

ABOUT THE COVER

Gray Jay

The Gray Jay (*Perisoreus canadensis*), the gray ghost of the boreal forest, is a resident species in parts of Maine, northern New Hampshire, and Vermont. About the size of a Blue Jay, this crestless, short-billed jay is unmistakable — whitish-gray below, darker gray above — with extensive dark gray or black on its head that contrasts with white ear patches and white or tan forehead. Juveniles are a more uniform dark gray with a whitish malar stripe. The species follows Bergmann's Rule, with northern individuals the largest, southern individuals the smallest. This is an adaptation for heat retention, with larger individuals having proportionally smaller surface areas (compared to their volume) through which to lose heat. Plumage varies substantially, with Rocky Mountain birds, for example, having nearly all-white heads. The species is polytypic, with historically thirteen subspecies described, although recent taxonomic assessments recognize only six.

Gray Jays are denizens of boreal forests from Alaska across Canada through Newfoundland. In the west they are found in sub-alpine forests as far south as New Mexico and Arizona, and in the east they appear in northern New England. They are essentially territorial and non-migratory birds, but as with many boreal forest species, they sometimes stray south during hard winters, presumably in search of food. In Massachusetts they are considered a very rare winter visitor, although, for example, fourteen individuals were reported in Massachusetts during the winter of 1965-1966.

Gray Jays are monogamous with resident pairs permanently occupying territories in coniferous or mixed coniferous-deciduous forests, most commonly forests with spruce. They range from boreal forest bogs to high altitude spruce forest. Adaptations to colder climes include feathers that engulf the feet of perching birds, feather-covered nares, and the ability to drop their body temperature up to six degrees centigrade during cold nights. The short bill may also be a cold-weather adaptation. Gray Jays are comparatively silent for jays, but they have a wide range of calls and song. They have distress, alarm, contact, and food-begging calls, *whee ooo* whistles between mates, *chook chook chook* calls uttered in times of social conflict, and aggressive *chick-wurr* calls. Their soft whisper song is given during courtship, and courtship feeding is practiced as well. Highly territorial birds, they attack intruders, supplanting them from perches, and occasionally grappling with them through interlocked claws. Gray Jays mimic a variety of bird species, including Blue Jays, Rough-legged, Red-tailed, and Broad-winged hawks, American Crows, and Merlins. Because most of this mimicry is of potential predators, it may serve as warning of the presence of predators, or alternatively, it may serve to confuse them.

Gray Jays nest from March to April when winter conditions prevail. They have been observed incubating eggs with the temperature registered at minus thirty degrees centigrade. This early nesting may be adaptive because it permits concentration on gathering and caching food for the winter from May to October, when food availability is at its height. The nest site, usually near the trunk of a spruce or fir, is

selected by the male, and the female joins the male in nest construction. The nest is constructed of twigs and cocoons of tent caterpillars, with a cup lined with lichen, bark strips, feathers, or fur. The usual clutch is three or four greenish-gray eggs, spotted brown. The female alone incubates for about nineteen days until hatching. The chicks are altricial, born with eyes closed, nearly naked, and helpless. Brooding is also by the female alone; the male initially brings in the food, but is eventually helped by the female for the twenty-three to twenty-four days until fledging. The brood stays in the family territory initially, but when it is eight to nine weeks of age, the dominant chick drives the remaining chicks from the territory and remains with the parents until the following breeding season, when it in turn is driven off by the adult birds. This seemingly strange social behavior may be related to the heavy dependence that Gray Jays have on caching food reserves for winter—there may be only enough cached food for a single juvenile. Juvenile mortality is high, up to eighty-five per cent or more among the siblings driven off by the dominant chick. Life is tough in the harsh northern forests. Adult mortality, however, is low, and adults may live for a decade or more.

Gray Jays use a broad spectrum of feeding techniques and food resources. They forage on arthropods when available, as well as carrion, eggs, and nestlings of other birds, and berries. They often hunt from perches and will pursue insects in flight. They have been observed picking engorged ticks off moose and may carry large food items with their feet to feeding perches. Gray Jays are premier food cachers. They may make up to a thousand food caches during a single long summer day. They have enlarged salivary glands that provide sticky saliva with which they glue food items under bark, in branch forks, or among pine needles. Permanent territories with vast caches of food hidden during summer make surviving harsh winter conditions possible.

Gray Jays are often caught in traps set by humans to catch furred animals and have disappeared from areas where extensive land clearing has occurred, but Breeding Bird Survey results from 1966-1989 suggest the populations are stable on a continent-wide scale. Much of their range is wild and free of human habitation, which bodes well for their continued survival. 🦉

William E. Davis, Jr.

About the Cover Artist

Paul Donahue is a bird artist, environmental activist, and tree climber who divides his time between Maine, California, and South America. He has been painting and drawing birds since he began watching them during his early teens. Paul's first trip to South America was in 1972, and since then he has spent a great deal of time in the neotropics, particularly in the rainforests of the western Amazon Basin, birding, painting, tape-recording, and leading natural history trips. Since 1988, his time in the tropics has been concentrated in the rainforest canopy, where he and his wife, Teresa Wood, have constructed two canopy walkways and dozens of canopy observation platforms and taught over two thousand people how to safely climb into the forest canopy on ropes. He has contributed many fine covers to *Bird Observer*. 🦉