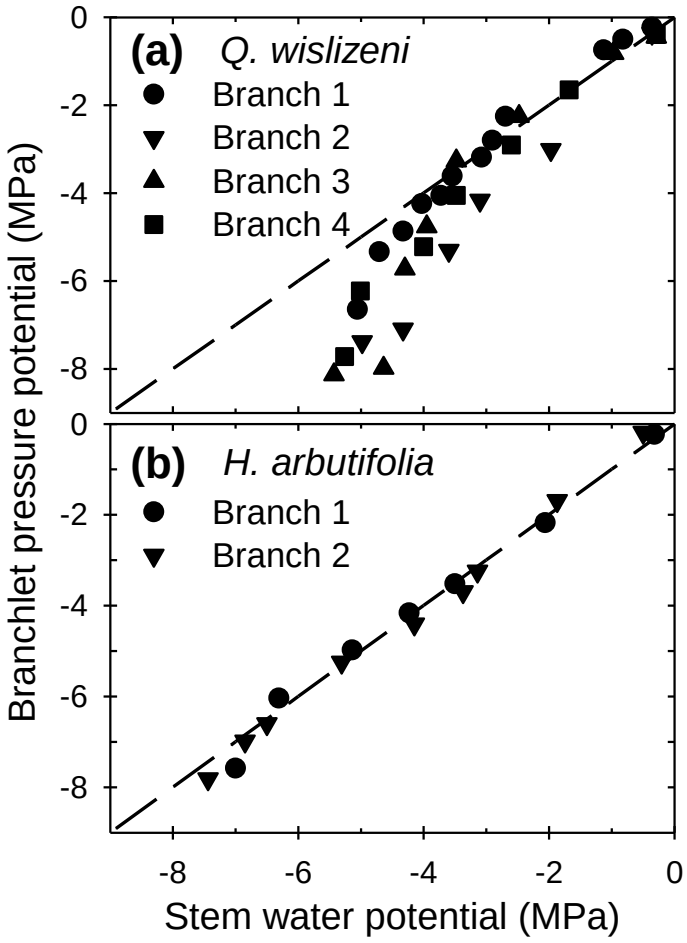

Figure S1. Comparison of stem xylem water potential measured with a stem psychrometer and branchlet pressure potential measured with a pressure chamber (n = 4-6 for branchlet means) for large branches of *Quercus wislizeni* and *Heteromeles arbutifolia* equilibrated for at least 16 hrs.

Branchlet pressure potential was more negative than stem water potential at water potentials below ~ -4 MPa for *Q. wislizeni*, but agreed for *H. arbutifolia*. Studies reporting discrepancies between these methods generally have implicated erroneous pressure chamber measurements, and our analyses relied on stem psychrometer values in the range of water potentials where methods differed. Branchlet pressure potentials more negative than stem water potentials for equilibrated branches have been observed previously (Sperry *et al.* 1988), and

many studies have reported discrepancies between pressure chamber and psychrometer estimates of tissue water potential (reviewed by Ritchie & Hinckley 1975; West & Gaff 1976; Hardegree 1989). Many potential causes for these discrepancies have been advanced. The most plausible for our experiment suggest that erroneously low pressure chamber measurements result from the movement of xylem sap during pressurization into tissues other than xylem (Boyer 1967) or from the refilling of embolized xylem vessels (West & Gaff 1976) that requires excessive pressure to reach the balance point. However, such movement of xylem sap should cause discrepancies between methods even at less negative stem water potentials than we observed (Boyer 1967). The observed differences between branchlet pressure potentials and stem water potentials for equilibrated branches deserve additional investigation.

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