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Sex, mushrooms, rocks and mould

By Isaac Egan

Zombified spiders, glow-in-the-dark fungi, seaweed-like mould and shagpile-topped mushrooms. It might sound like the set of a fantasy film, but you can find all of these in north Queensland - if you look close enough.



James Cook University mycology lecturer Dr Sandra Abell says tropical Queensland is known for its fungi diversity. "It is to do with being tropical, so the tropics are known to have a higher diversity of fungi. You need rain, but too much rain and you don't get them coming up, so it is a bit of a balance. The last couple of years have been a little bit too dry and then prior to that we have had really wet seasons, so this is a good time, nice diversity," she said. (Contributed: Karen Johns)



"A lot of really large bodied mushrooms are in more of the eucalyptus woodlands, so further west, between Kuranda and Mareeba, you can go and see a really interesting diversity. Even the beach you will see some coming up, in the sand," said Dr Abell. (Contributed: Karen Johns)



"What is even more interesting is that you basically will have two individual fungi, living in whatever they are living in, like wood. They aren't really male and female, we call them positive and negative, and they will come together to form the structure that you are seeing, so they don't mate until they make this structure," said Dr Abell. (Contributed: Karen Johns)



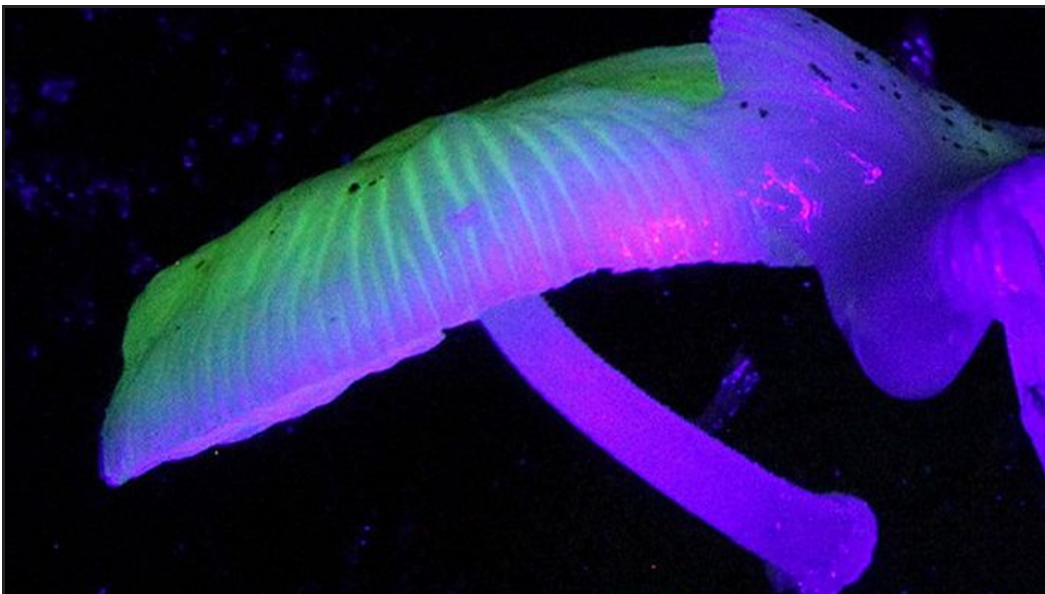
"They are actually basically entwining, so if you cut them open and have a look microscopically, it will be both of the individuals that are making the structure. The actual sex part of the life cycle doesn't happen until right at the last minute, and that is when the actual genetic materials exchange and the actual spores are produced. So the actual structure itself is an expression of the two partners, it is kind of poetic really and quite bizarre," said Dr Abell. (Contributed: Karen Johns)



"The [underside] really helps you identify it, you need to get those surface characters, but the gill spacing, the colour of the gills, and some of them actually have pores and not gills, so that will really tell me what it is," said Dr Abell. (Contributed: Karen Johns)



"This is a slime mould, and they are in a completely different kingdom and they are really fascinating too, but not fungi. They are weird amoeboid things that basically don't have any cell walls and they kind of slime around, eating bacteria. This is actually a colony that has gotten together to reproduce, often they are just single cells, blobbing around - they're weird," said Dr Abell. (Contributed: Karen Johns)



"It is exactly the same thing as fireflies, it is luciferase. It is actually an enzyme that they have and it is the same as all of your glow in the dark things, so glow worms have it, photo plankton. The function of it is a bit controversial ... it is likely to be functional. It may be to do with spore dispersal ... but we don't know for sure," said Dr Abell. (Contributed: Karen Johns)



"This is a good example of how weird and wonderful they can be. This is jelly fungi and yeah that is the reproductive part and they produce spores on the outside of that jelly mass," said Dr Abell. (Contributed: Karen Johns)



"These have been popping up everywhere, they are called stinkhorns and very appropriately, mycologists admit that they are phallic, because the actual species of the genus name is phallus. And yes they smell, and the reason that they [smell] is to attract ... insects that like that smell. The insects are actually collecting the spores and moving them around," said Dr Abell. (Contributed: Karen Johns)



"It is a little bit hard to tell, but what I think is that this fungus actually killed this spider, and is now eating it and reproducing. There are some fungi that basically will shoot their spores down and ... the spore lands on the insect, and it invades the body of the insect, it doesn't kill it yet, it basically takes over the body and it becomes a zombie," said Dr Abell. (Contributed: Karen Johns)



"The fungi then basically controls what the insect is doing ... and with ants it will actually make them climb up to a certain height off the ground and then the ant bites into the bottom surface of the leaf ... and basically attaches itself to the leaf. Then the fungi doesn't need it anymore, so it dies and the fungi will keep eating it out from the inside and when it is ready [the fungi] will actually explode out of it and form a reproductive structure," said Dr Abell. (Contributed: Karen Johns)



ABC photo contributor Karen Johns is based in Yungaburra on the Atherton Tablelands of far north Queensland. Living on an unfenced rural property between fertile farmland and tropical rainforest, Karen sees a unique range of plant and animal life daily through her lens. (Contributed: Karen Johns)



"We rent an old house on a large farm that is very run-down so basically everything wanders in and wanders out. You have nice rustic looking things around the place and the timber is allowed to rot, and when you have rotting timber you get beautiful fungi," said Karen. (Contributed: Karen Johns)



"It took me a long time to realise that it doesn't matter how many photos you take, just take heaps and heaps and heaps and save them all. What I [photograph] is whatever the season is. This is the fungi season, I'm still waiting on the insect and bug season ... then the snake season and then the dry season," said Karen.
(Contributed: Karen Johns)



"They're everywhere you know ... but you have got to take their photos straight away because in a couple of hours they can change their colour or collapse or be ten times bigger or gone. Some days I say 'I'm not touching my camera, I'm not going near it, I'm not going to look ... I've got to get some stuff done!'," said Karen. (Contributed: Karen Johns)