

Koala genome data released in push to protect vulnerable species

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Access to genetic data will help scientists find ways to make the koala more resilient to climate change. Credit: Pixabay

Scientists at the University of Sydney's Australasian Wildlife Genomics Group have loaded the entire genomes of 116 koalas to the public domain to accelerate vital genomic research to support the threatened species.

This comes just three years after the [first full reference genome](#) of the koala was published thanks to joint work by the University of Sydney and Australian Museum.

Over the coming months 450 genomes will be made available on servers provided by Amazon Web Services, which is actively supporting the vital genomic research by covering the storage and downloads costs associated with hosting a large dataset in the cloud.

Scientists will be able to access the data through any web browser and use it to investigate key questions relating to the interplay between koala genetic diversity and disease, reproduction, the food they eat and how they will be able to adapt to a changing climate.

Program co-investigator Dr. Carolyn Hogg from the School of Life and Environmental Sciences at the University of Sydney said: "This project is developing a genome survey map for koalas across their range. We can use the information to discover and protect those populations that have important genetic variants, which are essential for koalas to be able to adapt to a changing environment.

"By collaborating with AWS Open Data Sets we are able to make the data publicly available as soon as we have sequenced the samples to help accelerate research for this iconic species."

Iain Rouse, AWS ANZ country director for the public sector, said: "The University of Sydney's koala genome library project is an incredible example of how cloud technology and [open data](#) can accelerate the processing of research data from weeks to hours, and enable Australian researchers to collaborate on insights with the global conservation community to speed up research outcomes.

"It would be a tragedy if Australia lost an animal as iconic as the koala. We're proud that the AWS Open Data sponsorship program has enabled, not only the fantastic work of Dr. Carolyn Hogg and the University of Sydney team, but is also making data more accessible here at home and overseas, which will accelerate outcomes for koalas and other at-risk

species."

Announced in February 2021, the program received \$674,000 in funding from the NSW Government and \$348,450 from the Commonwealth Government.

Federal Minister for the Environment Sussan Ley said the program was part of an \$18 million investment in koala initiatives by the Morrison Government.

"As the Threatened Species Committee reviews the protection status for koalas and as we work to map populations and restore habitat, the University of Sydney research team is sharing data so that others in the scientific community can help provide new insights to help unlock information about the health and resilience of koala populations," Minister Ley said.

NSW Minister for Jobs, Investment, Tourism and Western Sydney Stuart Ayres said this important milestone would accelerate research and take koala conservation efforts to the next level.

"Stimulating and supporting cutting-edge research is a vital part of solving environmental challenges today and into the future," Mr Ayres said.

"The NSW Government is proud to support the protection of koalas through this collaboration between research and industry, which will enhance the state's bioinformatics capability and give researchers open access to important data."

NSW Chief Scientist & Engineer, Professor Hugh Durrant-Whyte, said: "There is currently limited information on the population density, genetic diversity and health status of koalas in NSW. This research is an

important first step towards doubling the NSW koala population by 2050."

The koala is facing increased threats from land clearing, climate change, disease and limitations to the species' [genetic diversity](#) to adapt.

The genomic work at the University of Sydney, led by Dr. Carolyn Hogg and Professor Kathy Belov, is part of a broader program to map the genomes of over 50 [threatened species](#) as part of the Threatened Species Initiative.

Professor Belov said next year the program will focus on other species' genomes, including the bilby, numbat and the extinct in the wild [Christmas Island skink](#).

Provided by University of Sydney

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