

# Promising News for Autumn Bare Root Planting

By Kayla Seaforth

The Washington Association of Conservation Districts Plant Materials Center in Bow, WA (PMC) is making bare root plants available this fall after experimenting with the Missouri Gravel Bed (MGB) growing technique. Fall outplanting gives trees and shrubs more time to become established

before the stress of summer drought sets in, and may lead to more resilient restoration plantings. Decreases in **summer snowpack** combined with higher summer temperatures are likely to lead to increased drought frequency and severity. This reality is something that growers and those planting nursery

stock must take into account when selecting plants that they are relying on to survive well into the future.

The additional fine and lateral root growth that this growing regime promotes may benefit plants by providing more root surface area in

## Missouri Gravel Beds

This technique is thought to promote fine root growth, which can aid in plant establishment and long term survival. In this method, bare root plants are harvested from standard nursery beds and then healed into pea gravel beds. They are irrigated daily and after 2-6 months are ready for outplanting. The large pore size between gravel particles allows ample space for fine and lateral root development, and allows for low damage harvesting. The Missouri Gravel bed technique is fairly low tech and can be easily incorporated into nursery practices. There may be appropriate rates of clay amendments that can reduce watering demands and make this more feasible as areas around the country face increased water stress.

To learn more about the Missouri Gravel Bed technique, see this [manual](#), which provides practical advice and background on the technique in the context of urban planting.



*Missouri Gravel Bed Systems can be implemented with fairly low cost materials, such as the use of a kiddie pool pictured here. Other practitioners simply created mounded beds of gravel with minimal containment. Photo credit: John Knox*

the upper soil horizons where plants can more easily access rain water and nutrients. Nurseries like the PMC often promote this type of root growth through undercutting, so use of the Missouri Gravel Bed technique is another way to achieve similar root profiles that benefit plant growth.

In 2020, John Knox of the PMC planted approximately 50 plants that were conditioned in the Missouri Gravel Beds at a site in the floodplain of the Skagit River, in partnership with Skagit Land Trust. While this trial was small, it indicated that plants conditioned this way can survive outplanting at a typical floodplain restoration site. After 2 years, salmonberry fared the best with 80% survival. Other species did not do as well; survivorship for osoberry was 58%, pacific crabapple was 42%, and thimbleberry survived at a rate of 25%. Knox attributed much of the loss to other stressors such as herbivory and buck rub by deer and elk, and suggested that additional plant protection may increase survival. He has plans to scale up the trials in partnership with the Washington Native Plant Society this fall in a 5000 plant trial.



*Osoberry coming out of the gravel bed, notice new white roots. Photo Credit: John Knox*

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**John Knox, who led the Missouri Gravel Bed trials at the PMC will be hosting a webinar to go over the results in more detail on October 20th. Email [pmcjknnox@gmx.com](mailto:pmcjknnox@gmx.com) to RSVP.**



*Summer transplant salmonberry. Photo Credit: John Knox*