Plenary Abstracts OE3C 2016

Ecology – Zoe Lindo

**What happens above matters below: Linking plant and soil communities in peatlands**

Concerns over losses in biodiversity have accelerated research on biodiversity-ecosystem function relationships.  However much of this work has focused solely on aboveground (plant) communities, despite the fact that belowground (soil) systems are of parallel importance to ecosystem functioning, and that plant and soil systems are intricately linked.  Research in my lab demonstrates how changes in peatland plant communities under experimental climate change conditions have a cascading effect on soil properties, and soil communities.  Specifically I will show how elevated temperature and atmospheric CO2conditions shift the competitive balance from *Sphagnum* mosses to vascular plants, leading to changes in the quantity and quality of carbon entering the peat-soil system.  Belowground, these carbon inputs and temperature effects act as an enrichment scenario to alter soil faunal communities in a way that leads to community downsizing – the systematic increase in smaller bodied organisms under climate change.  Due to ecological feedbacks, peatlands are hypothesised to be robust to dramatic changes in ecosystem state, but it is clear from our data that such a regime shift is possible.

Evolution – David Queller

**Kith selection: simple theory, complicated amoebas and bacteria**

The evolution of cooperation is well understood when the cooperators are relatives but perhaps less so when they are non-relatives. I will explore two aspects of interactions among non-relatives, which I call kith selection. On the theoretical side, I show how these interactions can be expressed in form exactly parallel Hamilton’s rule. On the empirical side, I describe a “farming” symbiosis between Burkholderia bacteria and Dictyostelid amoebas.

Ethology – Maydianne Andrade

**A tale of two widows: behaviour & plasticity link ecology & evolution**

If the traits that confer increased reproductive success vary with context, and information about context is available to juveniles during development, then adaptive developmental plasticity (ADP) may evolve. ADP is interesting because it allows phenotype-environment matching and could be an important contributor to phenotypic variation in nature. Here I show why widow spiders (genus Latrodectus) are useful for testing hypotheses about adaptive developmental plasticity. As an example I outline how variation in the mating behaviour and natural history of two species (L. hasselti, redback spiders and L. hesperus, western widows) may drive ADP in male size, yielding extensive variation in body size despite the advantage of larger males in competition.

Science Communication – Hannah Hoag

**When a scientist met journalism**

Writing about science is an adventure. It’s a chance to exercise your curiosity, keep up with discoveries and play a small part in democracy - by giving people the information they need to make informed decisions. It's challenging, but it can be a lot of fun. There isn't one right path to career in science journalism or science communication, but with a little digging around you can find the one that's right for you. Even if you're certain you'll never give up being a scientist, it will only help your career if you learn how to get others excited about your research.