Review of manuscript #36152: Biological, ecological and geographical traits of species in a coastal dune flora in the southeastern Cape Floristic Region: regional and global comparisons.

This manuscript presents a floristic report on the biological, ecological and geological traits of a coastal dune flora, a highly threatened ecosystem, from a cluster of reserves on the south coast of South Africa. The paper introduces and describes the ecological system, and discusses its floristic relationships within southern Africa.

Although the language usage is excellent, I found the manuscript very long and rambling, with unclear questions and confusing structure. At one level it is a report of a floristic study; at another level, it is a comparative study at several levels (within the Cape, and across different Med-type systems). Largely because the data are not concisely presented, I don't think the authors have successfully integrated these different levels in the manuscript.

I feel that in order for the paper to be more concise and focussed, the writing in the Introduction needs a stronger focus. For example, my reading of the Introduction implicitly raises the following questions:

- comparison of dune flora to adjacent inland flora
- was there an ancient greater extent of coastal dune habitats in Cape?
- what are the floristic / Biome affiliations of coastal dune species?

But the questions formally proposed (last paragraph of Introduction) are these:

- comparison of St Francis dune flora (all-year ppt) with those from winter-ppt parts of the Cape.
- comparison of trait patterns between Cape dune floras and those of other Med-type climate systems.

This mismatch would be addressed by a more focussed approach.

In the Materials and Methods: two pages provide details of the study area, including extensive detail on geology and soils as well as flora. This reads more like Results than Methods, or perhaps some of this should go into the Introduction?

The flora compilation details sources for species information and link to an online iNaturalist project (on a minor note: when I visited the project, only 319 observations and 172 species were listed in the summary, does this tally with your report of 646 records and 442 responses?). Each species was assigned to a Biome and categorised into one of 7 phytogeographic regions and according to its endemism in the Cape region, and into an edaphic category reflecting its specialisation to the coastal dune habitat. Species were also categorised by growth form and post-fire regeneration strategy, based on observations in the study region, and their Red List status reported.

Results: What are 'iconic Cape' families, and what is their relevance? The comparison of family representation across the 3 different dune flora sites, and with dune floras from other Mediterranean sites, should probably only be presented once the Results specific to this study (i.e. floristics of Cape St. Francis dunes) are properly presented. These comparisons should rather go later in Results, or in Discussion. It seems problematic to have a Results and Discussion section, and then a General Discussion and Conclusions section, I suggest separating Results from Discussion.

Since the question is comparative, perhaps Fig.s 3 & 7 would be better presenting these aspects comparatively across the 3 Cape dune floras? As presented, they seem to provide uncontextualised information. Table 1 is more appropriate to the aims of the paper, although comparisons with non-Cape dune floras could possibly also be incorporated? Fig.s 4, 5 & 6 seem gratuitous relative to the stated aims of the paper (although very nice to see).

The Results section contains vast amounts of information presented as part of the text. The descriptive, narrative way these results are presented makes them very difficult to assimilate, and innaccessible. I think one way to make the paper more accessible as well as shorter might be to incorporate these data into figures or tables instead.

Tables and supplemental data provides species lists and trait / floristic / geographic assignments are given for the Cape St. Francis flora. I think this also should be provided for the other Cape dune floras (only floristic traits for Walker Bay, but all traits for Table Bay, according to the Methods).

This paper is a bit of a conundrum. The language is good and it presents results that are of interest to local botanists and vegetation scientists, and potentially of wider interest to Mediterannean-climate ecologists. There is a huge amount of site-specific geological and natural history information included in the paper, which appears authoritative and very interesting, but I also found it somewhat confusing to read. I feel that this is a valuable contribution that should be published but would suggest that the authors work substantially on the focus and structure of the manuscript in order to make it publishable.