

# CCRC 2009 Monitoring Results

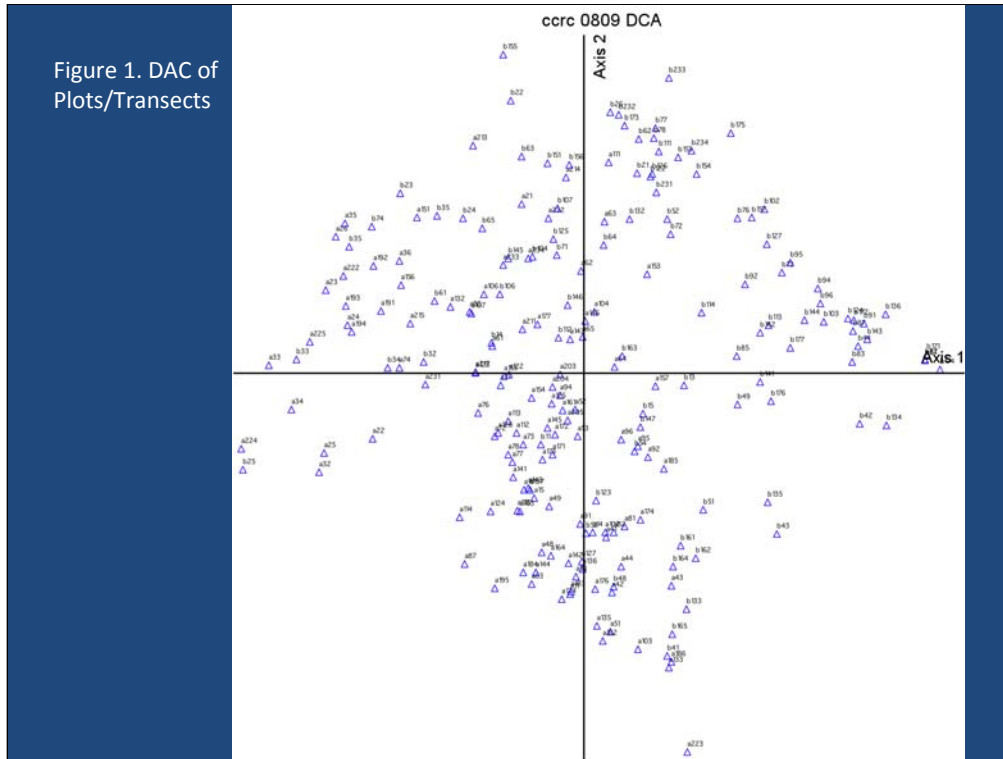
Analysis—Ordination  
Detrended Correspondence Analysis (DCA)

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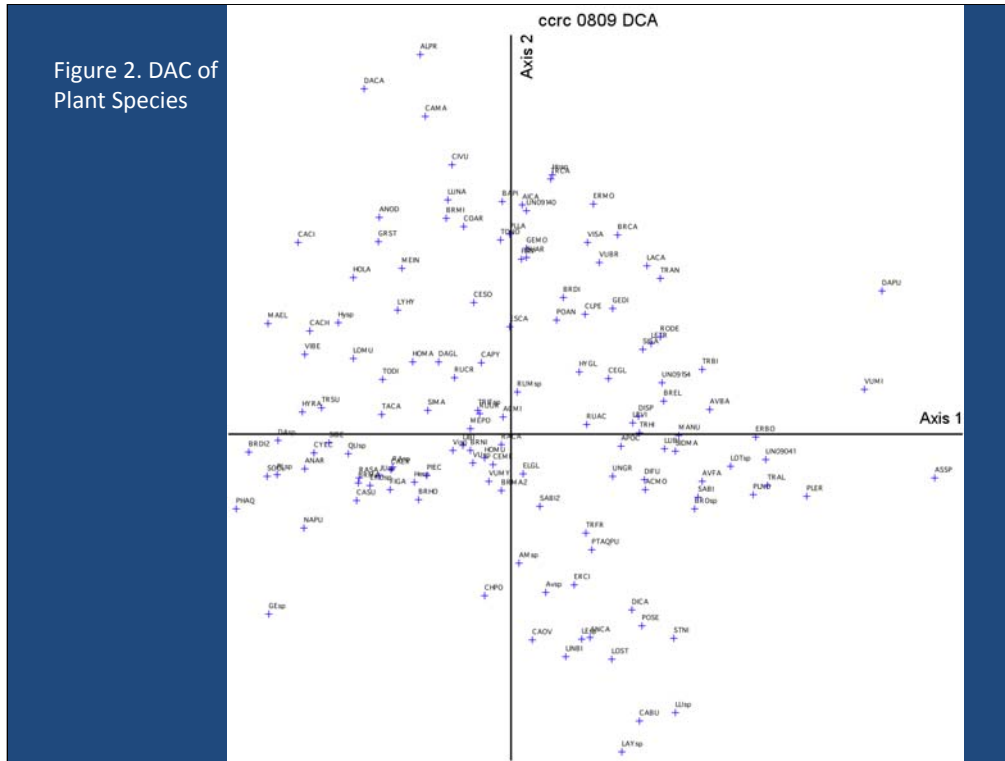
## RESULTS of DCA

- As a first step in the analysis, we found that 40% of the variation was explained.
- This is good for grasslands and allows for some interpretation and analysis of the patterns (Figures 1 and 2).

First, I want you to understand how DCA works, so I'll show two graphs to illustrate what it can do.



- Figure 1—213 non-riparian plots/transects.
- DCA locates plots (transects) along 3 axes to reveal groupings for similarity. \*Only 2 axes shown here.
- Closer groupings indicate more similarity—plots with similar species makeup.



- Figure 2—210 plant taxa (species, groupings of species in common genera, or unknowns) in the non-riparian plots/transects.
- DCA locates plant taxa along 3 axes to reveal groupings for similarity. \*Only 2 axes shown here.
- Closer groupings indicate more similarity—plant taxa found in places with similar environmental variables (year, locations, aspect, grazing, and “fundamental” variables)

## RESULTS of DCA

### Summary of Analysis--

- Groupings of (and distances between) plots in Figure 1 suggests similarity of plant species makeup there.
- Groupings of (and distances between) plant species in Figure 2 suggests similarity of the environmental variables where found.
- As a first step in the analysis, we found that 40% of the variation was explained, so we created other graphs to answer questions.

- As noted earlier, 40% is good for California grasslands and allows for some interpretation and analysis of the patterns.

## RESULTS of DCA

Questions Posed to this Analysis (other figures not shown)--

1. Are there detectable plant community types and/or ecological sites? *Maybe.*

- Year (differences found due to fluctuations from year to year) was the most important environmental variable.
- Year was *more* important than Location (property, geographic position).
- Distinct Ecological Sites (NRCS) were *not* found (more soils info would be needed to detect).

The other 3 DCA graphs are not discussed because they would require too much time to explain.

## RESULTS of DCA

2. Which plant species are important for determining community structure?
  - 210 plant species found (in line point transects).
  - 2008 to 2009 increases in Brodiaea, filaree, and foxtail fescue;
  - Decreases in soft chess and wild oats
  - Ripgut and annual ryegrass occurrences were associated with location.

## RESULTS of DCA

3. Does grazing (or no grazing) or other management affect community structure or species abundance? *No*.
  - In 2008, occurrence of annual ryegrass and ripgut were found to be correlated to grazed sites;
  - But in 2009, this association was not found.
  - No associations to grazing or no grazing or other management factors were found.



## RECOMMENDATIONS

1. Continue measuring species composition on point transects (in addition to belts) for at least another year to see if site factors will separate out from annual patterns;
2. Use a more sensitive soil measurement to delineate ecological sites and better predict responses to environment and management;
3. The sampling effort does not need to be increased to improve precision of estimates, but seems about right for providing input to decision making.