

Project Plan SP 2020-006

Ecology, threats and monitoring of the Pilbara Olive Python (*Liasis olivacea barroni*)

Animal Science

Project Core Team

Supervising Scientist	David Pearson
Data Custodian	David Pearson

Project status as of Nov. 9, 2021, 3:44 p.m.

Pending project plan approval

Document endorsements and approvals as of Nov. 9, 2021, 3:44 p.m.

Project Team	required
Program Leader	required
Directorate	required
Biometrician	required
Herbarium Curator	not required
Animal Ethics Committee	not required

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Biodiversity and Conservation Science Program

Animal Science

Departmental Service

Service 7: Research and Conservation Partnerships

Project Staff

Role	Person	Time allocation (FTE)
Supervising Scientist	David Pearson	0.2
Research Scientist	Mark Cowan	0.2

Related Science Projects

Proposed period of the project

None – None

Relevance and Outcomes

Background

The Pilbara Olive Python (POP; *Liasis olivacea barroni*) is an iconic threatened species confined to the Pilbara and an adjacent part of the Gascoyne IBRA regions. Very little is known about its ecology, habitat preferences and conservation threats. It was described as a distinct taxon by Smith (1981) and recent genetic work has indicated its distinction from northern populations of the Olive Python (*L. o. olivacea* Pearson (1993) reported on its distribution and conservation status based on a few Museum specimens and records submitted by the public via a postal survey. Available information on the python's diet, home range and basic biology based on limited telemetry data, observations and roadkill specimens was summarized in Pearson (2007).

It is an apex predator consuming a diet of large birds, reptiles and mammals as an adult, including several species such as Northern Quolls and Rothschild Rock-wallabies that are either threatened or have declined in abundance. Neonate and juvenile pythons probably consume frogs, small birds and lizards. POPs occur in a range of habitats, including ironstone, dolerite and granitic hills and their watercourses, but may be found long distances from water. They are primarily nocturnal, but may be encountered in the cooler winter months basking near shelter. Breeding also occurs at this time. Females need to have sufficient body resources to develop and incubate eggs and it takes considerable time post-reproduction to recover lost condition, so it is probable that females skip one or more years before breeding again (Pearson 2007).

The occurrence of POPs in rocky areas and in riparian zones intersect with various mining operations and infrastructure corridors has resulted in numerous EPBC referrals. Consultants working on behalf of resource companies to monitor POPs have struggled to locate POPs and have not developed effective ways to monitor the impacts of mining activity on

the species. POPs occur in several national parks and conservation reserves managed by the Department. It is WA's largest snake and a species popular with the wider public and Pilbara residents in particular. It is a listed "Vulnerable" species under the EPBC Act and "Threatened" under WA legislation. The aims and outcomes of this proposed project are consistent with the research priorities identified by the Commonwealth Conservation Advice on *Lialis olivaceus barroni* (Threatened Species Committee 2008) as outlined below:

Research priorities that would inform future regional and local priority actions include:

^ Design and implement a monitoring program.

^ More precisely assess population size, distribution, ecological requirements and the relative impacts of

threatening processes.

^ Undertake survey work in suitable habitat and potential habitat to locate any populations/occurrences.

The project is consistent with a number of the DBCA Animal Science Program activities including:

^ Address knowledge gaps to inform the effective conservation of threatened fauna species.

^ Provide scientific knowledge to ensure the effective and efficient monitoring of fauna species.

^ Identify, assess and apply emerging technologies and innovative approaches to fauna conservation research.

^ Engage with the community to identify opportunities for involvement in fauna conservation research and to encourage knowledge transfer.

^ Build capacity to deliver fauna conservation outcomes by collaborating with other science providers, government agencies, industry and NGOs.

It aligns with the seven projects identified by Pearson and Morris (2011) in "Project Plan- The ecology and conservation of the Pilbara Olive Python 2011-2016" (Department of Parks and Wildlife):

1. Review of published and unpublished literature
2. Development of survey and monitoring techniques
3. Pilbara Olive Python genetics and population structure
4. Detailed field ecology of Pilbara Olive Pythons
5. Developing strategies to minimise Pilbara Olive Python mortality
6. Reducing the impact of mining and infrastructure on Pilbara Olive Pythons
7. Monitoring Pilbara Olive Python populations

A POP workshop was held in Perth in 2013 and identified the following research requirements:

1. Undertake a literature review; 2a. Develop survey techniques; 2b. Develop monitoring techniques: 2c. Better understand habitat requirements; 2d. Better understand breeding biology; 3a. Better understand prey relationships; 3b. Better understand predator relationships.

The proposed project examines the most critical of the research priorities identified by these three documents, focusing on reviewing available literature, developing and testing survey/monitoring techniques, resolving population relationships and structure via genetic techniques, identifying conservation threats and undertaking detailed ecological work to understand habitat requirements, diet and reproduction. Note that the project has a five year life on account of the apparent low reproductive frequency of female POPs to enable determination of factors associated with this. Funding required for Years 4 and 5 would each be similar to Year 3.

Aims

Expected outcome

Knowledge transfer

Tasks and Milestones

References

Study design

Methodology

Biometrician's Endorsement

required

Data management

No. specimens

Herbarium Curator's Endorsement

not required

Animal Ethics Committee's Endorsement

not required

Data management**Budget****Consolidated Funds**

Source	Year 1	Year 2	Year 3
FTE Scientist			
FTE Technical			
Equipment			
Vehicle			
Travel			
Other			
Total			

External Funds

Source	Year 1	Year 2	Year 3
Salaries, Wages, Overtime			
Overheads			
Equipment			
Vehicle			
Travel			
Other			
Total			