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International Cereal Rusts and Powdery Mildews Conference 2018, Skukuza, South Africa, 23rd – 26th September 2018.

While the buffalo were freely roaming through the peaceful Sabie River and the giraffe were grazing on the leaves from tall trees, the Nombolo Mdhluli Conference Centre was filling up with enthusiastic scientists from all across the globe keen to share their studies on powdery mildew and rust fungal diseases. While it was a wonderful location for a reunion with friends, it was also a pleasant atmosphere to share the scientific advances made towards gaining a better understanding of how powdery mildew and rust fungi interact with their hosts, how resistance to these fungi in host plants is being identified, characterised, and bred into other varieties, and how the fungi are overcoming current resistances.

As this conference fell at the end of my Ph.D., it was the perfect opportunity to present my research to a friendly audience, so I applied for a travel grant from the RSB to help make my attendance possible. I also saw this as an opportunity to report on and highlight an important area of crop research that other scientists outside of this field may not be aware of. Receiving this travel grant not only stimulated me to step out of my comfort zone and present my research to an experienced audience, it allowed me to receive helpful comments and discussions from scientists in this field. As my research focussed on characterising fungicide resistance in wheat powdery mildew, I was pleasantly surprised to find that many of the other scientists agreed that the issue of increasing fungicide resistance amongst powdery mildews and rusts needs to be addressed, particularly as the number of effective fungicides available for use is declining.

While many of the talks at this conference discussed the identification of new resistance genes and cloning them or breeding for increased resistance in host plants, one talk that really stood out for me was by Professor Ralph Panstruga (Aachen University, Germany) which had a slightly different focus. For years, barley mlo-mutants have been resistant to powdery mildew but the molecular and biochemical mechanism behind this resistance is unknown. The emergence of an mlo-virulent laboratory isolate has provided Ralph's group with an exciting opportunity to research the molecular mechanisms involved in this plant-pathogen interaction. Ralph gave a very clear, logical, and honest presentation of their research which not only demonstrated the excellent research they have been doing, but also showed the importance of presenting your work to fellow scientists and discussing the results so new ideas and suggestions can be made.

Additionally, Dr. Diane Saunders (John Innes Centre, UK) gave an interesting description of a field pathogenomics technique developed in her lab which has accelerated the screening of yellow rust populations in wheat growing areas. Diane described how the racial composition of these populations can be identified within one month of field samples being collected using RNA-seq and rapid bioinformatic pipelines. For me, this talk was complemented by one later in the conference which was also given by Diane on behalf of Dave Hodson (CIMMYT). Dave and his group have been developing an easy-to-use early warning system to detect rust in Ethiopian wheat fields. These two talks showed extraordinary advances in methods for "getting ahead of" rust diseases and it was refreshing to see this kind of research being carried out compared to the more traditional molecular biology projects that are conducted.

Overall, I feel this was the most enjoyable conference I have attended so far – not only for the game drives, incredible animals, and lovely scenery, but also because it is a friendly group of scientists who provided stimulating talks and discussions. I would like to thank the RSB for awarding me this travel grant which made my attendance at this conference possible as well as allowing me to experience the culture and wildlife in a part of the world that I would not normally have the opportunity to visit.