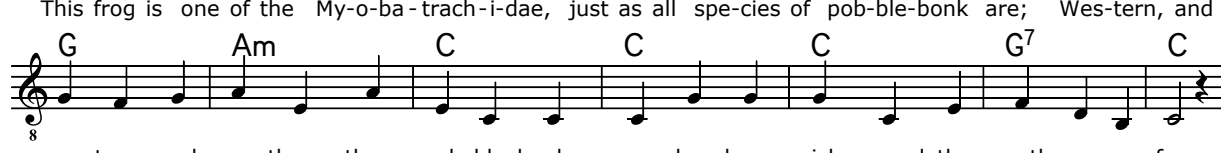
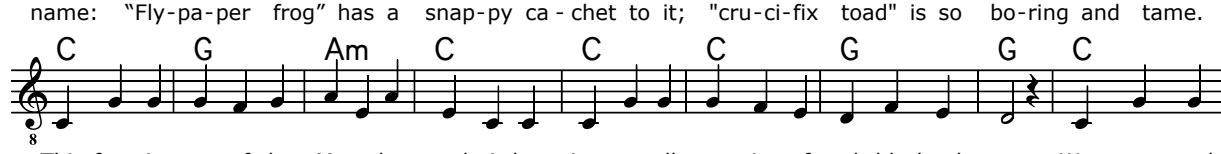
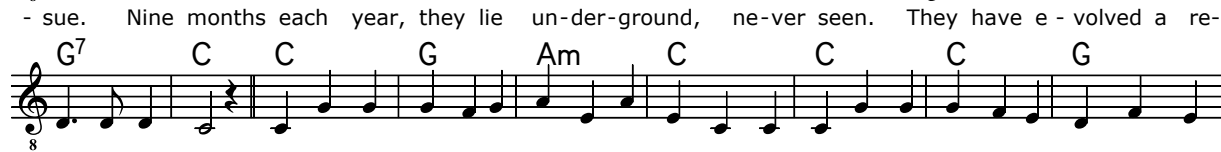
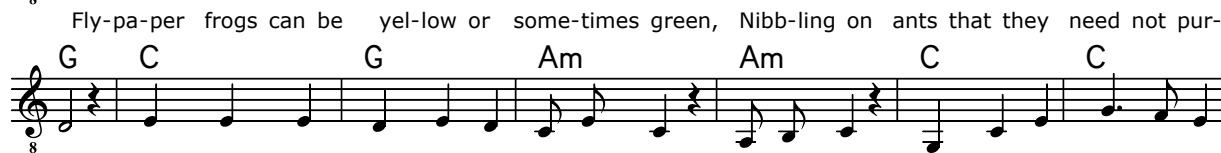


# The Flypaper Frog

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(Lyrics original, melody partially adapted from the traditional song "Waltzing Matilda")



For it ex - udes a re - mar-ka-ble sub-stance for snar-ing of in-sects that bite their way in.

*Complete lyrics overleaf*

# The Flypaper Frog

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Flypaper frogs can be yellow or sometimes green,  
Nibbling on ants that they need not pursue.  
Nine months each year, they lie underground, never seen.  
They have evolved a remarkable glue.

Let me confess to a renomination, for I have invented a new common name:  
“Flypaper frog” has a snappy cachet to it; “crucifix toad” is so boring and tame.  
This frog is one of the Myobatrachidae, just as all species of pobblebonk are:  
Western, and eastern, and northern, three pobblebonks. None has been nicknamed the southern so far.  
Closely related is *Notaden bennetti*, otherwise known as the crucifix toad,  
Which is more properly classified as a frog, as the taxonomist Schlegel once showed.  
Although its back bears a cross of fine warts, it is not for its looks that we study its skin,  
For it exudes a remarkable substance for snaring of insects that bite their way in.

*Notaden* frogs have a spadefoot morphology, as do some toads of the U.S. southwest,  
Although the *Notaden* all are Australian. With dryness approaching, they burrow, then rest.  
On their rear feet one finds modified tubercles, shaped to toss soil as the creatures retreat,  
For, at one metre beneath the ground surface, they find some relief from the drought and the heat.  
Nine months each year they do little but aestivate, thus saving water, but when the rains fall,  
It is the season to gather in ponds while they briefly exist. That is when the males call.  
Quickly, while there is still water to swim in, limbs form on the tadpoles, so recently eggs,  
So that the onset of annual dryness will find them equipped with their lungs and their legs.

When an ant nibbles a flypaper frog, for the frogs and the ants treat each other as food,  
Physiochemical traps spring to action, and thus the ant’s mandibles quickly are glued.  
And, as these jaws are a part of the head, with the thorax and abdomen not far behind,  
None of the ant can escape from the skin of the flypaper frog on which it would have dined.  
Here comes the best part now: every few days, while the frog remains active, its old skin is shed,  
Not just discarded, for that would waste protein, but eaten in full and recycled instead.  
This, for the flypaper frog, brings a bonus, for all of the ants that once tried to attack  
Come with the skin to which they have been glued, are digested, and serve as a post-shedding snack.

When Michael Tyler, who studies the frogs of Australian sub-habitats throughout the land,  
Picked up a flypaper frog for inspection, a residue of the glue dried on his hand.  
None of the normal means, soap or abrasives that won’t harm the fingers, could cope with the mess:  
Only a well-controlled knife could remove it, subjecting its bonds to mechanical stress.  
His curiosity said, “Now we have to see, how does this work?” (That’s what scientists do.)  
“What are the properties of this adhesive that functions so well as a flypaper glue?”  
He found it stuck well to plastics, to Teflon, to wood, glass, and beer cans. It even would set  
Not just in dry air or rain season moisture but underneath water, entirely wet.

Frogs, as you know, can have poisonous skin to protect from predation the frog legs inside:  
This is why some can be brilliantly colourful, warning off foes, with no reason to hide.  
Flypaper frogs appear aposematic, their bright yellow skin being no product of chance,  
As if to warn that their glue is quite poisonous, scaring off snakes, though ignored by the ants.  
This glue was found to be free of toxicity. This is exciting to surgeons, who’ve known  
For many years that they need an adhesive that’s safe but can reattach tendon to bone.  
Someday the genes for this glue may be cloned, but, until then, researchers in Sydney have tried  
Bringing live frogs in while sheep go through surgery, so that fresh glue can be quickly applied!

*Suggestion: sing the chorus at the beginning and after every verse*

## References (still available on-line as of January 2007)

Biology of *Notaden bennetti*: [http://en.wikipedia.org/wiki/Notaden\\_bennettii](http://en.wikipedia.org/wiki/Notaden_bennettii),  
[http://frogsaustralia.net.au/frogs/display.cfm?frog\\_id=62](http://frogsaustralia.net.au/frogs/display.cfm?frog_id=62)  
News articles about Michael Tyler’s research: <http://www.newscientist.com/article.ns?id=dn6492>,  
[http://bussorah.blogspot.com/2005\\_07\\_01\\_bussorah\\_archive.html](http://bussorah.blogspot.com/2005_07_01_bussorah_archive.html) (middle of the page),  
<http://www.abc.net.au/cgi-bin/common/printfriendly.pl?catalyst/stories/s1705318.htm>