



BACKGROUND

The Tasmanian devil is the world's largest surviving marsupial carnivore and is now only found in the wild on the Australian island State of Tasmania. Once found on the mainland, it is estimated to have died out there between 400-600 years ago.

Regarded as common a little over a decade ago, the species has suffered a major decline over the last 10 years and is now listed as Endangered at a State and National level.

An unusual infectious cancer known as Devil Facial Tumour Disease (DFTD) is the major reason for the species decline.

The Save the Tasmanian Devil Program, a joint initiative of the Tasmanian and Commonwealth Governments was established in 2003 to respond to the disease threat.

The first signs of what we now know as Devil Facial Tumour Disease were recorded in 1996. It's a new and fatal condition, only recorded in Tasmanian devils, that is characterised by cancers around the mouth and head.

The Save the Tasmanian Devil Program's primary goal is the long term survival of the Tasmanian devil in the wild as an ecologically functioning species.

The Program coordinates research from institutions around Australia and overseas. These have included Sydney University, CSIRO, Queensland University and the University of Tasmania, to name a few.

The Program is focussed on the areas of:

Population Monitoring: gathering data in the field from a scientifically based capture and release program using traps specially designed for Tasmanian devils. The data is used to identify things such as where the disease is and isn't occurring, its persistence in populations and its impact on population structure where it is occurring.

As at February 2010, the Tasmanian devil population has decreased by approximately 80%. DFTD has been recorded across more than 60% of the State, spreading between seven to 20km westerly per year (depending on the habitat). To date, there has not been any evidence of DFTD found in the far north-west of Tasmania.

Disease diagnostics: At the Animal Health Laboratories (AHL), Tasmanian Department of Primary Industries, Parks, Water and Environment scientists have collected and analysed blood, tissue and tumour samples from hundreds of Tasmanian devils, allowing a growing understanding of the nature and origin of Devil Facial Tumour Disease (DFTD). Through this work, and the work of collaborators, we now know the tumour is of nerve cell origin and is spread between devils by direct cell transfer. The initial published work in the November 2006 editions of *Veterinary Pathology* and *Nature* established these facts.

Recently published work in *Science* (2010) confirms the possible nerve cell origins of the tumour using genetic techniques. Other genetic work undertaken by the AHL has shown a continuing genetic evolution of the tumour and unravelling the significance of this finding is an ongoing part of our work.

AHL's diagnostic work continues on a daily basis supporting many aspects of the Save the Tasmanian Devil Program (E.g. disease suppression, captive animal health monitoring and treatment trials) and has facilitated the establishment of a data base of information and tissue archive of DFTD cases for many ongoing projects and future work. They are also developing much better tools for tumour diagnosis and assessment of health in Tasmanian devils.

Wild management: Since 2006, scientific officers have been removing diseased Tasmanian devils from the geographically isolated Forestier-Tasman Peninsula in an attempt to contain the impact of DFTD. The Tasman Peninsula was chosen because its physical geography minimises the entry and exit of animals, offering an opportunity to create a disease-free region.

Results, as at December 2009, suggest that this work has not led to the local eradication of the disease.

The project's effectiveness may have been influenced by the possibility that infected devils are passing on DFTD before they're being trapped and removed. A diagnostic blood test that confirms DFTD before the devil develops tumours is currently being validated and could be a major breakthrough for disease suppression.

Another factor influencing the effectiveness of the work may be the presence of a 'cryptic population' of devils – animals that, for whatever reason, are not being caught in standard traps. The cryptic population, which seems to be around 25%, could be acting as a disease reservoir.

The Save the Tasmanian Devil Program is currently trialling alternative trapping patterns and designs to increase the chances of reaching members of the trap-shy cryptic population.

Captive management: An Insurance Population has been established by the Save the Tasmanian Devil Program with devils taken from the wild in parts of the State where there is no evidence of the disease. Those animals were held in quarantine for more than 18 months to ensure that they were not infected with the disease and at the end of 2006 and beginning of 2007 those animals were sent to zoos and wildlife parks on the mainland of Australia to ensure they were isolated from wild devils. These animals formed the basis of a captive breeding program that can be used to re-establish populations. There are currently more than 200 Tasmanian devils in the Insurance Population, which are being managed at facilities across Australia, as well as in Tasmania.

The Program is looking at a range of measures to enhance this Insurance Population, including large Free Range Enclosures (FREs), fencing off areas of Tasmania to protect populations and introducing them to islands off the coast of Tasmania.

An insurance strategy to guide this Program has been developed jointly by the Department of Primary Industries, Parks, Water and Environment and the Zoo Aquarium Association, which represents many Australian zoos and wildlife parks.

For detailed information on all the latest research and newsletters please visit www.tassiedevil.com.au

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