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Could the Thylacine Still Exist in Nature?

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Abstract
The thylacine is a carnivorous marsupial which is considered to be extinct, with the last known member of the species dying in 1936. It has captured the interest of cryptozoologists due to sighting reports which continue to arise to this day. The likelihood of its existence in nature today is discussed in this article, by considering the anatomy of the thylacine and its ability to survive in the wild, as well as the reasons for the rapid reduction in the thylacine population since the 1800s.

Keywords: *Cryptids; Biology; Animals; Evolution; Extinction; Thylacine*

Introduction
The thylacine (*Thylacinus cynocephalus*), also known as the Tasmanian Tiger, is a mammal that belongs to the marsupial group alongside kangaroos, wallabies, and the Tasmanian Devil. However, the thylacine has a wolf-like appearance that closely resembles members of the Canid family which includes dogs, wolves, and foxes [1].

The thylacine has captured the interest of cryptozoologists, due to it being one of the more plausible of the cryptids, which are animals whose existence or survival is disputed, with some of the most famous being the Loch Ness monster, Bigfoot, and the yeti. The thylacine became extinct fairly recently, with the last known member of the species dying in 1936. With sighting reports appearing annually from people such as park rangers as well as curious members of the public, the thylacine's present survival continues to be a topic of speculation.

Physical features and evolutionary history
The thylacine is phenotypically almost indistinguishable from Canidae, except for the females having a pouch to carry young, which is characteristic of marsupials, and the striped pattern on its hindquarters. Canids and the thylacine diverged evolutionarily around 160 million years ago, and so this similarity is treated as an example of convergent evolution [2].

The carnivorous marsupial possessed short, dense sandy brown fur and ranged from 100-130 cm in length, which includes a tail of length 50-65 cm [3]. Thylacines weighed 25 kg on average and had both canine and molar teeth with a jaw that could open up to nearly 90 degrees [1].

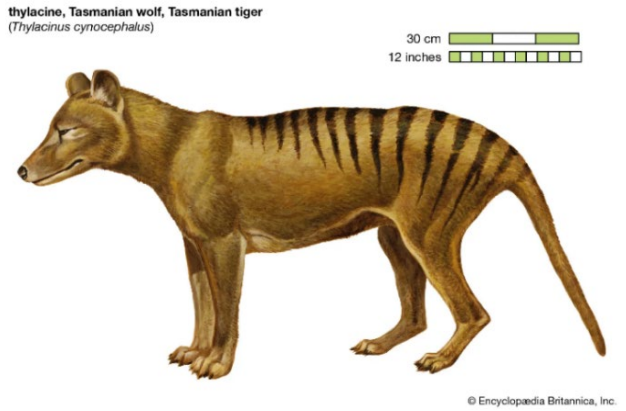

Figure 1 – Drawing of the thylacine with reference scale. Taken from [3].

Causes of the reduction in the Thylacine population
Thylacines became extinct from mainland Australia around 3000 years ago, where it was more difficult for the animal to find an ecological niche [2]. This is believed to be primarily due to competition between thylacines and dingoes for the same prey as well as through direct confrontation, with dingoes having an anatomy which is better at dealing with the stresses of killing larger prey [4]. Thylacines were bigger than dingoes and therefore had greater energy needs.

The hunting of thylacines by humans was also likely involved in thylacines becoming extinct [5]. At the time of extinction from mainland Australia, it is estimated that a population of 5000 thylacines lived on the island of Tasmania [6].

The thylacine population in Tasmania reduced significantly after the arrival of European settlers in the early 1800s. The species was identified as a threat to the sheep industry in Tasmania, and so the government enforced a bounty of £1 for each thylacine that was killed. From 1888 to 1909, more than 2000 bounties were paid by the government [5].

Research from Dr. Bob Paddle [7] suggests that thylacines were majorly affected by an epidemic disease brought along by humans in the 1800s [2]. The effects of the disease can be seen from examination of individuals in captivity at the time, who lived less than half as long as usual, and the disease especially affected juveniles. The effect on wild thylacines is argued to be similar to that of those in captivity.

The last known thylacine died in Hobart Zoo in 1936 [6] and the species was declared extinct by the International Union for Conservation of Nature (IUCN) in 1982 [8].

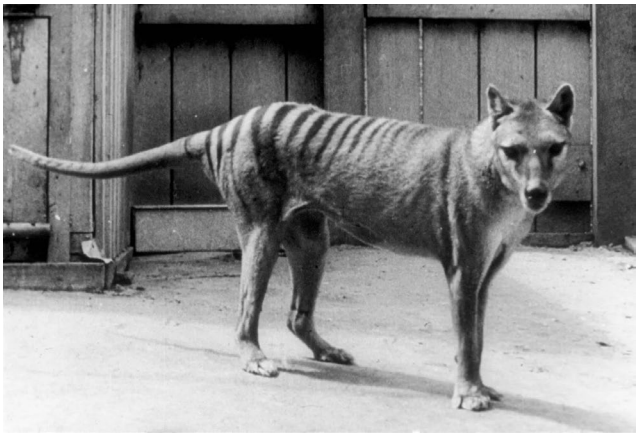

Figure 2 – The last known living thylacine at Hobart Zoo, Australia. This individual died in 1936. Taken from [3].

Reasons for a lack of substantiated evidence

The island of Tasmania has a size of 64,000 km² with a large amount of uninhabited and rarely visited areas, particularly in the west and south-west [9]. About 40% of Tasmania is protected reserves, and so the area is not particularly well-explored and there is a lack of roads in some areas making it hard to travel [9]. Thylacines are shy and timid animals that have rarely been known to show aggression to humans, and so it would be unlikely for someone to come across one in the wild even if the population was larger [10].

Proposed ecological niche

Thylacines struggled to find an ecological niche on the mainland of Australia, primarily due to competition with dingoes aiming to fill the same niche, but there is no evidence to suggest that the dingo ever existed in Tasmania [11]. If there were any thylacines remaining in Tasmania after the termination of the government bounty program in 1908 [1], then the likelihood of their survival would have been much higher than in previous years.

Therefore, there is a chance that thylacines continue to survive deep in the uninhabited areas of Tasmania, surviving on smaller prey, but this is highly improbable. Due to the lack of substantiated evidence, it is reasonable to conclude that the thylacine is most likely extinct.

Conclusion

It is likely that the thylacine continued to exist in the wild for a while after the last known member of the species died in 1936, possibly into the 1950s. Unfortunately, the chances of them still existing now with no substantiated evidence is extremely low. Despite them no longer being hunted by humans, the epidemic would have continued to be a severe hindrance to the thylacine's ability to survive.

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