**App – TO DO list**

**Observation tab**

1. Add information buttons for how app works
2. Add a symbol to show that the observation file is being read in
   1. Solution: https://github.com/andrewsali/shinycssloaders
3. Add a symbol for when the environmental data is being “fetched”
   1. Solution: <https://github.com/andrewsali/shinycssloaders>
4. Ideally the user should interactively be able to open shapefile of management sites.
   1. R-shiny has a known problem with this because shapefiles are made up of many individual files.
   2. Currently the site management shapefile sit in the folder ("AppEnvData/ManagmentSites/OEHManagmentSites.shp"), in a similar way to the climate data (and are “hardcoded” to read in. I believe this is the best solution at this time. For long-term maintenance of this product the “OEH owner” may need to update the shape file occasionally.
   3. One possible solution is to instruct user to save management sites shapefile as an RDS file and then this could interactively be uploaded.
5. Add button to limit observations to only NSW or to include all locations
   1. This will require a function to extract observations to NSW borders
6. Include historical data

**Number of populations tab**

1. Change warning for when there are less than five populations. This really needs to popout. “For the purposes of this decision framework, where populations total less than five, it is recommended that all sites are managed.”
   1. Solution: <https://deanattali.com/blog/shinyalert-package/>

**Environmental variation tab**

1. Make sure environmental data go away if the user changes the species name. I believe this is an addition of a reactive statement.
2. It may be more appropriate to show environmental variation using Area of occupancy or graphs similar to the website produced by Rachael and Stu. This needs further discussion.

**Site Selection Tab**

1. Currently under construction
2. Interactive plots
   1. - <http://shiny.rstudio.com/gallery/superzip-example.html>
   2. <https://shiny.rstudio.com/gallery/plot-interaction-selecting-points.html> - returns a list of selected points
   3. https://shiny.rstudio.com/gallery/plot-interaction-zoom.html
3. Colour of points of plots can show - http://shiny.rstudio.com/gallery/superzip-example.html
   1. # of individuals
   2. observations on CAPAD sites
   3. Current management sites of the species
   4. Management sites for other species
   5. Make two symbols for historical observations vs. current observations

**Summary tab**

1. This tab is used to output a report about the species
2. Include map of all observations over satellite image
3. Estimated number of populations
4. Breakdown of future climate threads
5. Results from site selection include maps of
   1. Locations species occurs on CAPAD sites
   2. Locations species occurs on sites that are not CAPAD but are other management sites
   3. Cluster analysis
   4. Sites selected by user
6. Results from environmental variation tab and how much of the range of current climate is captured by selected sites

**Written report for OEH**

1. Reuse much of the text written in OEH report March 2016 – include results from Gap analysis – these results will also feed into Rach’s paper
2. Directions for use of App. Much of these directions should be written within the app with interactive information buttons that open up a pop out screen.

**Workshop at OEH**

1. Participants - people suggested by James Brazill-Boast:
   1. Essentially our team plus some other relevant people from Science Division and elsewhere:
      1. Linda Bell <linda.bell@environment.nsw.gov.au>;
      2. Alana Burley <Alana.Burley@environment.nsw.gov.au>;
      3. Hannah Lloyd <Hannah.Lloyd@environment.nsw.gov.au>;
      4. Nancy Auerbach <Nancy.Auerbach@environment.nsw.gov.au>;
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      11. Alison Curtin <Alison.Curtin@environment.nsw.gov.au>