Welcome to the world of mind controlling parasites.

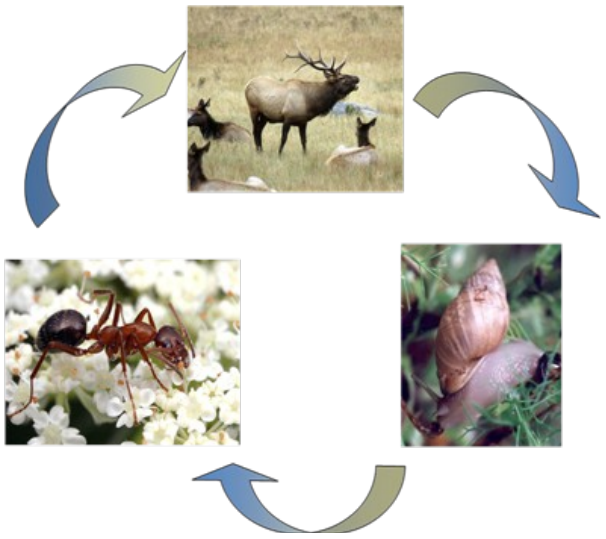
Welcome to zombiants.ca a science blog all about mind altering parasites. Imagine waking up one day, perhaps a day after you tried a new meal for this time and you realize that something doesn't feel right. Then imagine being taken over by an unknown force and compelled to climb to the highest point you can and wait. After waiting, frozen on your roof for example, for up to hours, you feel the late morning sun rays hitting your face and as they do the unknown force slowly starts to weaken. As you start to heat up the force weakens until it eventually fades away, you shake the cobwebs out and get on with your day. Unfortunately you've been infected with a zombie parasite. This story has been acted out in many science fiction films but you may not realize how often these scripts are actually playing out on this planet all the time.

Parasite induced altered behaviour has long been recognized in multiple parasite/host interactions involving species of parasites ranging from unicellular parasites, fungi to small worms called flukes. These relationships are most common in insect hosts but also occur in snails and potentially mammals as well. The intensity of the behavioural alteration ranges as well from a simple mechanical interaction to full blown mind control. The inspiration for this site and the example scenario depicted above comes from a fluke/insect interaction involving common wood ants and the liver fluke *Dicrocoelium dendriticum*.

Adult liver flukes, Dicrocoelium dendriticum

This story, like so many parasite stories, begins at the end. Eggs of adult flukes, living in the liver of grazing animals such as, sheep, goats, cattle, elk, deer, seemingly anything that eats plants are passed out with the feces. Once out into the world the eggs are feasted upon by snails cruising the poop. The parasite multiplies in the snail until the snail has to cough them out in a ball of mucus. Down and out on the ground once again the parasites wait for ants to come along, scoop them up and feed them to the rest of the nest. Once in the ant the parasites move to the back of the ant and form a resting stage. They form cysts around themselves and wait. There is one parasite however that makes its way to the front of the ant and wraps itself around a group of nerves in the ants head. These ants then show up

every morning and evening, when the air is cool, on plants, clamping down with their mandibles, waiting, still alive but unable to let go. It is here while they're clinging on to the plants that grazing mammals such as a sheep, goat, deer, elk, cattle, depending on the county even camels accidentally eat the ants. Even more strangely the ants will let go when the temperature rises and return when it cools, day after day until they are accidentally eaten. The cycle is now complete and the parasites that where in the resting stage emerge and make their way to the liver where they grow into adults, mate and produce eggs.



Dicrocoelium life cycle

As an adult this parasite only grows to about 2cm but a single animal can have hundreds in its liver. This can lead to some serious complications for the animals but like most parasite systems the hosts evolve resistance and immunity while the parasite evolves to outsmart host defences. This and many more features of parasite lifestyle will make up the content of this blog, this and of course the mind controlling aspect of the life cycle. We aim to update you on this research as well as discuss many others of the mind controlling parasites, parasitism and biology in general. Stay tuned for more and please interact with the site and me personally, @bvanparidon, on twitter.

Infected ants clinging to a dandelion