

Ecology of the Beech Forest and Yubiso Willow

Beech trees in the Kanto region typically grow at altitudes of at least 1,000 meters, and beech is generally considered a mountainous species. However, in Minakami's cold climate, they can be found at altitudes as low as 600 meters. Beeches are well-adapted to the heavy snowfall caused by the mountains' cold, moist environment. Their hardiness is largely the result of three characteristics. First, beech trees sprout new leaves (called "leafing out") relatively early when compared to other trees. Beeches leaf out in mid-April, when there is still snow on the ground and other plants are still dormant. This gives them an early advantage when competing for resources like sunlight. Additionally, beeches drop their nuts in autumn, and the nuts are soon covered by a thick layer of snow that does not melt for many months. This snow-cover protects the beech nuts from animals like mice, which allows them to survive and germinate in spring. Finally, the trunks of beech trees are supple and able to withstand the weight of the compacted snow. This suppleness prevents the beeches' shallow roots from being uprooted or damaged by the heavy snowfall.

Beech trees are a fundamental part of the local ecology through the seeds they produce, and their lifecycles directly affect the animals that live in the forest. A beech tree typically lives for approximately 200 years, but even after it falls and begins to rot, it continues to provide for the surrounding ecosystem: the light through the new gap in the canopy nurtures saplings to replace the fallen tree, and the decaying beech feeds mushrooms, which in turn are eaten by animals like mice and rabbits that make their homes in the rotting trunks.

In 1972, a new species of willow was discovered growing alongside the Yubiso River, a tributary of the Tone River that originates north of Mt. Tanigawadake. This species, named *Salix hukaoana* by the botanist Arika Kimura (1900–1996), is found only in northeastern Honshu. The *S. hukaoana* willow lives only in the floodplains of relatively shallow mountain rivers on the southeastern side of the Tanigawa Mountain Range.

S. hukaoana is one of the taller willow species and can reach heights of 15 meters and a thickness of 60 centimeters around. It can also be identified by the bright yellow-green color of its inner bark (or endodermis). The species is considered vulnerable, and in order to protect one of its natural habitats, the area from Doai Bridge to where the Yubiso River flows into Machigasawa Ravine has been designated a Natural Monument by Gunma Prefecture.