

Still no evidence that pathogen accumulation can revert the impact of invasive plant species

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As do Flory et al. (2017), we recognize the potential consequences of pathogen accumulation for the dynamics of invaded plant communities. We also agree that pathogen accumulation is an important area of research requiring more attention. However, we are still puzzled by the paucity of data showing that pathogen accumulation can control invasive species populations. Flory et al. (2017) mentioned several examples, but they are mostly for native species, non-invasive species, agricultural settings, or artificial inoculation with pathogens (e.g., Harris et al. 2013).

The accumulation of pathogens on *Bromus tectorum* (Mordecai 2013) and *Microstegium vimineum* (Flory et al. 2011; Stricker et al. 2016) are the only examples of Flory et al. (2017) centered on invasive species in natural systems. Nevertheless, both species are still a very important problem in their invasive ranges (Freeman et al. 2014; Stark and Norton 2015; Tekiela and Barney 2017). Flory et al. (2017) discussed possible explanations for the lack of direct

evidence on the role of pathogens accumulation. They suggest this could be due to absence of historical interest in invasive species impact, or that it may take a very long time to observe positive impacts of pathogen accumulation on native ecosystems. We agree with these ideas but want to highlight that: (1) if long time lags are involved in the accumulation of pathogens it may be too late to reverse the impacts of invasive species, and (2) the lack of evidence may also be because control of non-native invasive species by pathogens may be a rare phenomenon.

We restate the key point in Policelli et al. (2017): the lack of evidence on pathogen accumulation controlling invasive populations calls for active management. As Flory et al. (2017) put clearly: “no waiting for pathogens to suppress invaders.”

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