

## Mending a Ruptured *Varanus acanthurus brachyurus* Egg

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**Abstract:** A *Varanus acanthurus brachyurus* egg ruptured during artificial incubation. To repair the egg, a small piece of eggshell was taken from a previously hatched *V. tristis tristis* egg and used to patch the hole in the ruptured *V. acanthurus brachyurus* egg. After 106 days, the patched egg successfully hatched together with other eggs from the same clutch.

Reptile eggs that are artificially incubated in captivity are subject to various hazards and human error emergencies. During the course of egg incubation, the senior author encountered an emergency involving a ruptured *Varanus acanthurus brachyurus* egg. Other authors have reported ways of repairing incubating reptile eggs (Barnett, 1980). This report describes a method used to repair a *V. acanthurus brachyurus* egg and investigates possible causes for its rupture.

On 23 February 2009, the senior author dug up nine fertile eggs laid by a two year old female *V. acanthurus brachyurus* (Fig. 1). The pair of *V. acanthurus brachyurus* copulated for five days, and eggs were laid 19 days



Fig. 1. Unearthed clutch of *Varanus acanthurus brachyurus* eggs.

after copulation ceased. For incubation, a ‘no substrate’ method was used where the eggs were placed in a custom-made container, suspended above the incubation medium using a diffuser grid, with a bent wire frame used to keep the eggs in a stable position. The medium consisted of an unmeasured mixture of perlite and water, soaked, drained, and pressed down into the reservoir area of the incubation container.

On 15 May, one egg was seen leaking albumen from its underside, which passed through the diffuser grid onto the surface of the substrate below. The egg was handled and a small V-shaped hole (ca. 2-3 mm) was noticed after the albumen was wiped away. Turning the egg back to its original placement, it began to leak again.

The junior author suggested covering the hole with a piece of eggshell from a *V. tristis tristis* egg which hatched previously that year. A dry, wrinkled *V. t. tristis* eggshell was chosen from a group of hatched eggshells the primary author had collected and saved. A 10 x 10 mm square piece of eggshell was cracked off of the *V. t. tristis* egg, and shaped by hand to form a patch. The patch was soaked in a small container of warm water for 20 min, softening it to the point of being pliable and rubbery. Once the perforated shell was wiped clean of albumen and any detritus, the patch was placed on top of the perforated shell surface and pressed lightly into place (Fig. 2.). There was no adhesive used other than the remnant albumen, which adhered the patch to the egg well. Within 24 h, the patch was firmly in place,



Fig. 2. Detail of eggshell patch on mended *V. acanthurus brachyurus* egg post-hatching.

staunching any further leakage of albumen from the egg.

It is believed that the underlying cause of the rupture was a rapid change in air pressure when opening the incubator door. Since the incubation container lacked ventilation holes and was kept inside an airtight, modified refrigerator incubator, this may have led to a pressure difference between the internal egg environment and the room's ambient conditions. To remedy the situation and prevent this occurrence from reoccurring, all egg container lids were removed, vented with two 4 mm holes, and then placed back onto the egg containers. No other eggs suffered from leaks.

On 9 June 2009, after 106 days of incubation, three eggs began to pip (Fig. 3), one of which was the mended egg. All hatchlings emerged by 11 June (Fig. 4) and continue to thrive at the time of this writing.

## References

Barnett, B. 1980. Captive breeding and a novel egg incubation technique of the children's python (*Liasis childreni*) Herpetofauna 11(2): 15-18.



Fig. 3. Hatchling *V. acanthurus brachyurus* emerging from egg.



Fig. 4. Recently-hatched *V. acanthurus brachyurus* offspring.