

This Standard Operating Procedure (SOP) is applicable to all UniSQ Research Workers who care for and use Animals for Scientific Purposes. The procedure must only be performed by those persons who have been deemed competent, and who believe they remain competent to do so. Access to supervision by suitably qualified staff whilst undertaking this procedure is encouraged, where required.

Species

- Small vertebrates

Purpose

The purpose of this procedure is to provide information to the UniSQ AEC, and people considering photographic identification of small vertebrates as part of surveying and research of wildlife populations, why photographic identification is used and how to utilise this method.

Population surveys and monitoring play a key component to many ecological research projects. Population data is obtained through ecological survey techniques such as camera, cage, Elliot and pitfall trapping. To obtain information about abundance to determine population sizes (and trends) and demographic information (e.g. different age classes), it is vital to obtain information on large numbers of individual animals to obtain sufficient data that is accurate and statistically meaningful.

Traditional methods of identifying small vertebrates, such as frogs, include toe clipping, branding, or microchips (Brown 1997). However, these methods are invasive, may impose on the welfare of the animal and expose the animal to disease (McCarthy & Parris 2004; Brannelly *et al.* 2013). Therefore, a non-invasive method of individual identification is required to obtain the required data with minimal impact on the welfare of the animal.

Photographic identification as a method for individual identification in mark-recapture-release surveys offers a non-invasive method for obtaining data on the morphometrics of individual animals (Gomez-Salazar *et al.* 2011; Bardier *et al.* 2020). Morphometrics are measurements of an animal that assist in confirming its identity (e.g. body and leg length) and can be used to allocate individuals into different age classes, and unique identifying patterns (such as chin patterns in reptiles) can be useful for identifying individuals. This is vital in establishing data on the demographics of a population and, therefore the trends occurring within a population. Additionally, photographs may be useful for difficult to identify species, with identifications then confirmed via expert consultation.

This SOP describes a method of utilising photographic identification as a method for identification of animals.

Definitions

AEC	Animal Ethics Committee
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Linked SOPs

SOP ID number	SOP title
WL012	Dry pitfall trapping for vertebrates
WL002	Pipe trapping (small vertebrates)
WL009	Microchipping cane toads
WL005	Removing amphibians from pitfall traps

Potential hazard to Research Workers

UniSQ Risk Management Plan ID number	UniSQ Management Plan title
1263; 1894; 2390 etc	Multiple wildlife related RMPs from multiple researchers and teaching staff. Some examples given here.

Personal Protective equipment required

- Disposal gloves where required

Animal wellbeing considerations

Perceived stressors	Management strategy
Disease risk from equipment	Clean gloves must be used for each individual animal (when dealing with amphibians) and all equipment sterilised in disinfectant solution between each individual animal
Handling of animals	Handlers must ensure that procedure is completed as quickly as possible with minimal animal handling to reduce prolonged stress to the animal
Extreme weather	Avoid trapping or close traps in extreme weather conditions. Close traps if there is excessive rain or heavy rain is forecast

The overall perceived level of risk to an animal undergoing this procedure is:

High Medium Low

Substances to be administered

Substance	Dose	Route	Purpose
Nil.			

Equipment/ materials required

- Data record sheet
- 150mm petri dish
- 90mm petri dish
- Camera with batteries and SD card or phone camera
- Laminated 1mm graph paper larger than the diameter of the Petri dishes
- Ruler
- 70% ethanol or 1% bleach solution
- All relevant trapping equipment (listed in relevant SOPs)

Site specification or location requirements

UniSQ Ravensbourne Field Station and other field sites as appropriate for research projects

Waste disposal

Nil.

Duration of the procedure

Total time	5 minutes
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Procedure

In field photographing animal

1. Pre-fill data sheet with non-animal related details such as trap number/ day/ date/ time. It may be useful to photograph this sheet prior to photographing the animal for data processing purposes and ease of identification of the individual being photographed.
2. Prepare the camera to the required setting and set it aside
3. Using a clean pair of gloves, remove the animals from the trap (or similar) and place on appropriate surface, ensuring the animals is positioned so that required details (such as limb length) can be recorded. A petri dish may be used to assist containing the animal where possible (such as with frogs or small skinks), otherwise animal should be handled in such a way that appropriate information can be recorded from photos (such as tail length, foot length, chin pattern, etc.). Graph paper or rulers may assist in providing a scale in the photographs.
4. Use the camera to photograph the required parts of the animal, ensuring minimal glare/ reflection or shadows. Gently rotate the animal and/or petri dish to photograph all required aspects of the animal.
5. Check the photographs are of adequate quality, i.e. clear images and that all markings (e.g. patterns, scars) and colours on the animal have been clearly photographed.
6. Once all data has been obtained for the animal, the animal can be released near where it was caught where there is appropriate shelter.
7. Ensure all equipment is cleaned after use. Petri dishes must be sprayed with 70% ethanol or 1% bleach disinfectant solution and allowed to soak for 1-2 minutes in a sealed zip-lock sandwich bag before being thoroughly rinsed with clean water into a bucket, ensuring all contaminated water is collected for later disposal.
8. Repeat this procedure for all animals and for all traps as appropriate.

After filed data storage

1. All photographs must be transferred on to a computer hard drive and back up copies made in two other locations (e.g. external hard drive, USB, cloud storage).
2. Photographs can then be incorporated into the database and transferred to identification software (e.g. I3S, Hotspotter, WildID) and processed accordingly.

Training, qualifications or competencies required

Researchers with relevant experience or qualification can only undertake this SOP to complete the procedures required.

Student researchers must receive appropriate training and supervision from UniSQ research supervisors or qualified individuals prior to undertaking procedures.

References

- Bardier, C., Székely, D., Augusto-Alves, G., Matínez-Latorraca, N., Schmidt, B. & Cruickshank, S. 2020. Performance of visual vs. software-assisted photo-identification in mark-recapture studies: a case study examining different life stages of the Pacific Horned Frog (*Ceratophrys stolzmanni*). *Amphibia-Reptilia*, 1, pp. 1-12.
- Brannelly, L., Chatfield, M. & Richards Zawacki, C. 2013. Visual implant elastomer (VIE) tags are an unreliable method of identification in adult anurans. *Herpetological Journal*, 23, 125-129.
- Brown, L. 1997. An Evaluation of Some Marking and Trapping Techniques Currently Used in the Study of Anuran Population Dynamics. *Journal of Herpetology*, 31, 410-419.
- Gomez-Salazar, C., Trujillo, F. & Whitehead, H. 2011. Photo-Identification: A reliable and noninvasive tool for studying pink river dolphins (*Inia geoffrensis*). *Aquatic Mammals*, 37, 472-485.
- McCarthy, M. & Parris, K. 2004. Clarifying the effect of toe clipping on frogs with Bayesian statistics. *Journal of Applied Ecology*, 41, 780-786.

Licences and permits

Any required licences and/or permits to undertake the procedure(s) under this SOP must be obtained before undertaking this SOP.

SOP approval and review history			
Date	Version	Review Pathway	Notes
17/12/2020	0.0	3/12/2020 UniSQ AEC "Subject to Modifications". 17/12/2020 Reviewed and approved by the UniSQ AEC Executive.	Approved
23/06/2021	0.1	23/06/2021 Inserted under "Licences and Permits", the words: "Any required licences and/or permits to undertake the procedure(s) under this SOP must be obtained before undertaking this SOP."	Update
16/09/2022	0.2	16/09/2022 Converted SOP to new UniSQ branding	Update: UniSQ 2022 Rebrand
11/05/2023	0.2	11/05/2023 Reviewed and approved by the UniSQ AEC	Approved
05/02/2026	1.0	05/02/2026 Reviewed and approved by the UniSQ AEC for a continuation for a further 3 years.	Approved