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Tasmanian devil behavioural adaptations

Tasmanian devil habitat. Tasmanian devil behavior characteristics. Tasmanian devil attacks. Adaptations of a tasmanian devil. Tasmanian devil behavioral adaptations.

The Tasmanian devil is a carnivorous marsupial endemic to the island of Tasmania. Once found across mainland Australia, it became extinct there around 3,500 years ago. This animal is closely related to quolls and distantly related to the thylacine. It has a distinctive black fur, a pungent odour, and an extremely loud screech. The Tasmanian devil's head and neck structure enable it to possess one of the strongest bites per unit body mass among extant predatory land mammals. They primarily hunt prey and scavenge on carrion, with individuals occasionally gathering in communal locations to eat and defecate together. Despite its stout appearance, this animal is capable of surprising speed and endurance, and can climb trees and swim across rivers. The species does not exhibit monogamous behavior; males engage in fights for females and guard their partners against infidelity. Female devils have the ability to ovulate three times in as many weeks during mating season, with 80% of two-year-old females observed to be pregnant annually. These animals typically average four breeding seasons per life span, giving birth to 20-30 live young after a gestation period of three weeks. The newborns are pink and weigh around 0.20 g at birth, with only four nipples available in the pouch leading to fierce competition for resources. After about 100 days in the pouch, the young devils are ejected weighing approximately 200 g. The Tasmanian devil, a carnivorous marsupial, was first described by naturalist George Harris in 1807. Initially believed to be an opossum due to its bear-like features, the species was later classified as Sarcophilus harrisii in 1841. The name change occurred after initial misnaming of the common wombat. Early explorers referred to the Tasmanian devil as "Beelzebub's pup" due to its far-reaching vocalizations at night. The genus Sarcophilus comprises three species, with two fossil species: S. laniarius and S. moomaensis. Phylogenetic analysis indicates a close relationship between the Tasmanian devil and quolls. The devil's peculiar gait is thought to have originated from ancestral adaptations for climbing trees to acquire food. The lineage of the Tasmanian devil is believed to have emerged during the Miocene epoch, around 10-15 million years ago, when severe climate change led to mass extinctions in Australia. The ancestors of quolls and thylacine survived by adapting to a cold, dry environment, with the devil lineage possibly emerging as a scavenger to dispose of carrion left behind by the selective-eating thylacine. An intermediate species between quolls and devils, Glaucodon ballaratensis from the Pliocene age, has been identified. A jawbone found in the Jenolan Caves Fossil suggests a link between the Tasmanian devil and mainland Australia. The Tasmanian devil's evolutionary history dates back to the Miocene era in limestone caves of South Australia, where fossils of S. laniarius were found, measuring around 15% larger and 50% heavier than modern devils.[15] Older specimens believed to be 50-70,000 years old were discovered in Queensland and Western Australia.[16] It remains unclear whether the modern devil evolved from S. laniarius or coexisted with it. Large bones attributed to S. moornaensis have been found in New South Wales, suggesting that these two extinct larger species may have hunted and scavenged together.[16] Several genera of thylacine existed millions of years ago, ranging in size, with the smaller ones relying more on foraging.[17] The extinction of co-existing thylacine genera has been cited as evidence for a similar history for devils.[18] It is speculated that the smaller size of S. laniarius and S. moornaensis allowed them to adapt to changing conditions more effectively, potentially surviving longer than corresponding thylacines.[18] Human habitation of Australia around 10,000 years ago has been mooted as a possible cause for the extinction of these species.[19] Critics argue that indigenous Australians' hunting methods and land clearance are unlikely to have caused a critical fall in numbers. Scientific reports suggest that Aborigines preferred herbivore meat over carnivores, while climate change brought on by the most recent ice age is another theory.[19] The Tasmanian devil's genome was sequenced in 2010, revealing 14 chromosomes like all dasyurids.[22] Devils have low genetic diversity compared to other Australian marsupials and placental carnivores, consistent with a founder effect. Allelic diversity was measured at 2.7-3.3, while heterozygosity ranged from 0.386-0.467.[23] Gene flow appears extensive up to 50 km, but reduces at larger scales (150-250 km). Island effects and population bottlenecks may have contributed to their low genetic diversity.[23] Low genetic diversity has been a characteristic of Tasmanian devils since the mid-Holocene era.[23] Outbreaks of devil facial tumour disease (DFTD) lead to increased inbreeding.[25] A distinct sub-population of devils exists in north-western Tasmania, with some exchange between this group and others.[27] One study revealed 25 different MHC class I domain types across various Tasmanian locations, with a unique pattern in northwestern Tasmania compared to eastern areas.[28] East coast devils have less MHC diversity, with 30% sharing the same type as the tumour (type 1) and 24% being of type A.[28] Conversely, western devils show higher MHC gene diversity, which helps them respond immunologically to DFTD. Mixing devils may increase disease risk according to this research.[28] The study found varying MHC types across different regions in Tasmania, with the eastern half showing generally lower diversity than the west. In the east, Epping Forest had only two MHC types, whereas many western sites exhibited at least eight types, including West Pencil Pine's 15 types.[28] Recent research suggests that wild devils are rapidly evolving resistance to DFTD.[29] The Tasmanian devil is a unique marsupial, with a stout build and large head. Its tail is about half its body length, and its forelegs are slightly longer than hind legs, allowing it to run short distances at speeds of up to 13 km/h (8.1 mph). The species' distinctive white patches on the chest and rump may help draw biting attacks away from vital areas during fights.[31] Males tend to be larger than females, with males averaging a head and body length of 652 mm (25.7 in) and weighing around 8 kg (18 lb). Tasmanian Devils: Anatomy and Physical Characteristics Devils in Western Tasmania Tend to Be Smaller On average, a Tasmanian devil weighs around 6 kg (13 lb). However, devils in western Tasmania are smaller than those found elsewhere. Five Long Toes on Forefeet Allow for Food Handling Tasmanian devils have five long toes on their forefeet, which includes four pointing forward and one to the side. This unique toe arrangement enables devils to grasp food efficiently. Non-Retractable Claws and Stocky Build The hind feet of Tasmanian devils have four toes, and they possess non-retractable claws. Their stocky build contributes to a relatively low centre of mass. Maturity and Lifespan Tasmanian devils reach full growth at two years old. In the wild, few devils live longer than five years. The longest-lived devil on record was Coolah, who lived in captivity for over seven years. Body Fat Storage in Tail Devils store body fat in their tails, and healthy individuals have fat tails. The tail serves as a counterbalance to aid stability when moving quickly. Tail and Locomotion The tail is largely non-prehensile but plays a crucial role in the devil's physiology, social behaviour, and locomotion. Its unique shape acts as a stabilizer during rapid movements. Ano-genital Scent Gland Tasmanian devils have an ano-genital scent gland at the base of their tails, which they use to mark their territory with a strong, pungent scent. Pouch-Like Structure and Testes Male Tasmanian devils have external testes in a pouch-like structure formed by lateral ventrocrural folds of the abdomen. The testes are subovoid in shape, measuring 3.17 cm x 2.57 cm (1.25 in x 1.01 in) on average. Female Pouch and Lifespan The female's pouch opens backwards and remains present throughout her life, unlike some other dasyurids. Powerful Bite and Jaw Structure Tasmanian devils possess the most powerful bite relative to body size among all living mammals. They can exert a canine bite force of 553 N (124 lbf) and generate enough power to bite through thick metal wire. Dietary Adaptations Their teeth and jaws resemble those of hyenas, showcasing convergent evolution. Dasyurid teeth resemble primitive marsupials, with prominent canines and cheek teeth. They have 42 teeth, which grow continuously throughout life at a slow rate. Tasmanian devils have distinctive long whiskers on their face and head that help them locate prey at night and detect other devils during feeding. Their dominant sense is hearing, with a strong sense of smell covering up to 1 km. In low light conditions, they can spot moving objects but struggle to see stationary ones. Unlike other marsupials, Tasmanian devils have a unique ear structure. Historically, they were widespread across mainland Australia but went extinct there about 3,500 years ago, coinciding with the Thylacine's extinction. Proposed causes for their mainland extinction include dingo introduction, human activity intensification, and climatic change. Today, Tasmanian devils inhabit all Tasmania habitats, including urban outskirts, and are found throughout the island's mainland and Robbins Island. They were previously on Bruny Island but became extinct there by 1900. A study suggests reintroducing DFTD-free devils to the Australian mainland could be beneficial due to their lower impact on both livestock and native fauna compared to dingoes. In 2015, 20 immunized captive-bred devils were released into Narawntapu National Park, with a proposal for further releases. Their preferred habitat includes dry sclerophyll forests and coastal woodlands in eastern and north-western Tasmania. Tasmanian devils' habitat modification from destruction is not considered a significant threat. The species is linked to the Dasyurotaenia robusta tapeworm, which is classified as Rare and only found in devils. In late 2020, devils were reintroduced to mainland Australia for the first time in over 3,000 years. By late April 2021, seven joeys had been born in a protected area, with up to 20 expected by the end of the year. Tasmanian devils are nocturnal and crepuscular hunters that rest in the sun during the day. They have been speculated to adopt nocturnalism to avoid predation by eagles and humans. Young devils are predominantly crepuscular and can climb trees up to a height of around 2.5–3 m. Devils can also swim and cross rivers, including icy cold waterways. Tasmanian devils do not form packs, but rather spend most of their time alone once weaned. However, a field study revealed that all devils are part of a single huge contact network, characterised by male-female interactions during mating season, while female–female interactions were the most common at other times. Males rarely interact with each other, and females are territorial around their dens. This allows a higher total mass of devils to occupy a given area without conflict, unlike territorial animals. Devils' home ranges can vary between 4 to 27 km2, with an average of 13 km2, over a period of two to four weeks. The location and size of these areas depend on the availability of food sources like wallabies and pademelons. Devils use specific dens that are secured due to their importance, such as wombats' dens, which serve as maternity dens. These dens are also preferred for dense vegetation near creeks, thick grass tussocks, and caves. Adult devils reuse the same dens throughout their lives. It is believed that some dens have been used for several centuries by different generations of animals. Studies suggest that den security is more crucial than food security, as habitat destruction affecting the latter has had a greater impact on mortality rates. Young pups stay in one den with their mother, while adult devils are mobile, changing dens every 1-3 days and traveling an average distance of 8.6 km per night. However, they can travel up to 50 km per night. Devils prefer lowlands, saddles, and creek banks for movement, avoiding steep slopes and rocky terrain. Their travel distances remain similar throughout the year, except for recently pregnant females who may adjust their movements accordingly. Males spend more time eating than traveling due to their increased food requirements. In areas near human habitation, devils have been known to steal clothing and use them in dens. Devil body temperature regulation is unique, with an ability to maintain a stable temperature between 37.4-38°C (99.3-100.4°F) in ambient temperatures ranging from 5-30°C (41-86°F). However, when exposed to high temperatures and humidity, their body temperature can spike up by 2°C (3.6°F) within 60 minutes but then steadily decrease back to normal after two hours. Contrary to previous studies, devils do not sweat to release heat, instead relying on evaporative cooling as their primary means of thermoregulation. This ability allows them to remain comfortable in a wider range of temperatures than other marsupials. Tasmanian devils' metabolic rate is quite low compared to smaller marsupials but comparable to non-carnivorous ones their size. They use around 712 kJ per day for a 5 kg body weight which equals eating about 170,000 calories daily. Their diet consists mainly of protein and water making up 70% of it with insects giving the most energy at 3.5 kJ per gram consumed. Despite this efficient metabolism, they still eat less than other native carnivores like quolls. In terms of food consumption during different seasons, devils tend to increase their eating from summer to winter but strangely lose weight during that time due to lower fat intake. Their diet is varied and opportunistic including prey up to the size of small kangaroos as well as carrion over live hunting. They can eat a wide range of animals such as wallabies, wombats, sheep, rabbits, birds, fish, fruits, vegetables, insects, tadpoles, frogs, reptiles, and even steal human items like shoes for food before opting for their own natural prey when available. This unusual eating habit was also observed to contribute to the decline of thylacines which shared similar prey preferences with them. Tasmanian devils would have to chase native animals at a moderate pace to find food. They can run up to 10 km/h on several nights per week and cover long distances before resting for half an hour. This indicates that they might engage in ambush predation. Devils also dig to reach buried corpses, including a horse that died from illness. They eat the digestive system first and reside in the cavity while consuming. On average, devils consume 15% of their body weight daily but can eat up to 40% in 30 minutes if they encounter an opportunity. After large meals, they become lethargic and slow-moving. This has led to speculation that such eating habits evolved due to the lack of predators targeting bloated individuals. Devils quickly dispose of smaller carcasses, devouring bones and fur as needed. They have helped Tasmanian farmers by efficiently clearing carcasses and preventing insect-borne diseases. Some devils transport excess food back to their residences for later consumption. Studies at Cradle Mountain have shown differences in diet between male and female devils, with seasonal variations. Males prefer medium-sized mammals over larger ones in winter but switch to larger prey in summer. Females tend to target smaller prey, with a similar seasonal bias. Juvenile devils climb trees to eat grubs, birds' eggs, and small vertebrates and invertebrates. Adults derive 16% of their biomass from arboreal species, mostly possum meat. Subadults consume up to 36% of their intake from arboreal life, with a higher figure for females in winter. The Tasmanian devil's eating habits are unique among carnivores. These animals hunt alone but also feed in groups, which can include up to 12 individuals. The group's behavior is loud and raucous, often audible from several kilometers away. This noise may serve as a form of communication, alerting others to the presence of food. Devils typically follow a system, with dominant animals eating first and fighting off challengers. Devil scats are large, averaging 15 cm (5.9 in) in length, but can reach up to 25 cm (9.8 in). They are typically grey due to the presence of digested bones or bone fragments. The relationship between Tasmanian devils and thylacines was close and complex, with both species competing for prey and shelter. Thylacines preyed on devils, while devils scavenged from their kills and ate thylacine young. Studies suggest that quolls and devils also compete in Tasmania, with quolls evolving into their current state over a relatively short period of 100-200 generations. Devils, meanwhile, have evolved up to 50 times faster than the average evolutionary rate amongst mammals. Female devils breed when they reach sexual maturity, typically in their second year, and produce multiple ova while in heat. Mating takes place in sheltered locations during both day and night, with males fighting over females and dominant males winning mating rights. Females can ovulate up to three times in a 21-day period, and copulation can take five days. Devils are not monogamous, with females often mating with multiple males if not guarded after mating. During the mating season, Tasmanian devils have a brief gestation period that lasts only 21 days, after which they give birth to a large litter of 20-30 young. The newborns are pink, hairless, and have well-developed front limbs with claws. Unlike many marsupials, their claws don't fall off, and they have external scrotums, making it easy to determine sex at birth. The mother's pouch opens to the rear, but she only has four nipples, so competition is fierce for the young as they fight to attach themselves to a nipple and stay inside the pouch for 100 days. Despite the large litter size, up to 60% of young devils don't survive to maturity, with more females surviving than males. In captivity, milk replacements are often used to help orphaned or diseased devil joeys develop quickly inside their mother's pouch. As they grow, their ears and eyes begin to form, but it takes three months for the eyelids to open, although eyelashes appear earlier. The young devils start growing fur at 49 days, with a full coat developing by 90 days, starting from the snout and progressing back through the body. Just before the furring process begins, they are still pink and hairless. Devil Young Development and Life Cycle The colour of devil skin darkens to black or dark grey at the end. Three young devils bask in the sun The devils have facial hair and ulnar carpels but no anconeal vibrissae. In the third week, mystacials form first. The rest follow over the next few weeks. After 87-93 days, their eyes open and at 100 days, their mouths relax around their nipple. They leave the pouch after 105 days, weighing around 200g and looking like small adults. The length of devils doubles between birth and three months old. After being ejected from the pouch, they stay outside but remain in the den for another three months. During this time, females care for their young, often taking them on hunting trips or riding them on their back. Milk is rich in iron, and females do not die while nursing their young. However, many devils do not reach maturity due to various factors. A study found that those who interacted with new experiences while in captivity had better survival rates. The decline of devils on the mainland is unclear but may be linked to climate change and competition with dingoes or humans. Tasmanian devils have been present on the mainland for approximately 3000 years. Brown suggests that the devil's sensitivity to climate changes, specifically El Niño–Southern Oscillation (ENSO), may be a factor in their population decline. In dingo-free Tasmania, carnivorous marsupials like devils and thylacines thrived until European arrival, where habitat disruption led to increased mortality among devils, especially young ones. Cancer is also a common cause of death in devils. A 2008 study found high levels of potentially carcinogenic chemicals in Tasmanian devils, further complicating their survival. The Save the Tasmanian Devil Appeal prioritizes ensuring the devil's survival in the wild, with estimates suggesting a more than 80% decline in population since the mid-1990s, leaving only around 10,000–15,000 individuals remaining as of 2008. Since the devil's disappearance, quolls have been responsible for killing poultry. In the past, hunting possums and wallabies for fur was a significant industry, leading to the continuation of bounty hunting against devils as they were perceived as a threat to the fur trade, despite quolls being more adept at hunting these animals. Over the next century, trapping and poisoning brought devils to the brink of extinction. After the last thylacine's death in 1936, the Tasmanian devil was protected by law in 1941, allowing its population to slowly recover. In the 1950s, with reports of increasing numbers, some permits were granted for capturing devils due to livestock damage complaints. In 1966, poisoning permits were issued, but attempts to deprotect the animal failed. Environmentalists became more vocal during this time, highlighting the exaggerated threat of devils to livestock. The population may have peaked in the early 1970s following a population boom; by 1975, numbers had decreased possibly due to overpopulation and lack of food. Another report of overpopulation and livestock damage emerged in 1987. In 1988, Trichinella spiralis was discovered in devils, causing minor panic before scientists assured the public that 30% of devils were infected but could not transmit it to other species. Control permits ended in the 1990s, with illegal killing persisting at a limited level. Approximately 10,000 devils were killed annually in the mid-1990s. A selective culling program aimed to remove individuals affected by DFTD, which was found not to slow disease progression or reduce animal deaths. A model tested whether culling would help the species' survival and concluded that it wouldn't be a suitable strategy. Motor vehicles pose a threat to localised populations of non-abundant Tasmanian mammals, with devils being particularly vulnerable. Studies have shown that devils are harder for drivers to detect and avoid, requiring a 20% reduction in speed to avoid roadkill. A significant increase in deaths among Tasmanian devils was linked to a newly upgraded road, which had been widened and surfaced with bitumen but lacked proper lighting or wildlife-friendly features. This led to a dramatic rise in roadkill, with most incidents occurring in the sealed section of the road where speeds increased. Experts suggested that the dark surface made it harder for devils to spot cars, especially when hunting for food. To address the issue, various measures were implemented, including traffic calming methods, artificial pathways, education campaigns, and reflective barriers to alert oncoming vehicles. These efforts led to a notable decrease in roadkill. Researchers, such as Menna Jones, also contributed by removing dead animals from the road, reducing devil fatalities. The "Roadkill Project" enabled public reports of devils killed on the road, while solar-powered alarms were tested to warn animals of approaching cars. Separate issue: Devil facial tumour disease (DFTD) has devastated Tasmanian devils, causing tumors to form around their mouth and leading to starvation and death. Trapping devils within a defined area enables researchers to detect the disease and assess its impact over time. This process has revealed severe short-term effects, prompting long-term monitoring to determine whether populations can recover or if these effects persist. Field workers are also testing disease suppression by removing infected devils from wild populations, aiming to decrease prevalence and increase survival rates beyond juvenile years. Scientists have successfully treated devils with the disease using interferon-gamma and MHC-I expression. In 2020, one of the last DFTD-free wild devil populations was found to be suffering from inbreeding depression, leading to a decline in reproductive success. Historical records reveal that Tasmanian devils were hunted for their teeth, which may have contributed to their extinction on mainland Australia. Indigenous Australians and devils shared shelters in Tasmania, with recorded names such as "tarrabah", "poirinnah", and "par-loo-mer-rer". Despite myths about devils eating humans, they generally remain still when encountered and can become tame. However, they are asocial and have an unpleasant odor, making them unsuitable as pets. The study of the Tasmanian devil has undergone a significant transformation in recent decades, from its initial depiction as fearsome and abhorrent to a focus on scientific interest and conservation. Professor Guiler's team began systematic fieldwork on the devil in the mid-1960s, marking the start of modern scientific research. Despite this progress, the devil remained negatively portrayed in tourism material. The first doctorate awarded for research into the devil was granted in 1991. Early attempts at breeding Tasmanian devils in captivity were met with limited success. Mary Roberts successfully bred a pair at Beaumaris Zoo in 1913, but subsequent attempts were less successful. It wasn't until later studies that researchers gained a better understanding of the devil's growth patterns and behavior in captivity. Tasmanian devils have been displayed in various zoos around the world since the 1850s. In recent years, efforts to breed devils outside of Australia have led to collaborations between Australian institutions and international zoos. The Australian government's Save the Tasmanian Devil program has helped increase the devil population in captivity, with many zoos participating in breeding programs. Despite these advances, captive devils often require artificial lighting to simulate their natural nocturnal behavior, rather than being able to follow their natural circadian rhythms. The Tasmanian devil has become a prominent symbol in Australian culture, appearing on commemorative coins and being featured as the state emblem in Tasmania since 2015. The creature has also been used for ecotourism purposes, with studies showing its international popularity and suggesting it should be marketed as a major attraction. However, this focus on the devil led to concerns about its possible extinction affecting tourism. The Tasmanian devil gained global recognition after being featured in the Looney Tunes cartoon character "Taz" in 1954. The character's popularity waned until the 1990s, when it was revived with its own show, Taz-Mania. Warner Bros. trademarked the character and registered the name Tasmanian Devil, leading to a debate between the Tasmanian government and the company. A verbal agreement was reached in which the government would pay an annual fee to Warner Bros. for using the image of Taz for marketing purposes. This arrangement has since disappeared. In 2006, Warner Bros. permitted the sale of stuffed toys featuring Taz with profits going towards research on DFTD, a disease affecting Tasmanian devils. The Linnean Society of London published information about the Tasmanian devil (Sarcophilus harrisii) in the late 18th century. The species was first described by a British naturalist named Harris. Over time, scientists have studied the Tasmanian devil's evolution, classification, and genetic makeup. One study found that the Tasmanian devil is closely related to other dasyuromorphs, such as quolls and bilbies. Another study used DNA sequencing to analyze the species' phylogenetic relationships and found that it is most closely related to a group of dasyurid marsupials called thylacines. The Tasmanian devil's genetic makeup has been studied extensively in recent years due to concerns about its declining population. Researchers have found that the species has low major histocompatibility complex (MHC) diversity, which may make it more susceptible to disease epidemics. This lack of MHC diversity is thought to be a result of European settlement and the resulting changes to the Tasmanian devil's environment. Studies have also investigated the impact of disease on the Tasmanian devil population. Researchers found that the species' genetic structure and dispersal patterns are altered when disease-induced population decline occurs. This suggests that conservation efforts should prioritize reducing the spread of disease in addition to protecting the species' habitat and addressing other environmental factors. The Wellcome Trust Sanger Institute has completed a genome sequence for the Tasmanian devil, which will aid in understanding the species' susceptibility to disease and inform conservation efforts. Overall, continued research is necessary to ensure the long-term survival of this unique and fascinating species. The Tasmanian devil, a carnivorous marsupial found only in Tasmania, is facing significant threats to its population and survival due to a contagious cancer that has ravaged the species. According to research published in 2010, the devil's immune system has been weakened by the cancer, making it more susceptible to disease and increasing the spread of the cancer. Studies have shown that Tasmanian devils are highly social animals that communicate with each other through vocalizations and scent markings. However, their communication skills are being disrupted by the presence of the cancer, which is causing them to become increasingly aggressive towards each other. Conservation efforts are underway to protect the species, including a recovery plan for the devil's MHC genes, which are responsible for its immune system. Researchers have also been studying the effects of the cancer on Tasmanian devil populations and developing strategies to mitigate its spread. Unfortunately, despite conservation efforts, the last Tasmanian devil not born in Australia has died, highlighting the urgent need for continued research and action to protect this unique and fascinating species. Overall, the text highlights the complex social dynamics of Tasmanian devils, their unique biology, and the significant threats they face due to a contagious cancer. It also emphasizes the importance of conservation efforts and research to ensure the long-term survival of this remarkable species. High-quality fossil dates suggest that Tasmanian devils and thylacines went extinct simultaneously on mainland Australia during the Late Holocene era. This finding is supported by multiple studies and provides a clear timeline for the extinction of these marsupials. The Threatened Species Scientific Committee has listed Sarcophilus harrisii (Tasmanian Devil) as a threatened species under the Environment Protection and Biodiversity Conservation Act 1999. In recent years, efforts have been made to conserve Tasmanian devils through captive breeding programs and reintroduction into the wild. For example, in 2015, twenty immunised Tasmanian devils were released into the wild, with two of them unfortunately killed on a road just days after release. Research has shown that life history variation in marsupials is ecologically based, which may have contributed to the extinction of these species. The reintroduction of Tasmanian devils onto mainland Australia for the first time in 3,000 years was celebrated in 2020. Additionally, in 2021, it was announced that Tasmanian devils had given birth in a semi-wild sanctuary on the mainland. Studies have also investigated diet overlap and relative abundance of sympatric dasyurid carnivores, suggesting that competition may have played a role in the decline of these species. Further research is needed to fully understand the ecological and evolutionary factors that led to the extinction of Tasmanian devils and thylacines on mainland Australia. In 2009, researchers conducted a study on the social networks of wild Tasmanian devils to understand how their behavior and interactions may be affected by seasonal changes. The study used social network analysis to reveal patterns in the devils' social behavior, which can impact the transmission of diseases such as devil facial tumour disease. The findings suggest that the devils' social behavior is influenced by seasonality, with changes in their contact networks potentially affecting the spread of disease. This research has significant implications for conservation efforts and understanding the dynamics of this vulnerable species. Additionally, the study highlights the importance of monitoring and studying the Tasmanian devil population to inform conservation strategies. The devils are listed as Endangered on the IUCN Red List, and their populations are threatened by various factors including disease transmission and habitat loss. The research also provides insights into the biology and ecology of the Tasmanian devil, including its reproductive habits, growth rates, and social behavior. These findings can contribute to a better understanding of this unique and fascinating species and help inform conservation efforts. The Tasmanian devil, a carnivorous marsupial, has undergone significant changes in its population and behavior over time. Research suggests that the species may have gone through an ecological regime shift due to disruptions in predator-prey interactions during the Holocene era. Studies have also shown that the devils' extinction on the Australian mainland around 4,000 years ago was likely caused by a combination of factors, including human impact and the introduction of dingoes. Additionally, their population fluctuations may be linked to density-dependent epidemiological processes. In recent times, Tasmanian devils have been affected by a facial tumor disease that has spread rapidly throughout the population. Conservation efforts are underway to protect this unique species, which is an important part of Tasmania's ecosystem. Other research has focused on the devils' diet and nutrition, including their consumption of milk replacers designed for marsupials. The species' behavior towards novelty and translocation success has also been studied in captive-raised individuals. It's worth noting that the text includes a range of references to scientific studies and publications, which are not included in this paraphrased version. PDF reports from the Department of the Environment and Heritage dated July 2006 were retrieved on September 3, 2015. Additionally, various publications and studies have been conducted to understand the Tasmanian devil facial tumour disease (DFTD). These include research by Harris in 1807, Owen and Pemberton, Paddle, Lachish et al., Beeton and McCallum, Hobday, Jones, and Deakin and Belov. Studies have evaluated selective culling of infected individuals to control DFTD, as well as the effectiveness of speed limits in reducing roadkill. The "Roadkill Project" has also been launched to raise awareness about the issue. **Devil Facial Tumour Disease (DFTD)** * DFTD, a cancer-like disease, has been transmitted among Tasmanian devils through biting. * A study found that the transmission rate was higher due to depleted Major Histocompatibility Complex (MHC) diversity in the affected population. **Conservation Efforts** * Researchers have been working on immunotherapy to combat DFTD. * In a 2017 study, immunized Tasmanian devils showed regression of the disease. * Another study found that one of the last wild populations of DFTDs-free devils exhibited inbreeding depression. **Cultural Significance** * The Tasmanian devil has significant cultural and spiritual value to the indigenous Tarabar people. * In 2017, there was a campaign to rechristen native animals with their Aboriginal names. **Conservation History** * A study from 2003 examined the growth and development of captive devils at Healesville Sanctuary. * Another study in 2005 found that wild-caught devils adapted well to captivity, based on physical parameters and plasma cortisol concentrations. * In the early 2000s, there were efforts to raise awareness about DFTD among overseas zoos. Please note that this paraphrased version is a summary of the original text, but it may not contain all the specific details or nuances present in the original article. Tasmanian devils are carnivorous marsupials native to Australia, specifically Tasmania. They have been listed as endangered since 2009 due to threats such as Devil Facial Tumour Disease and habitat loss. Conservation efforts include breeding programs in zoos and sanctuaries, with some institutions successfully raising the animals for release into the wild. Despite their endangered status, Tasmanian devils remain an iconic symbol of Tasmania, featured on various coins, beer labels, and conservation campaigns. Their distinctive appearance and fearsome reputation have made them a popular subject in media, such as films like "Tinga" and appearances in cartoons like the Transformers Beast Wars series. Scientific research has been conducted to understand their behavior, habitat requirements, and reproductive biology, with studies on their pouch development and reproductive status providing valuable insights for conservation efforts. Overall, Tasmanian devils continue to face significant threats, but ongoing conservation work aims to protect these unique animals and preserve their place in Australian wildlife history. A study by McDonald-Madden et al. (2010) published in Ecological Applications explored the concept of active adaptive conservation for threatened species, particularly focusing on the Tasmanian devil as a case study. The research aimed to address the challenges posed by uncertainty in conservation efforts. The Tasmanian devil, Sarcophilus harrisii, is a unique and endangered species found in Tasmania, with specific conservation programs and research initiatives dedicated to its protection.