Progress Report SP 2018-101

Western swamp tortoise breed for release program

Perth Zoo Science

Project Core Team

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Update requested

Document endorsements and approvals as of Nov. 8, 2021, 4:32 p.m.

Project Team	granted
Program Leader	granted
Directorate	required

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Context

Western swamp tortoises (*Pseudemydura umbrina*) are listed as critically endangered and occur in only two natural populations at very low numbers. Establishing new populations entirely with wild caught tortoises is not feasible and captive breeding provides a source of animals for supplementation of wild populations and establishment of new populations. Captive-bred tortoises have enabled new populations to be established at Moore River Nature Reserve and Mogumber Nature Reserve. Two additional captive insurance populations have also been established at Adelaide Zoo and Monarto Zoo (South Australia) to reduce the risks associated with keeping half the global population of western swamp tortoises in a single facility.

Aims

- Produce a minimum of 30 hatchling tortoises (> 30 days of age) each year, that are grown on until they are three to four years of age, then reintroduced into sites approved by the Western Swamp Tortoise Recovery Team.

Progress

- No western swamp tortoise juveniles were released in 2020 due to the poor winter-spring rainfall in south-western Australia and the shortened hydro-period that produced.
- A total of 108 eggs were produced in the captive breeding colony, 70 of which hatched.
- eDNA water samples were collected from western swamp tortoise ponds prior to them being used, and progressively as larger numbers of hatchlings were added to the ponds.
- Historical mortalities of western swamp tortoises held in the captive breeding facility are being evaluated to determine any common factors related to those deaths.
- A research project examining temperature and vibration of natural western swamp tortoise nests under field conditions, and determining whether there is communication between sibling embryos in the egg in the wild and in artificial incubation and whether any such communication stimulates synchronous hatching.

Management implications

- Developing eDNA technologies may facilitate a better and more reliable surveys of real or potential western swamp tortoise habitat.
- Identifying common factors associated with mortality in the captive colony will allow informed decisions around husbandry in the future.
- Understanding the cues to hatching will inform decisions on the management of both wild and captive populations.

Future directions

- Continue to produce juvenile animals for release to sites.
- Research the breeding ecology of western swamp tortoises using wild and captive populations.