Objective:
Visual implant elastomers (VIE) tags are used to identify capture events for tadpoles through ‘batch’ marking. VIE are an inert, coloured polymer that can be injected under the skin of frogs as a liquid and will set to a solid within minutes of injection. Tags can be visible to the naked eye but detection can be increased with the illumination with an ultraviolet light. Different combinations of colour and location of the VIE are used to identify when or where an individual was captured (Campbell et al. 2009).

Details of Procedures:
This SOP outlines the procedures for tagging, once the tadpole is already captured and contained in an open water filled container (see SOPs for dip-netting surveys and minnow trapping surveys).

1) The VIE polymer is prepared with the syringe (31 gauge) uncapped and within easy reach.
2) A tadpole is then scooped into the palm of the hand and positioned vertically in the palm while still in the water.
3) The thumb is then used to place gentle pressure across the tadpole’s tail to restrain it.
4) The tadpole is then removed from the water and immediately tagged. Using the tip of the needle, a small incision is made on the lower lateral surface of the tadpole’s abdomen and the needle inserted 1 mm into the subcutaneous space.
5) Pressure is then applied to the syringe until a small dot (1 – 2 mm diameter) is expelled.
6) The needle is then removed and the insertion site wiped with a damp cloth to prevent the polymer from extruding from the wound.
7) The tadpole is then placed immediately back into the container or, if no other measures are required, released freely back into the waterbody where it was captured.

This procedure takes up to three minutes with the animal being out of water for a maximum of twenty seconds.’

Note that no method of sterilising the insertion site has been mentioned. Due to the sensitivities of tadpoles to toxins, use of alcohol wipes may cause toxicity. Amphibians naturally have an array of antimicrobial peptides and protective cutaneous microflora that prevent epidermal invasion that is sufficient to prevent infection. Hundreds of tadpoles have been marked and monitored in captivity through to, and beyond metamorphosis following tagging as tadpoles and no negative effects have been found (Bainbridge 2015).
Drug, Chemicals or Biological Agents:

VIE tag - https://www.nmt.us/visible-implant-elastomer/

Care of Animals after the Procedure:
Tadpoles can be released after the procedure.

Qualifications, Experience, Skills or Training Necessary to Perform this Procedure:
Researchers should be training one-on-one by an experienced academic until they are considered competent to process individually.

Effects of Procedure on Wellbeing of Animals:
Tagging tadpoles will experience the stress of handling. In a preliminary captive trial, post-metamorphosis tag retention was 100% over three months, with no adverse effects observed on survival, growth or time to metamorphosis (Bainbridge).

Pain Relief Measures:
Tadpoles should remain wet at all times. Animals should be handled in a temperature reflecting their natural range and kept out of direct sunlight. Procedures should be kept to minimum and the animal should be closely observed for pain and the activity ceased if signs of pain are notable.

References:


Prepared by: Deborah Bower July 2019
Reviewed by: Rebecca Webb July 2019
Approved by: UNE AEC July 2019