GISERA
Gas Industry Social and Environmental Research Alliance

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TERRESTRIAL BIODIVERSITY FACTSHEET

Biodiversity impacts from roads and pipelines in the Beetaloo Sub-basin

This project will investigate how roads, pipelines and other transport infrastructure may impact biodiversity in the Beetaloo Sub-basin during the proposed development of an onshore gas industry.

KEY POINTS

- The Scientific Inquiry into Hydraulic Fracturing in the Northern Territory concluded that without mitigation efforts, there would be an unacceptable level of risk to biodiversity from road and pipeline corridors and fragmentation of habitat.
- The flora and fauna of the northern savannas is unique, and the way it responds to new linear transport infrastructure may differ from other areas of the world.
- In order to work out the optimum ways to mitigate risk and protect the biodiversity of the Beetaloo Sub-basin, more research on habitat fragmentation needs to be undertaken.

This project will investigate how roads, pipelines and other transport infrastructure may impact biodiversity in the Beetaloo Sub-basin.

The Beetaloo Sub-basin

The Beetaloo Sub-basin lies southeast of Katherine in the Northern Territory and spans an area of about 30,000 square kilometres. One of the most promising areas for shale gas production in Australia, it contains an estimated resource of 178,200 petajoules (PJ) of gas.

If an onshore gas industry is developed in the Beetaloo, one major environmental impact will be from the construction or extension of roads and pipelines. New infrastructure may lead to habitat fragmentation - the division of one large, continuous habitat into many smaller, separated ones.

Conducting research to inform decision making

There is currently no information available regarding the effects of habitat fragmentation on the fauna and flora of the Beetaloo Sub-basin.

This project will address that knowledge gap and obtain new scientific information about fragmentation and other impacts to biodiversity that might arise from infrastructure development.

This knowledge will support informed decision making across industry and government to reduce risks to biodiversity while facilitating development.

MORE INFORMATION

- More about **the project**
- Scientific inquiry **final report**
- About the **Beetaloo Sub-basin**

CSIRO · Australia Pacific LNG · QGC · origin · Santos · NSW Government · Australian Government Department of Industry, Science, Energy and Resources · Supported by Government of South Australia · Queensland Government · Northern Territory Government · Pangaea Resources Pty Ltd

Identifying sites for fieldwork

The study area for the project research overlaps with areas of high gas prospectivity and is likely to undergo the most immediate and extensive road construction, should onshore gas development proceed.

Additionally, the area contains a wide range of vegetation communities - including some that have been identified as potentially 'at risk' from fragmentation. These communities, which include lancewood and bullwaddy woodland, open forest and thickets, provide seasonal refuges for wildlife and rely on large patch sizes to provide resilience to wildfire.

Once the initial work has been done to identify suitable field sites within the area, and relationships have been established with land managers and traditional owners, the project will consist of four distinct modules:

Patch mosaics and edge effects

Patch mosaics is the term used to refer to the size and degree of isolation of patches of habitat within a larger landscape. Edge effects refer to the changes that occur along the boundary that a habitat shares with open vegetation (rather than with other intact habitat). Both of these processes can have significant impacts on biodiversity.

The first module of the study will examine how key components of the region's biodiversity – such as vascular plants, lizards, birds, and microbats – are influenced by patch mosaics and edge effects. Scientists will compare how many and what species are found in patches of differing size and with different levels of fragmentation.

The Beetaloo Sub-basin contains a wide range of vegetation communities, of which some are potentially 'at risk' from fragmentation.

Roads and pipelines as barriers to movement and sources of reduced plant growth and animal mortality

The second module of the project will study the movements of several wide-ranging species of animal. The choice of species will depend on the outcomes of the first module but potential candidates include insect-eating bats, ground-dwelling birds and lizards.

Scientists will assess how transport infrastructure influences animal movement, and whether factors like road width, traffic volumes, and disturbance levels have an impact on biodiversity through road mortality of animals and through dust impacting on growth and survival of vascular plants.

The aim is to understand existing impacts in order to forecast what changes may occur with an extended road network.

Connectivity map of the study area

Module three will combine the new information from modules one and two with established mapping techniques to develop a connectivity map for the study area in the Beetaloo Sub-basin.

The map will show the distribution of 'at risk' habitat within the study area, which will then be combined with information about existing and proposed new roads and pipelines. This will allow scientists to identify any habitat linkages or wildlife corridors that may be placed at risk by new infrastructure.

Mitigation measures

The final stage of the project will be to use all the information gathered to develop a toolbox of mitigation techniques that can reduce the risk to biodiversity from the development of roads and pipelines.

These mitigation measures will be used to address the recommendations from the Inquiry into Hydraulic Fracking in the Northern Territory, and will be presented for consideration by the regulator.

FREQUENTLY ASKED QUESTIONS

What is the timeline for the project?
January 2021 to May 2022.

When will the results be available?
Mid-2020.

Who is funding the project?
This project is co-funded by the Australian Government and the Northern Territory Government (72%); CSIRO (25%); and by Origin Energy, Santos and Pangaea Resources (3%).

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