

PINYON JAY (*Gymnorhinus cyanocephalus*)

Conservation Concern

The pinyon jay, a keystone species of the pinyon pine and juniper forests of western North America, has a symbiotic relationship with the pinyon pine. It is likely that 80% of the pinyon jay population across the western United States has been lost since the 1960's. The jay is a Species of Concern of the U.S. Fish and Wildlife Service with listing status currently under review. The jay is also on the Partners in Flight Yellow Watch List with a Continental Concern Score of 14 (high). The estimated total species breeding population is roughly 690,000 birds but if current decline rates continue, the jay could lose half of its population by 2036.

Pinyon Jay Biology

Pinyon jay are crestless blue jays (they look somewhat like a blue-grey crow) that normally travel in large and loud groups. They can easily be distinguished from the deeper blue Stellar's jay that has a distinctive black crest and is usually seen in small groups and the Woodhouse's scrub jay that is a brighter blue with white throat and gray belly.

Pinyon jays eat pinyon pine nuts, ponderosa pine seeds, juniper cones ("berries"), acorns and insects. However, pinyon pine nuts are more nutritious and their primary food source. Years without the pine nut crops cause low recruitment in chicks. The jays are often seen on the boundary of the pinyon-juniper woodlands, including around Vermejo Park (HQ), living in the transition zone between pinyon-juniper and ponderosa forests.

The jays do not migrate and stay in their breeding grounds year-round but will move about the landscape depending on the pinyon mast (nut) production. They roost and nest in both pinyon and ponderosa pines and larger junipers. The jays are normally monogamous and are thought to only find a new mate if their original mate dies. A normal brood is 2-5 pale blue eggs with dark brown speckles roughly 1-1.3 inches long.

Habitat Concern and Symbiosis

Pinyon jay populations are estimated to be decreasing 3-5% per year across the Western U.S. The cause of decline is likely a combination of habitat loss and pinyon woodland stand age. The jays are dependent on pine nuts and in turn, help the distribution and regrowth of new trees. The jays can stash up to 40-50 pine nuts in a throat pouch at a time carrying the nuts to a caching area where the birds 'plant' rows of nuts for storage. Research shows that about 5% of the nuts are not retrieved essentially helping 'plant' new seedlings. In many areas, without natural fire regimes, pinyon pine have become very dense and old. The oldest trees may become less productive reducing the availability of key food for the jays. Drought is compounding the reduction in mast production. It takes three years for a pinyon pine to produce a cone with viable pine nuts, however during drought years, the tree may 'abort' the cones if not enough moisture is available extending the time between years of production. A normal cycle of mast production occurs every 4 to 7 years.

Pinyon-juniper habitat loss has increased in the western US with clearing of trees for sage habitat in the Great Basin (ironically for Greater sage-grouse habitat), human development, drought mortality, and large catastrophic wildland fires. Most recently in New Mexico, it is likely a significant loss of habitat occurred

during the Cook's Peak and Hermits Peak/Calf Canyon fires of 2022. Research shows that the two-needle pinyon pine is declining faster than the Rocky Mountain juniper during drought years which may lead to more juniper dominated areas which would greatly impact the jays.

The jays are corvids, closely related to crows, and are highly intelligent. Study of woodrat (pack rat) middens by Northern Arizona University scientists showed that it is likely that the jays have 'helped' the pine move up and down in elevation with climatic changes over thousands of years. However, ecologists are concerned that the current climatic trend of 'hotter-drier' may occur too quickly for the birds and trees to move into higher and wetter elevations.

Habitat Treatments

Vermejo has an ongoing forest treatment program that thins small areas of pinyon-juniper woodlands, normally less than 100 acres per year. The small-scale thinning is designed to reduce tree density which should encourage the regeneration or new growth of young pinyon pine. The small open patches created in the woodland mosaic are intended to replicate areas that would have historically changed due to small wildland fires. The treated areas will hopefully be less prone to crown or stand replacing fires and create more resilient woodland patches during drought cycles.

Frequently Asked Questions:

- 1. Do the males and females have different coloring?** No, unlike many birds, the adult jays have the same coloration. Immature pinyon jays may have a grayer coloring than the blue gray of the adults.
- 2. What are the common predators of pinyon jays?** Sharp-shinned and Coopers hawks as well as American kestrels will sometimes catch the jays although typically their prey is slightly smaller. Gray fox may climb and raid the nests of the jays.
- 3. What do pinyon jays eat besides pine nuts and juniper berries?** The pinyon jay is an omnivore and will mostly eat pine nuts, juniper berries, acorns and berries but will also eat insects, lizards, and small mammals. They may also raid nests of other bird species.