Trouble in the Roots: Tamarisk and Mycorrhizal Fungi

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Mycorrhizal fungi form a symbiotic relationship with many terrestrial plants species and can benefit plants through increased uptake of mineral nutrients and stress tolerance. Invasive species have been shown to have negative impacts on mycorrhizal relationships, although little is known about the impact of tamarisk on mycorrhizal fungal communities in riparian ecosystems. We do know that riparian species such as cottonwood and willow form relationships with ectomycorrhizal (EM) fungi and arbuscular mycorrhizal (AM) fungi, whereas roots of tamarisk are primarily colonized by dark septate endophyte (DSE) fungi, fungal-root associates whose function is largely unknown. We have been testing the hypothesis that tamarisk has a negative impact on EM and AM fungal communities. Understanding the potential impact tamarisk on mycorrhizal fungi could have impact on restoration success because extended occupation of habitats by non-mycorrhizal plant species have been shown to create a positive feedback that inhibits establishment of mycorrhizal plant species. Fungal root colonization, community composition and propagule abundance were compared at tamarisk and cottonwood dominated riparian sites. Negative impacts of tamarisk on mycorrhizal fungal communities were detected especially on EM fungi with less effect observed on AM fungi.