

Not all weeds are equal: effects of weeds on biodiversity

The good, the bad, and the ugly

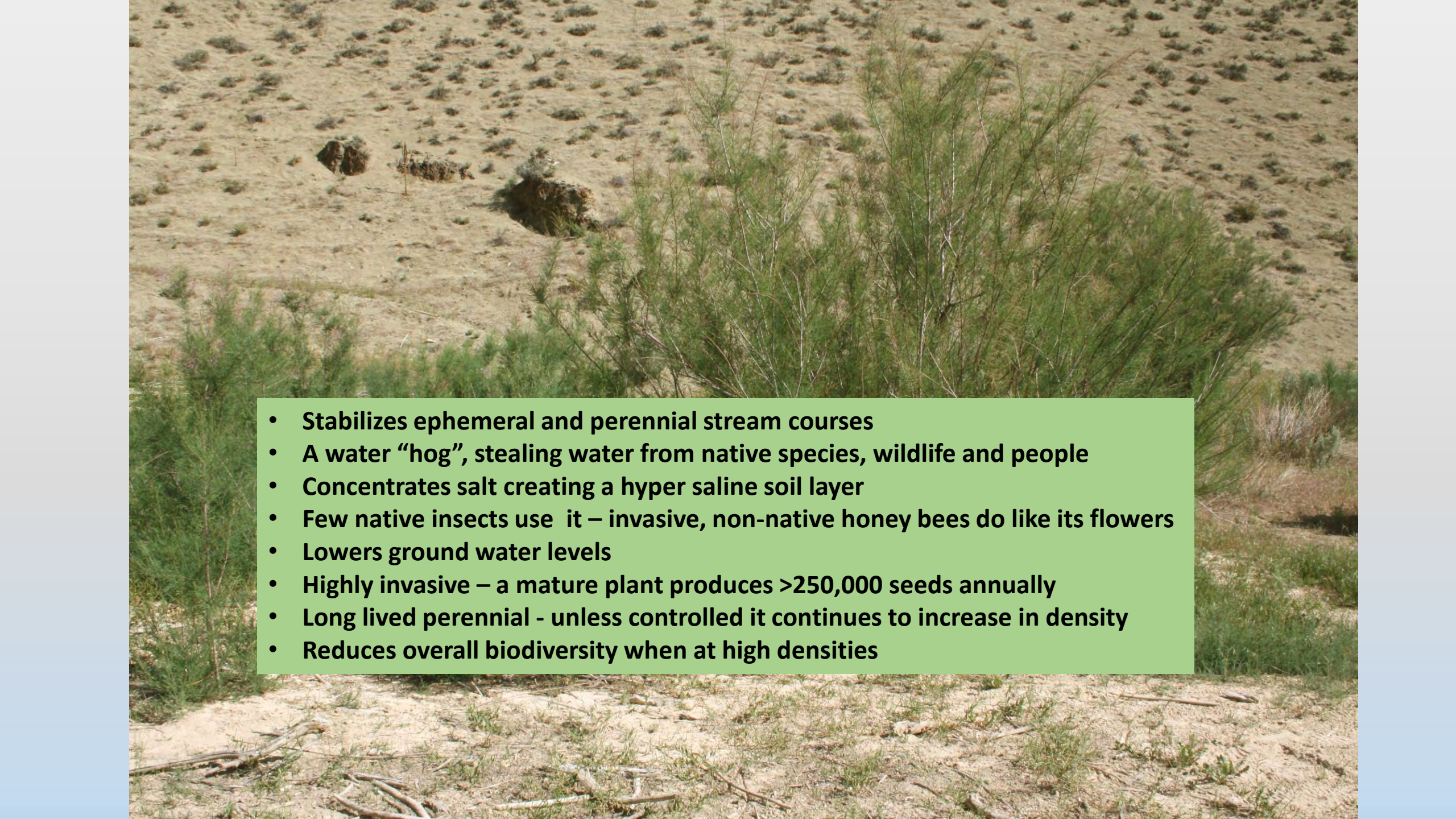
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- **Stabilizes ephemeral and perennial stream courses**
 - **A water “hog”, stealing water from native species, wildlife and people**
 - **Concentrates salt creating a hyper saline soil layer**
 - **Few native insects use it – invasive, non-native honey bees do like its flowers**
 - **Lowers ground water levels**
 - **Highly invasive – a mature plant produces >250,000 seeds annually**
 - **Long lived perennial - unless controlled it continues to increase in density**
 - **Reduces overall biodiversity when at high densities**









UGA1265107

1996

Image U.S. Geological Survey

Google Earth

2006

Image © 2017 DigitalGlobe

Google Earth

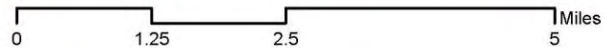
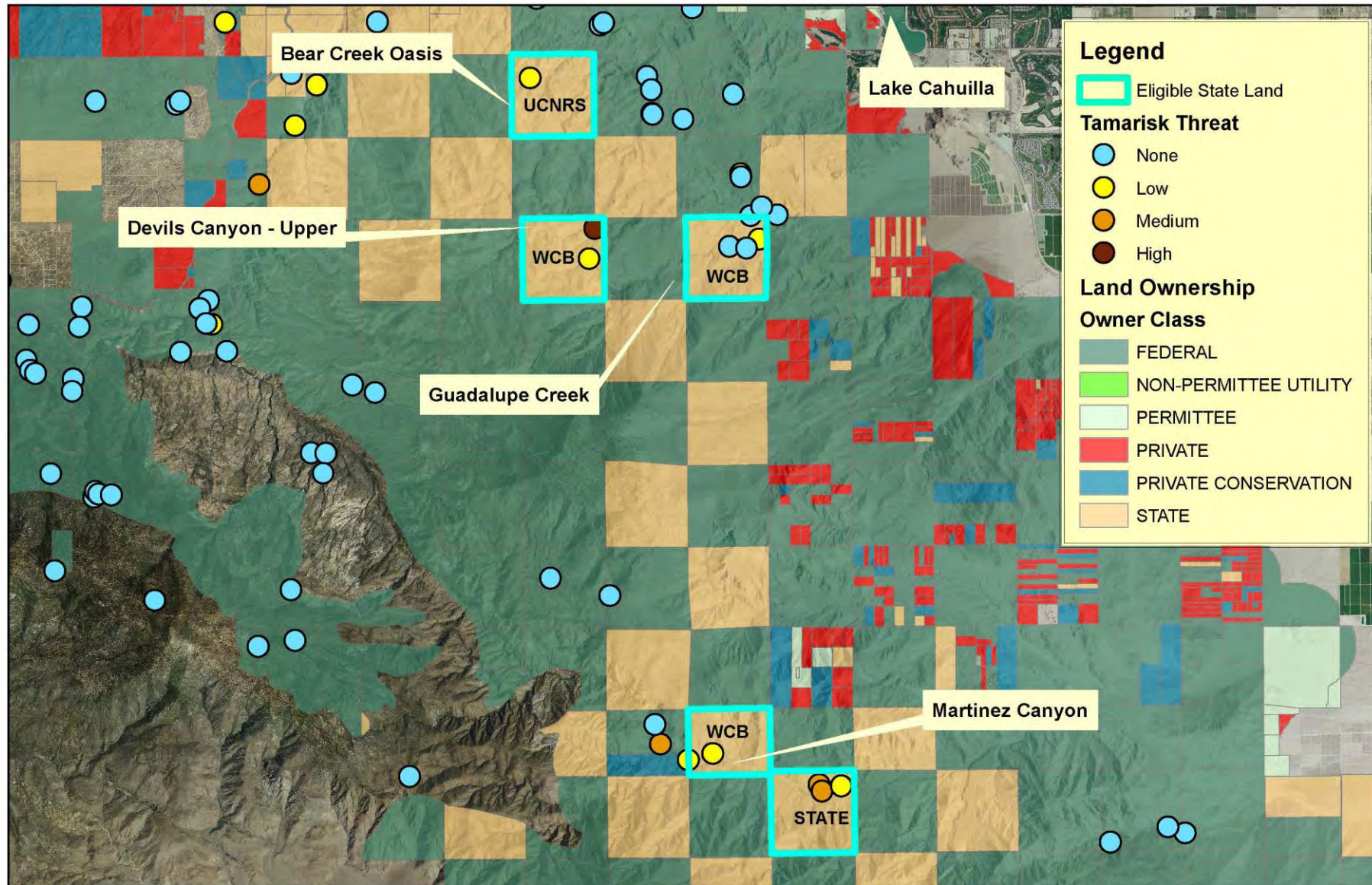
2017

Google Earth



Figure 3:

Santa Rosa Mountains State Lands with Invasive Species Threats - Bear Creek Oasis to Martinez Canyon









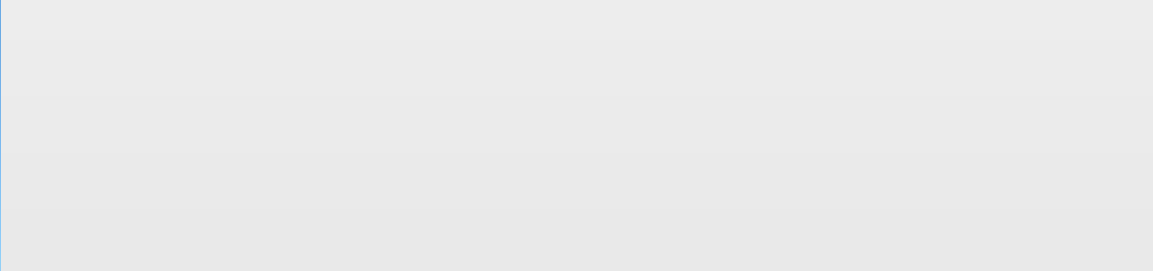




- **Endangered Fringe-toed lizards thrive when the thistle is at moderate densities**
- **No evidence of any permanent loss of biodiversity.**
- **Only reaches high densities following rare weather events (hurricanes)**
- **Short-lived annual that declines without management in between hurricanes**

- **Losses of biodiversity at all levels when the mustard is at moderate to high densities**
- **Stabilizes dunes for 2-3 years following initial germination year**
- **Highly invasive**





Barrows, C.W., E.B. Allen, M.L. Brooks, and M.F. Allen. 2009. Effects of an invasive plant on a desert sand dune landscape. *Biological Invasions* 11:673-686.

Invasion in desert sand habitats

Hulton, H.L., A.M. Hansen, C.W. Barrows, Q. Latif, M.W. Simon, and K. E. Anderson. 2013. Shifts in arthropod community structure during an invasion of desert ecosystems by Sahara Mustard (*Brassica tournefortii*). *Biological Invasions* DOI 10.1007/s10530-013-0616-7

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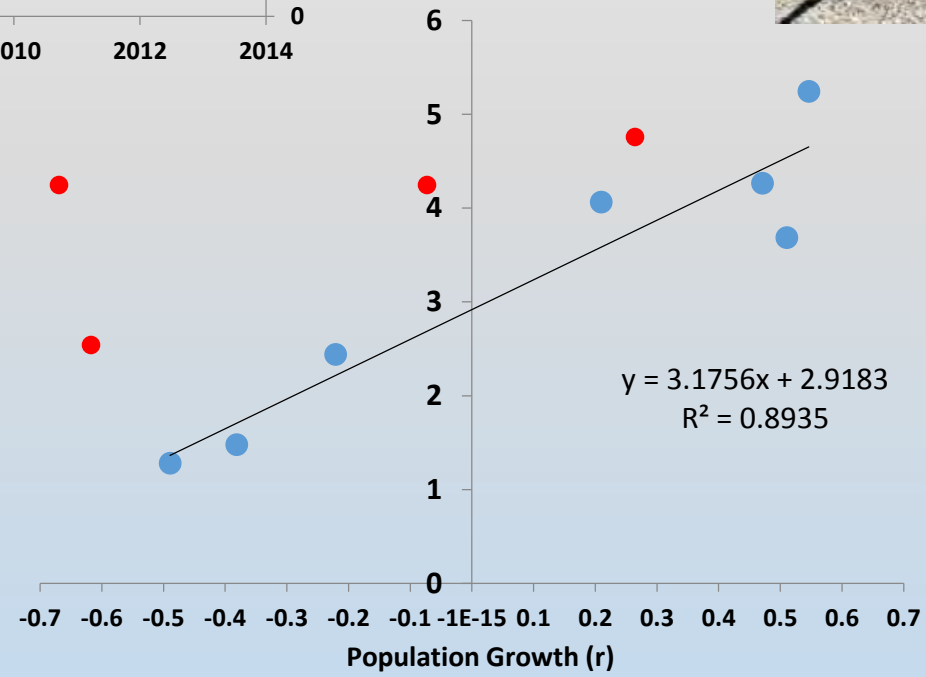
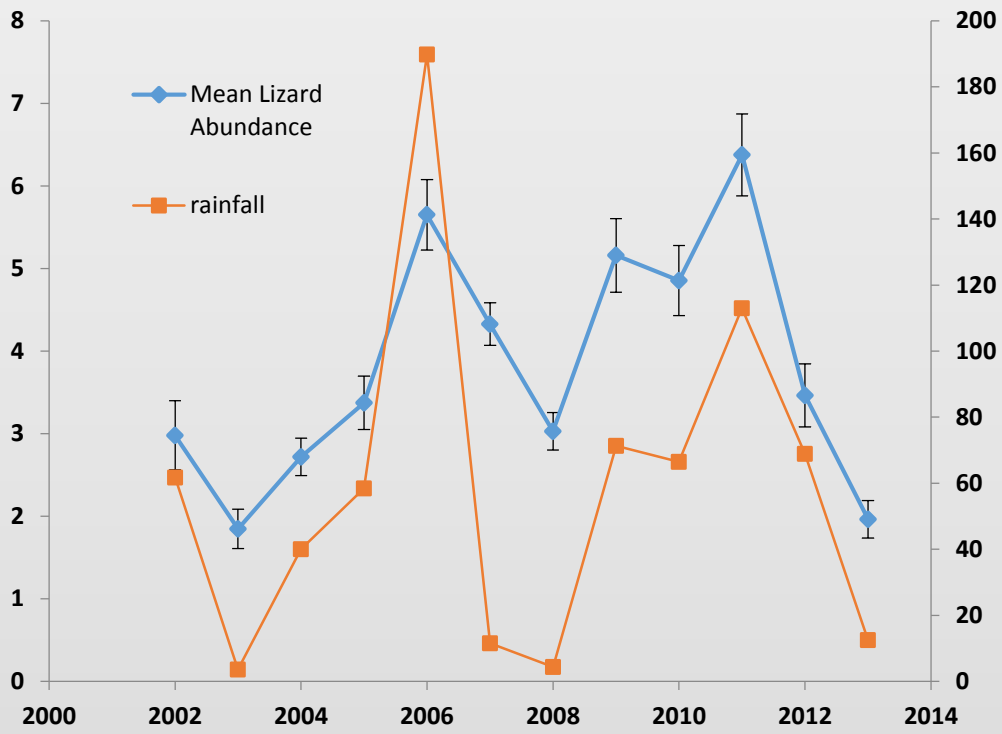
plant eating arthropods

Reduced prey abundance

The mustard is persistent for up to a year or more, whereas native annuals fragment and blow away by early summer, and so leads to dune stabilization

Reduced seed scarification for endemic dune plants

Reduced habitat suitability for dune lizards



Thousand Palms Dunes Rainfall

