A garden of whitebark pines
By Larry Hyslop


Whitebark pine trees dot the slopes above Angel Lake

The slopes above Angel Lake are carry whitebark pines in seemingly random patterns, but they are not. The seeds that grew into these trees were deliberately planted by a bird.

A row of trees crowds the top of a cliff while tree clumps and vertical lines of trees dot other slopes. One pattern not seen is dense forests, since whitebark pines do poorly in shade. Each tree needs the full sun to prosper.

This is a good example of coevolution, involving the whitebark pine and the Clarke's Nutcracker. The trees can only disperse their seeds away from the mother tree using Nutcrackers and cannot survive without these birds. The pine cones contain seeds that are large and meaty to entice Nutcrackers to eat them. The seeds do not carry appendages to help with wind transport, since only Nutcrackers do this work. The pine cones do not open, which might allow other animals access. Nutcrackers hammer the pine cones open.

The Clarke's Nutcracker has no idea it is helping the tree survive, merely seeing these seeds as food. These birds are not entirely dependent on whitebark pines since Nutcrackers also eat the seeds of limber, bristlecone and pinon pines, all of which are found in the Ruby Mountains. But they eat many more white bark pine seeds than the other pines.

Nutcrackers depend on these seeds year around so they cache them for later eating. After plucking seeds from cones, the birds carry seeds in a pouch under the tongue as they fly off to dig a cache beneath a thin layer of duff or soil. Months later, they return to dig up these caches.

The only reason this process works for the pine trees is while Nutcrackers are great at remembering cache locations, they cannot remember them all. Forgotten seeds often germinate and develop into new pine trees.

A further benefit to the pines are seeds that may be transported over seven miles away from the mother tree. The Ruby Mountains would not have any whitebark pines if at some time in the past, a Clarke's Nutcracker had not carried a pouch full of seeds from another mountain range and cached them here. Seeds are often carried up or down slopes, assuring seed germination throughout the entire elevation range where pines can survive.

The caches must be placed where they are accessible later. Dig ging up caches is easy enough in fall, late spring and even summer, but the birds also need seeds during winter and early spring. Caches are buried where winter winds regularly remove snow and spring melt comes early.

Pine clumps are commonly seen since several seeds may germinate from a forgotten cache. The clump of trees trunks often fuse close to the ground. Pines often line a cliff because this area loses its snow cover during winter. A row of pines descending a rocky slope comes from snow melt earlier in spring.

The slopes above Angel Lake carry a carefully planted garden of whitebark pine trees, each tree marking a forgotten cache of seeds.

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