

May 22, 2023

RE: CBC Planet Wonder Ep. 1 'What are trees saying to each other about climate change?' <https://www.youtube.com/watch?v=scTSMI6EyxA>

Dear Mr. Getz, Executive Producer of Network News,

Thank you for your detailed and considered response to our letter. Before we provide suggestions on how to move forward, we would like to respond to several points you raised in your email. Note that as before, we refer to 'communication' broadly as resource or signal transfer among plants through common mycorrhizal networks (CMNs).

DG: '...what appears to be an ongoing scientific debate between you and Professor Simard.'

Firstly, my co-author, Jason Hoeksema signed the initial letter emailed to the CBC Ombudsperson, thus the concern was not raised by me alone. Secondly, since the time we emailed the Ombudsperson, a subsequent review independent of ours has been published that re-examines the evidence for tree 'communication' via CMNs. Seven scientists, who are also experts in this field, came to similar conclusions as ours. From their summary: 'We conclude that evidence of a significant net C transfer via common mycorrhizal networks that benefits the recipients is still lacking. Furthermore, a role for fungi as a C pipeline between trees is difficult to reconcile with any adaptive advantages for the fungi. Finally, the hypothesis is neither supported by boreal forest regeneration patterns nor consistent with the understanding of physiological mechanisms controlling mycorrhizal symbiosis.'

Moreover, our review in Nature Ecology & Evolution (co-authored by myself, Melanie Jones, and Jason Hoeksema) analyzed all the relevant published literature on this topic, much of which was not published by the Simard research group. We provide the citation for the review at the end of our letter. Thus, importantly, this is not an isolated debate between two scientists. What you are witnessing is the process of self-correction in science. A scientist has made extraordinary claims on your show and elsewhere. Extraordinary claims demand extraordinary evidence. To date, the evidence is non-existent or in some cases contradicts Simard's claims aired on the CBC program in question.

DG: 'The program also capitalizes on the expertise of our host, Johanna Wagstaffe, who is herself a university trained meteorologist and geophysicist.'

We are unclear how this type of training is relevant to the controversy of CMNs mediating tree 'communication' in forests. Just as we accept that our knowledge and training is unlikely to be relevant for forecasting the weather, we expect this same courtesy by fellow scientists in addressing topics in our field.

DG: 'Part of the exploration involved an in-depth interview with Professor Simard about her research and findings about what might be described in layperson's terms as tree communication and how that communication may be affected by climate change and how trees are adapting to climate change. The Trees Episode included an explanation of mycorrhizal networks in that context. Professor Simard explained some of her research findings in the same framework. This was not a case of Planet Wonder making scientific claims as you asserted.'

As we indicated in our original letter, Simard made four inaccurate and misleading claims in The Trees Episode:

1. Trees talk to each other through common mycorrhizal networks.
2. Old trees recognize their kin seedlings through common mycorrhizal networks.
3. Old trees direct resources flowing through common mycorrhizal networks to favor kin seedlings.
4. Trees in forests are warning each other of stress through common mycorrhizal networks.

If you mean that Johanna Wagstaffe, who represents Planet Wonder, did not make these claims, we agree. However, Simard did make these claims on The Trees episode. In our previous letter, we have explained that these claims are not supported by evidence or in some cases, the available evidence contradicts the claims. Thus, they are inaccurate and misleading.

DG: 'We are confident that the information was accurate, even if you argued in your complaint that it was not the entire picture or explanation of all the research or competing theories which exist about mycorrhizal networks. We never said it was.'

In our original letter, we did not argue that the entire picture was missed or that all research on the topic was not represented. We explained how four claims made in the episode are not supported by evidence and thus, are inaccurate. As mentioned above, our concerns have been subsequently corroborated by a second, independent review on the topic.

DG: 'In fact, after your "Perspective" was published in Nature Ecology and Evolution, CBC News published a story detailing your criticism...I am not aware whether the publication asked Professor Simard or another researcher to write a second review advocating the "opposite" side in what appears to be this ongoing research controversy. I could not find a published rebuttal or response.'

We are not sure what relevance the CBC news article has to our concerns about The Trees episode. Some elaboration on this point is necessary to clarify your point.

Your description of a 'Perspective' is correct. To date, there have been no rebuttals, only a subsequent review that has corroborated our conclusions. Any rebuttal by Simard would have to be considered in light of the conflict of interest she has with sales of her book 'Finding the Mother Tree' and an upcoming Hollywood movie portraying her life and career.

DG: 'I accept there may be live issues and competing or differing perspectives in the scientific community and scholarly research involving mycorrhizal networks. Planet Wonder never suggested otherwise or that its single 26-minute episode constituted a comprehensive account

of all the research on how trees “communicate. The fact that there are different or separate or additional explanations of tree communication does not invalidate the information that was published and it certainly does not mean that the Trees Episode is “inaccurate and misleading”, “promulgating misinformation” or that it “erodes the credibility of science” as you asserted.’

Here is what is at stake. Simard made several claims on The Trees episode that do not hold up to scientific scrutiny. This makes the claims inaccurate. As no other viewpoints were presented on the episode, a single, inaccurate narrative has been espoused by the CBC on the role of CMNs in tree ‘communication’. By not mentioning the controversy, CBC has led audiences to believe there is a single (inaccurate) view of the role of CMNs in tree ‘communication’.

DG: ‘Planet Wonder is a program designed to take viewers on a journey of discovery through issues of science and the natural world...’ .

Self-correction is a critical component of science. By espousing this single, inaccurate narrative on the role of CMNs in tree ‘communication’, science is not represented. What is represented on The Trees episode is a belief of a single person. Promoting ‘beliefs’ as facts erodes the credibility of science.

Next, we would like to comment on how The Trees episode violates the CBC News Journalistic Standards and Practices.

From the CBC: ‘Accuracy-We seek out the truth in all matters of public interest. We invest our time and our skills to learn, understand and clearly explain the facts to our audience. The production techniques we use serve to present the content in a clear and accessible manner.’

The debate over the role of CMNs in tree ‘communication’ has been ongoing for 25 years. It is not resolved. The truth would have been to acknowledge it’s a controversial topic and not at all settled. This editorial decision appears in violation of this principle.

From the CBC: ‘Balance - We contribute to informed debate on issues that matter to Canadians by reflecting a diversity of opinion. Our content on all platforms presents a wide range of subject matter and views. **On issues of controversy, we ensure that divergent views are reflected respectfully, taking into account their relevance to the debate and how widely held these views are.** We also ensure that they are represented over a reasonable period of time.’

Given the controversial nature of tree ‘communication’, there was a complete absence of diversity of opinion. Not a single divergent view was represented. This editorial decision appears in violation of this principle. Thus, the audience could reasonably be misled that the science around tree ‘communication’ is without controversy. This could not be further from the truth. Even before our review was published, there was debate within the research community on this topic. It does not appear that time and skills were invested to understand the nature of this controversy (see point above ‘Accuracy’).

From the CBC: 'Impartiality - We provide professional judgment based on facts and expertise. **We do not promote any particular point of view on matters of public debate.**'

There was a single point of view promoted on the controversial subject of CMN-mediated tree 'communication'. This editorial decision appears in violation of this principle.

From the CBC: 'Our mission is to report on matters of public interest, reflect a diversity of points of view and to do so in a fashion which is not beholden to a particular set of interests.'

In fact, The Trees episode promoted a single point of view on a controversial subject, in direct opposition to your mission.

Moving forward. As outlined in our original letter, our first recommendation is to take down The Trees episode. If the CBC is not able to do so, then our second recommendation is to post links to the most recent criticisms of the role of CMNs in tree 'communication' with a note saying 'Statements in this episode about the role of mycorrhizal fungal networks in tree 'communication' have been challenged by scientists working in this field.' Then, links to the two articles below should be made:

Henriksson, N., Marshall, J., Högberg, M.N., Högberg, P., Polle, A., Franklin, O. and Näsholm, T. (2023), Re-examining the evidence for the mother tree hypothesis – resource sharing among trees via ectomycorrhizal networks. *New Phytol.* <https://doi.org/10.1111/nph.18935>

Karst, J., Jones, M.D. & Hoeksema, J.D. Positive citation bias and overinterpreted results lead to misinformation on common mycorrhizal networks in forests. *Nat Ecol Evol* 7, 501–511 (2023). <https://doi.org/10.1038/s41559-023-01986-1>

As scientists, who are concerned about forests, climate change, and connecting with the public on these topics, we believe that shows like Planet Wonder are part of the solution. However, honesty and humility are important for public trust. We are open to suggestions you may have to resolve this situation.

Thank you,

Justine Karst, Associate Professor, University of Alberta

Jason Hoeksema, Professor, University of Mississippi