Progress Report SP 2019-029

Investigation into the decline of Chuditch (*Dasyurus geoffroii*) in the south-west of Western Australia

Animal Science

Project Core Team

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Project status as of July 27, 2022, 10:16 a.m.

Update requested

Document endorsements and approvals as of July 27, 2022, 10:16 a.m.

Project Team	required
Program Leader	required
Directorate	required

Investigation into the decline of Chuditch (*Dasyurus geoffroii*) in the south-west of Western Australia

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Context

Comprehensive information about the distribution, abundance and genetic diversity of the chuditch in Western Australia is lacking. Information to date has largely been captured using Western Shield monitoring, and while this has provided some data for selected locations, the monitoring sites and methods used are designed to capture information on a range of species. Consequently, captures of chuditch are often sparse and monitoring is not comprehensive across its distribution. Analysis of Western Shield data suggests that there has been a significant decline in the relative abundance of chuditch in the period 2013-17. However, inconsistent trap effort in some years may have confounded this result. Further analyses suggested that the currently sparse data could not provide reliable population size estimates for the species. This project will undertake targeted surveys in poorly sampled areas to fill information gaps using an approach specific to chuditch. Concurrent DNA sampling will improve an understanding of the genetic structure across the entire species range. The information gained will help to inform decisions both in relation to the effective conservation management of chuditch, as well as sourcing animals for translocations to ensure newly established populations are genetically diverse and representative of the species.

Aims

- Evaluate survey and monitoring methods to improve future assessments of population change in chuditch.
- Improve knowledge on the distribution of the chuditch by undertaking targeted surveys in areas poorly sampled, and on the margins of its known range.
- Undertake concurrent DNA sampling to improve understanding of the genetic structure across the entire species range, and to identify source populations for translocations.
- Compile and interrogate all data to help identify potential processes influencing population change in chuditch.

Progress

- Several sites were surveyed in 2021/22 within the South Coast, Goldfields, Swan, Warren, Wheatbelt and South West regions.
- Captures were significantly higher using an approach specific to chuditch (including using chicken instead of universal bait) compared to captures when traditional Western Shield methods were used.
- Chuditch were captured at Ravensthorpe, Cocanarup, Tone-Perup, Dryandra, Batalling and Jarrahdale, but not at Peak Charles, Ex Jaurdi Station nor Helena and Aurora Ranges.
- Ravensthorpe and Jarrahdale yielded the lowest captures, and Dryandra, the highest.
- Tissue samples for genetic analyses were collected at Ravensthorpe, Cocanarup, Batalling, Dryandra, Tone-Perup and Jarrahdale.
- A PhD project has been investigating the use of a camera trap approach to monitoring chuditch.

Management implications

- Knowledge on the current distribution of chuditch has been improved, though further surveys are needed to define the eastern extent of the species' range.
- Survey data collected to date will facilitate improvements in chuditch population estimates to inform the current conservation status of the species.
- Results of genetic analyses will inform population management, including future translocations to ensure newly established populations are genetically diverse and representative of the species.

Future directions

- Further surveys will be undertaken to define the eastern extent of the species' range. Proposed sites in 2023 include Dragon Rocks and Lake Magenta Nature Reserves.
- Repeat surveys using consistent and chuditch-specific methods to robustly estimate population size at all sites will be undertaken to robustly estimate population trends across the state.
- Analysis of tissue samples to determine genetic structure will be completed.