Going Wired?

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While I would never wish for a return to the days of sluggish dial up internet and clogged up phone lines, there is one group of organisms in the forest that are still using wired communication even though it's 2019. I'm talking about trees, and that's right, trees can talk to one another!

To be more accurate, talking is the wrong word, but talking trees sure makes for a great headline! Lacking specified symbols, letters or words that constitute a sort of language we cannot consider trees to be speaking to one another. However, what trees are being found to most certainly do, is exchange signals between one another that individuals can interpret and subsequently have physical reactions to. That process most definitely constitutes a form of informational exchange worthy of the word communication.

While tree roots spread out into the soil in search of a firm grip and abounding nutrients they are connected to the roots of other trees through mycelium.
Mycelium is part of fungus-like bacterial colonies composed of small white threads known as hyphae. Through this fungal root network vital elements of tree survival such as carbon, nitrogen, phosphorous, water, hormones and chemicals have been observed to be passed from one tree to another. For example, through this wired underground system, a big mature tree might be able to identify carbon or nitrogen starved saplings nearby and send them some much needed nutrients. This could be a way for a fully-grown, seed bearing "mother" tree to help provide for her nearby "offspring" saplings! It makes sense because the stronger, more balanced and more ecologically healthy a forest is, the better each individual tree will survive. Furthermore, this communication of vital resources doesn't just pertain to those that are genetically linked. This communication might extend between individuals, between species and over incredible distances.

Trees are linked through an underground network of fungi mycelium - *Photo by Alex Calder (Flickr).*

Wasn't it Neil Armstrong who said "One small microscopic fungal root growth for a tree, one giant expanding network for tree kind"?

This research is cutting edge, and has a long way to go, but already it challenges the basis of competition in forests and ecosystems as a whole. It also challenges us to revisit how we view forests and how we use the resources our beautiful local forests provide for us. Science may find that this communication extends beyond what we could possibly imagine, or it may show that these interactions are far too mundane to constitute true communication. Regardless, the voyage of science strives forward and to properly quote Neil Armstrong "Mystery creates wonder and wonder is the basis of man's desire to understand".

The McGill Morgan Arboretum is home to research projects from major universities across Quebec and Canada that strive to unlock mysteries in the natural world. The Morgan Arboretum is also open to the public every day for self guided nature walks and guided activities. Visit the Arboretum website (morganarboretum.org) and social media accounts (Facebook, Twitter, Instagram) for more information on visiting the Arboretum and supporting Montreal's local research forest reserve.