

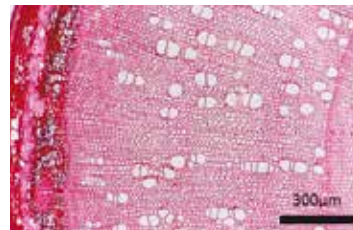


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## Study on water transport function of trees

In many tree-dominated ecosystems, drought-induced hydraulic dysfunction has been associated with the sudden death of trees exposed to critical drought stress and is one of the most important factors that determines the survival and distribution of trees. For various tree species from arid to humid regions, therefore, we aim to elucidate the mechanism of maintaining the xylem water transport under variable soil moisture conditions and the physiological properties related to it.



↑ Optical microscope image of stem cross section in *Carpinus tschonoskii*

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## Study on water use properties of trees growing in dry land



↑ Dominant tree species, *Juniperus sabina*, growing in semiarid area of China

Plants acquire carbon through stomata of leaf for photosynthesis, however, at the same time they lose water through the stomata. Therefore, it is essential for growth and survival to develop various properties of suppressing water loss and rapidly supplementing water loss. Water availability to plants in dry land is limited. Therefore, it is important how efficiently plants use water resources. For various species in dry land, we aim to elucidate the water use properties and survival strategy of whole tree from various organ levels through evaluation of transpiration of leaves, water transport properties of stems, water absorption properties in roots. From these aspects, we also work on research related to revegetation in the water-limited environment of dry land.