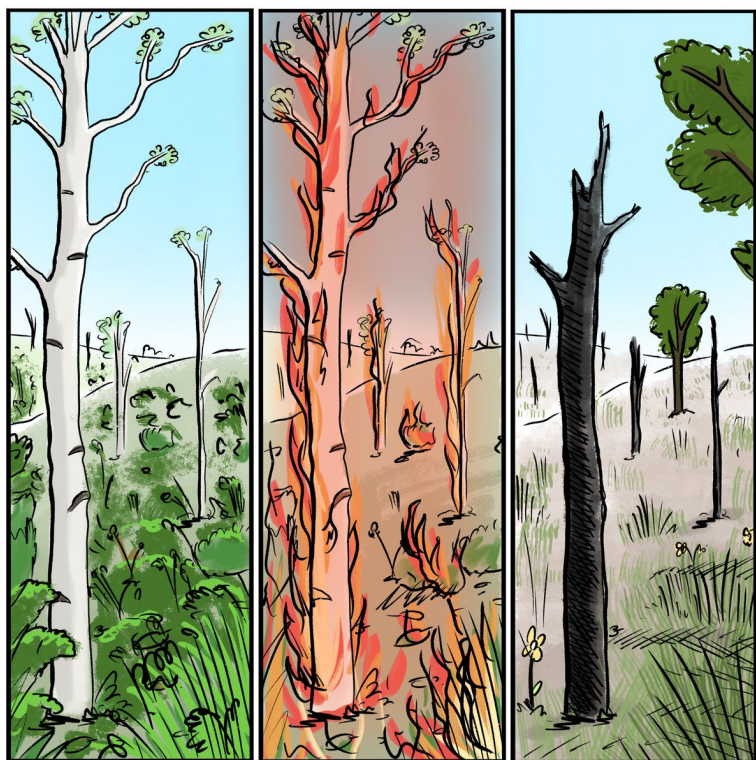


# Managing for RADical Ecosystem Change

## Applying the Resist-Accept-Direct (RAD) Framework

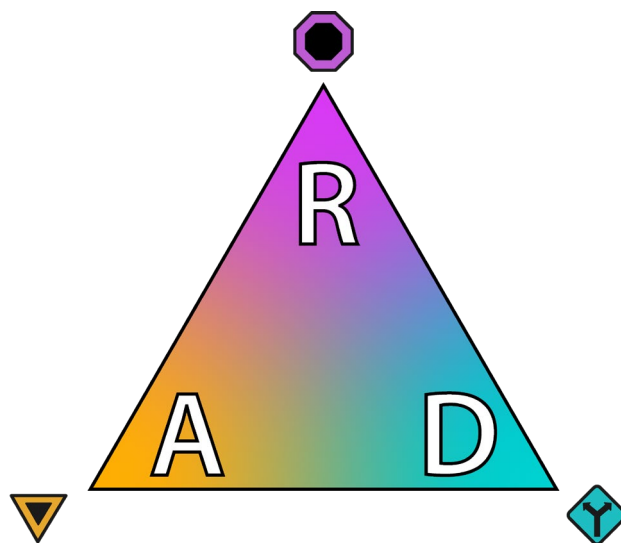
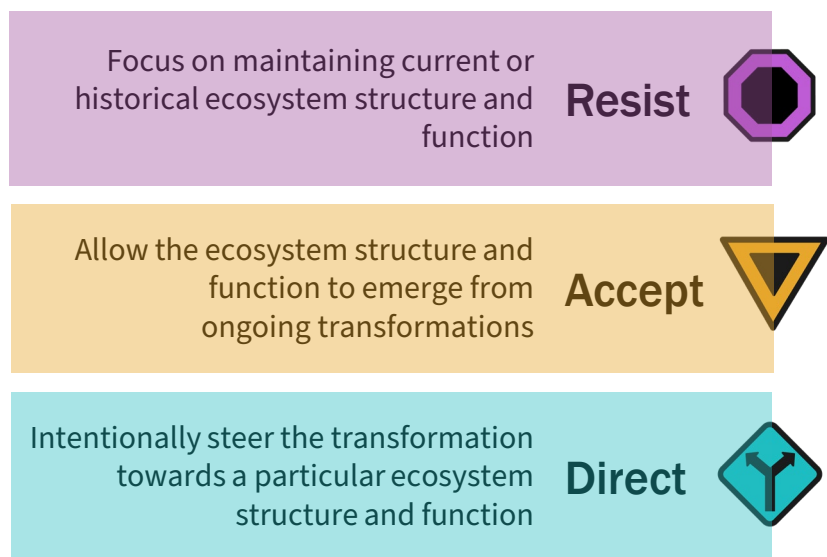


What happens when the future does not reflect the past?

Intensifying global change is propelling ecosystems towards irreversible transformations.

When ecosystem restoration, rehabilitation, or other ongoing practices are increasingly untenable, the **Resist-Accept-Direct (RAD)** framework can help start constructive conversations about what comes next.

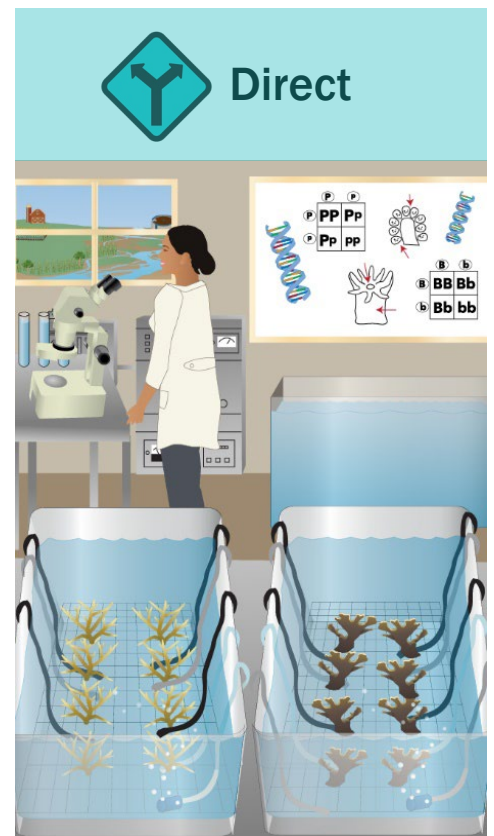
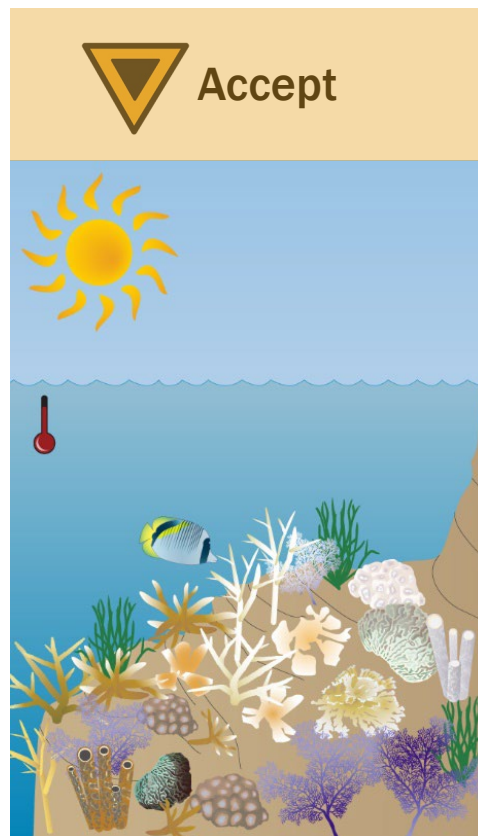
## The Framework



# RAD Case Study

## The Florida Reef Tract

The Florida Reef Tract, the only tropical coral reef system in the continental USA, is transforming due to warming ocean temperatures and other change drivers. It is home to over 500 fish and thousands of invertebrate species and generates US\$6 billion per year in coastal tourism and fishing that are at risk due to system change. **Resisting** transformation is the central management response to the loss of reef-building corals within this ecosystem. Some climate-related mass mortality events and associated shifts in community composition may have to be **accepted** if global sea surface temperatures are allowed to fluctuate outside of historical ranges. Experiments assessing stress tolerance show promise for **directing** change towards hardier corals.



## LEARN MORE ABOUT RAD

 [usgs.gov/casc/rad](https://usgs.gov/casc/rad)

 [casc@usgs.gov](mailto:casc@usgs.gov)

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