

Literature Review

1) Zhong, R. (April 14, 2022). Even the Cactus May Not Be Safe From Climate Change. The New York Times. [Even the Cactus May Not Be Safe From Climate Change - The New York Times \(nytimes.com\)](https://www.nytimes.com/2022/04/14/climate/cactus-climate-change.html)

The study published in Nature Plants suggests that even resilient cactuses, adapted to harsh conditions, may face extinction risk due to climate change. By midcentury, 60% of cactus species could be threatened, compounded by existing human-caused dangers like poaching and habitat destruction. The diversity within the cactus family contributes to vulnerability, as certain species are adapted to specific environments. Despite some resilience in the American Southwest, other regions like Brazil and Mexico face significant threats. The study's findings underscore the delicate balance cactuses maintain with their ecosystems and highlight the widespread impact of climate change on cactus communities, particularly in Brazil's diverse drylands.

2) Brusowankin, A. (July 5, 2022). How Plants Adapt to the Desert or Low Water Environments. The Green Planet. [How Plants Adapt to the Desert or Low Water Environments | PBS](https://www.pbs.org/greenplanet/2022/07/05/how-plants-adapt-to-the-desert-or-low-water-environments/)

The text provides an overview of various types of desert plants, their adaptations, water storage mechanisms, growth strategies, and their susceptibility to climate change. Desert plants like cacti, succulents, acacias, mesquite, creosote bush, and yucca have evolved different mechanisms to survive in harsh desert environments, such as water storage in their stems, leaves, or roots, and adaptations to minimize evaporation. These plants face challenges from climate change, including rising temperatures, changes in precipitation patterns, and increased stress, which could lead to declines in plant diversity in desert ecosystems.

3) Byju's, (2020). How Are Cactus Adapted to Survive In A Desert? [How Are Cactus Adapted To Survive In A Desert? \(byjus.com\)](https://byjus.com/biology/cactus-adaptations/)

The text explores the unique adaptations of cacti that allow them to thrive in hot and arid desert environments. These adaptations include modified leaves into spines, shallow and wide fibrous roots to quickly absorb rainwater, deep-layer stomata that open at night to reduce water loss, thick and expandable stems for water storage, a waxy skin to prevent excess evaporation, and a short growing season to conserve water. These specialized features enable cacti to survive in conditions where other plants cannot, making them well-suited to desert ecosystems.