

Clark's Nutcracker

(Nucifraga columbiana)

MANY BIRDS WILL inadvertently plant some shrubs and other vegetation after seeds pass through their digestive track. But a Clark's nutcracker will plant an entire forest in its lifetime. The high-elevation whitebark pine stands of Montana and the entire Rocky Mountain West would not exist were it not for this cone-cracking, seed-caching bird.

INTERESTING INTERACTION

Whitebark pine cones don't open naturally, as do most other pine cones. Rather, the cones are ripped apart by Clark's nutcrackers, which feed on some of the fresh seeds and then cache the rest to eat later. Whitebark pine reforestation occurs when these buried seeds germinate. Scientists refer to Clark's nutcrackers and whitebark pines as co-evolved mutualists, meaning they evolved together with interactions beneficial to each. In this case, the whitebark pine provides high-protein food to the nutcracker, which in turn distributes and plants the tree's seeds.

IDENTIFICATION

Named for William Clark of the Lewis and Clark Expedition, this nutcracker was first observed by the Corps of Discovery in 1805. The explorers mistakenly identified the bird as a woodpecker species after watching it pound its chisel-like bill on pine cones. The following year, Lewis studied the bird in detail and recognized it as a member of the *Corvid*, or crow family, which also includes ravens and jays.

Clark's nutcrackers are larger and more robust than gray jays. Male and female nutcrackers look alike, sporting a pale gray head and body, and black and white wing and tail feathers. Their long, pointed bills and undulating flight appear woodpecker-like, but the raucous vocalizations soon reveal their crow family lineage.

BUILT FOR BUSINESS

The bill of the Clark's nutcracker is like a multi-tool: chisel, tweezers, storage compartment, hoe, and planter. The nutcracker first hammers into cones and plucks out the seeds. These it stores in a pouch

positioned beneath the bird's tongue. As the pouch fills, the bird's throat bulges. Once it has pocketed roughly 80 seeds, the nutcracker looks for a cache site. There, it makes several sideward swipes with its bill to create a trench for burying the seeds, which it coughs up one at a time. The bird plants three to five seeds at each location, then carefully covers them with soil.

MEGA-MEMORY

Diana Tomback has studied Clark's nutcrackers for more than 25 years. A University of Colorado professor and director of the Whitebark Pine Ecosystem Foundation in Missoula, Tomback says Clark's nutcrackers have remarkable spatial memories. In one season she documented a bird depositing 35,000 seeds in 9,500 caches.

"They can transport seeds as far as 8 to 12 kilometers and fly as much as 3,000 feet in elevation, up or down slope, to cache seeds," Tomback says.

Experiments show that nutcrackers recall exact locations by using landmarks, and that they can remember the locations of seeds for up to nine months.

FOOD AND FAMILY LIFE

Throughout the year, nutcrackers migrate up or down mountainsides as food becomes available. Starting off in the high country, they begin eating whitebark pine seeds around mid-July and start caching them by



TOM ULRICH

mid-August. The birds gradually travel downslope to find ponderosa pine, limber pine, and Douglas fir seeds in fall. They also eat insects, berries, mice, and carrion.

The year-round Montana residents winter in mid- to low-elevation forests. Courtship begins as early as December and the female generally lays her eggs in March, earlier than any other songbird species (yes, all *Corvids* are songbirds). The birds pair for life and share duties incubating the eggs and feeding their two to four offspring. Tomback believes that the early nesting provides more time for young birds to learn from their parents. As snow melts on open subalpine slopes in early June, the nutcracker family migrates upward. Adults uncover the previous year's whitebark larder to feed the screaming, begging fledglings. By the time the new seed crop ripens in mid-July, the young will move on to collect and store their own food.

FUTURE UNCERTAIN

Tomback says she's concerned about the future of Clark's nutcrackers. Whitebark pines are rapidly dying from blister rust disease, she says, and the trees are being shaded out by Douglas firs, which have thrived during decades of fire suppression. Several national forests now thin competing trees and use prescribed fires to restore whitebark pine forests, which should in turn benefit the tree species's historic seed distributor, the Clark's nutcracker. 🐿️

BY ELLEN HOROWITZ
Freelance writer, Bozeman