

Converting Riparian Restoration Waste to Energy: Testing tamarisk (*Tamarix* spp.) woody biomass as fuel for downdraft gasification

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Land managers and restorationists interested in utilizing non-native tamarisk (*Tamarix* spp.) biomass are faced with multiple logistical and economic barriers. In order to address some of these barriers, we conducted a scaled-down harvest-to-energy field trial. We collected both green (live) tamarisk and tamarisk killed by the tamarisk leaf beetle (*Diorhabda* spp.) biological control agent, and tested both samples as fuel for conversion to a clean producer gas via downdraft gasification and then electricity in a spark-ignited engine/genset at Community Power Corporation in Littleton, Colorado. Both green and dead tamarisk chips were excellent fuels for gasification, but data suggest that significantly more energy can be recovered from the tamarisk when harvested green, compared to waiting for the tamarisk to die and age. In these tests, tamarisk performed more efficiently than the softwood sample as a fuel for gasification. As populations of the tamarisk leaf beetle expand, information on the properties of both green and beetle-killed tamarisk biomass and their suitability as feedstocks for conversion to energy will be useful for land managers seeking to offset the costs of tamarisk removal, restore wildlife habitat and ecosystem function, and reduce wildfire threat posed by standing dead tamarisk.