Matrone, Jade

**My Research Question: How have climate change and changing rainfall patterns over the past 18 years affect the mortality of Torrey pine trees, and how can this data be used to predict future tree mortality and conservation strategies?**

**Annotated Bibliography**

**1. The American Midland Naturalist by University of Notre Dame**

**Citation**: University of Notre Dame. (1909-2022). *The American Midland Naturalist*. Notre Dame, IN: University of Notre Dame.

**Summary**: This journal, established in 1909 by Reverend Julius A. Nieuwland, C.S.C., was a broad-spectrum, peer-reviewed publication covering diverse disciplines in biology and natural history. Published by the University of Notre Dame, it provided a platform for basic research across various taxa.

**Relevance**: This journal’s extensive history and broad scope make it a crucial resource for understanding natural history and biology. Its long-standing contributions provide valuable insights and foundational knowledge, aiding in comprehensive research in these fields.

**2. Population Trends and Recruitment Patterns of Pinus Torreyana at the Torrey Pine State Reserve by Elizabeth V. Santos**

**Citation**: Santos, E. V. (Year). *Population Trends and Recruitment Patterns of Pinus Torreyana at the Torrey Pine State Reserve*. [Publisher].

**Summary**: This study focuses on the population dynamics of the rare Torrey pine (Pinus torreyana) at the Torrey Pine State Reserve. It examines the population size, stability, spatial variation, and environmental factors affecting seedling recruitment. [The research provides insights into the conservation efforts needed to protect this endangered species](https://www3.nd.edu/~ammidnat/)[.](https://scholarworks.calstate.edu/concern/theses/bc386m54k)

**Relevance**: The findings are crucial for conservationists and environmental scientists working on preserving rare and endangered species, particularly those endemic to specific regions like the Torrey pine.

**3. Genetic Conservation and Management of the California Endemic, Torrey Pine by Jill A. Hamilton**

**Citation**: Hamilton, J. A., Royauté, R., Wright, J. W., Hodgskiss, P., & Ledig, F. T. (2017). *Genetic Conservation and Management of the California Endemic, Torrey Pine (Pinus torreyana Parry): Implications of Genetic Rescue in a Genetically Depauperate Species*. Ecology and Evolution, 7(18), 7370-7381.

**Summary**: This research explores the genetic conservation and management strategies for the Torrey pine, one of the rarest pines in the world. [The study assesses the evolutionary potential of the species through multigenerational common garden experiments, highlighting the importance of genetic rescue and hybridization to enhance genetic diversity and adaptability to changing environments](https://www.fs.usda.gov/psw/publications/wright/psw_2017_wright001_hamilton.pdf).

**Relevance**: This article is essential for geneticists, conservation biologists, and environmental managers focused on the genetic conservation of rare species and the implementation of strategies to mitigate the impacts of environmental changes.