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NORTHWEST WILDLIFE PRESERVATION SOCIETY

Steller's Jay

Cyanocitta stelleri



Photo credit: Tom Sanders

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The Steller's jay can be found frequently in the northwest. It is known for its vibrant colours, distinctive black or blue crest, impressive ability to mimic the sounds of other animals, and remarkable intelligence and is British Columbia's provincial bird. It shares its impressive cognitive powers with the other members in its family: jays, magpies, and crows. It's name is one of the most commonly misspelled among bird species. Though often mistakenly spelled Stellar's jay, this species is actually named after George Steller, a German zoologist who explored coastal areas along the North Pacific shoreline. The genus name, *Cyanocitta*, translates to blue jay.

Characteristics

Steller's jays have a distinctive appearance. Though most frequently these jays are black-bellied with bright blue wings, colouration varies among individuals and among populations. For example, Steller's Jays often have brightly coloured blue, white, or black markings on their face resembling vertical eyebrows such that different populations can be distinguished by the color of these markings. Crest color may also vary by habitat range. Interestingly, a population in Mexico that is black-crested is surrounded by 8 other populations that are blue-crested. Blue jays and Steller's jays are the only jays with crests, so these closely related species can be easily distinguished from other related species. Steller's jays tend to have slimmer bills and longer legs than blue jays and tend to occupy a different habitat range concentrated along the western Americas. Steller's jays often have black feathers continuing down the back from the crest. The vibrant blue feathers are capped with distinctive black ridges. Juveniles tend to be slightly less colorful than adults and are characterized by their lack of eyebrows and a sooty gray or brown color, which is especially prominent near the head. Though males tend to be slightly larger than females, most Steller's jays have a wingspan of approximately 30.5 cm (1 foot). Males and females can also be distinguished by their different calls. The Cornell lab of Ornithology website has audio versions of

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Steller's jay calls, including the male song. You can listen to several different calls on their website (http://www.allaboutbirds.org/guide/Stellers_Jay/sounds). The female call is usually described as a raspy rattle. Steller's jays also have a distensible esophagus which they use to help cache and store food.

Life Cycle

Steller's jays are generally monogamous and maintain close relationships between groups and mating pairs. Females lay 2-6 eggs which are pale blue-green in colour and often spotted with dark brown or olive. The incubation period is around 16-18 days and young may take their first flight when they are about three weeks old. At about a month, juveniles begin leaving the nest to find their own food. Steller's jays build intricate nests using weeds, twigs, moss, and dry leaves as well as mud, grass, pine needles and other softer materials for the outside of the nest. Steller's jays have also been known to incorporate bits of paper and other materials used by humans into their nests. Both the male and female play roles in building the nest and caring for young. Nests are most commonly found near the top of trees, built on horizontal branches near the trunk. During courtship, the male often feeds the female. Steller's jays have a reputation of being loud and vocal. However, while nesting they will become unusually quiet and inconspicuous unless their nest is directly threatened.

Surprisingly little is known about the courtship and mating habits of Steller's jays, considering their abundance. However, it is likely that they are fairly similar to those of blue jays, with which Steller's jays sometimes hybridize. Blue jays reach sexual maturity at about one year and also form close bonds with mating pairs, staying with their partner until one individual dies. Blue jays usually mate in May while Steller's jays do mate at various times with certain times of the year being more common than others. Blue jays have complex courtship behavior in which the female chooses the male after she has been followed by several males which display dominance by intricate social cues which are similar to those of Steller's jays. For example, a cue for submission often involves spreading wings. During courtship, Steller's jays engage in a process called sexual sliding in which the mating pair will actively search for a nest together.

Habitat

Steller's jays can be found in the western Americas from Alaska to South America. Most populations are found in coniferous and pine-oak forest. However, populations may also extend into habitable regions within cities. The habitat range does not extend further east than the state of Colorado. Blue jays, which are closely related to Steller's jays generally have a different habitat range which has been expanding westward recently, increasing opportunities for hybridization between the two species. Steller's jays are typically found at elevations of about 1,000-3,000 metres (3,000-10,000 ft) and are often seen at campground or picnic areas where they have been known to "beg" for food with their characteristic squawking and pick up leftovers.

Behaviour

Steller's jays often feed on berries or insects such as wasps, beetles, and wild bees during summer months. They may also eat spiders, small rodents, and (occasionally) small lizards. They also forage for seeds, nuts, and acorns which they can store in their distensible esophagus and bury as food for winter months. Steller's jays commonly attack nests of other species and consume the eggs of other birds and have been known to kill small birds on rare occasion. Steller's jays are mostly ground foragers but can also search for meals in trees and vegetation and will often open acorns and other nuts by pounding on them with their bill.

Steller's jays are very intelligent and have complex social behaviors that can involve communicative gestures and sounds. This species is usually found in groups and may even join mixed species flocks. Steller's jays have a curious habit of flying over clearings one-by-one in single-file, calling to their group as they pass over the clearing. Flocks of jays are able to collectively mob predators and intruders to their

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territory by making loud squawking noises to overwhelm the predator or intruder. Steller's jays may attack each other while in flight by grabbing each other with their legs and pecking at each other, presumably to display dominance. Various gestures can be used to communicate. For example, a raised crest usually indicates that an individual may attack while a folded crest usually indicates retreat. It is believed that Steller's jays can instigate the mobbing of an intruder or predator through vocal communication and social cues. Steller's jays also have a remarkable ability to imitate sounds including other birds calls, certain domestic animals, and even mechanical objects. Steller's jays have been found to scare away other birds at bird feeders by imitating the screams of hawks and golden eagles. Steller's jays can also mimic the sounds of squirrels, dogs, and chickens! When traveling on the ground, Steller's jays "hop" with their distinctively long legs and cock their head periodically as if to assess the sounds in the area, while eyeing their surroundings. Steller's jays do not migrate more than 200 km but have been known, in some cases, to migrate locally. Certain populations may, for example, migrate downhill from higher elevations for winter months.

Threats

Natural predators of Steller's jays can include goshawks, Cooper's hawks, sharp-shinned hawks, falcons, and even martens or raccoons raiding their nests. However the species is fairly common in its range and is not considered endangered or at risk. However, just as other bird species, it faces threats due to industrialization and human activity. In general, bird populations can be threatened by pets which can act as introduced predators. Cats in particular have been found to attack and kill birds often. Birds are also threatened by objects with which they could collide with during flight. Many bird species collide with windows as they may see reflections of trees and other natural objects. Birds often collide with communication towers and species that travel at night can collide with buildings where lights are visible. These types of collisions often result in death due to skull fractures. As many other animals, bird populations are threatened by habitat loss. For migratory species in particular, the lack of natural stop-over habitat where flocks can stop during migratory periods can make long-range migrations impossible. Species that are rare and prized for unique coloration often face increased threats due to hunting and capture as part of the caged bird trade. Birds such as the Steller's jay that consume insects can be threatened by acid rain as this can lower the calcium content in the soil. This, in turn, decreases the calcium available in prey items. Many bird species are unable to produce viable egg shells when not enough calcium is available in their ecosystem. Likewise, toxins and pesticides can have very negative effects on bird populations. DDT, for example has been known to soften egg shells so that fewer viable offspring are born. Introduced species and human disturbances in natural habitats can also cause changes in the ecosystem which reduce the ability for certain species to survive. It is important to remember that ecosystems are incredibly dynamic, complex, and interconnected. Thus, disturbing one element of the ecosystem often results in unexpected changes and loss of species.

What We Can Do To Help

Fortunately, lots of animals face similar threats. Though this may not, in fact, seem fortunate it does mean that we can take specific measures to protect species that will not only benefit one group of animals in particular but impact our ecosystems in general so that many species benefit from these measures. The first step to conservation is usually education. So if you've gotten this far: congratulations, you're on your way to becoming part of an incredibly large and widespread group of people committed to conservation of species and natural areas. The second step to conservation usually involves becoming interested in a particular issue or learning about specific steps you can take to play a role in conservation. Are you passionate about birds? There are lots of steps you can take to positively impact bird populations and many of the threats listed above have surprisingly simple solutions. For example, as many birds can collide with windows, many people have taken to placing stickers of falcon silhouettes on their windows to scare away birds that might otherwise fly in that direction. Easy, right? The number of bird collisions with lighted tall buildings at night can be minimized by dimming the lights. The effect of habitat loss can be minimized by ensuring that sections of natural habitat are kept when a natural habitat is cleared to allow for bird stop-over during migration (the issue of fragmentation and the affect of habitat size is surprisingly

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interesting and complex, by the way, and can't be generalized just by saying more small habitat fragments should be conserved, but in this particular situation having some small habitat fragments is beneficial). Interested in learning more about what you can do to help? Birdnote.org has a very comprehensive section on their website dedicated to conservation with lots of specific steps you and your community can take to help conserve bird populations and our remarkable environment in general (<http://birdnote.org/take-action>).

As mentioned above, there are lots of steps we can take that maximize the effect of conservation measures and positively impact many species. Here's a short list of examples of the many different ways we can protect the natural environment:

- Reduce, reuse, and recycle! This may be something you've heard a great deal, but it really is a great way to preserve the environment.
- Never release unwanted pets out into the wild. They can become invasive species or impact the ecosystem.
- Start your own compost bin and use it in your garden or encourage your community to start a neighbourhood compost system.
- Preserve wetland habitats by not draining or filling in wetland.
- Leave fallen trees in wooded areas where they fall – a dead tree has more living organisms and wildlife in it than a live tree, and the ground needs the decaying material back to help nurture new trees.
- Avoid making sudden loud noises around nesting birds – this can scare them into abandoning their nests and the young birds in the nests will die.
- Do not litter on land or in the water. Help clean up the environment – see <http://www.northwestwildlife.com/gcsc2004.php> for an article on the NWPS involvement in the “Great Canadian Shoreline Cleanup” campaign.
- Dispose of toxic substances such as antifreeze, batteries, and paint responsibly. Municipalities usually provide special disposal facilities for these types of things, as putting them down drains can be extremely toxic.
- Limit use of toxic items such as many cleaning supplies or household chemicals and pesticides
- Buy organic food – this supports farmers who are trying to preserve the environment by not using chemical pesticides and herbicides.
- Plant native plant species in your garden. See <http://www.stanleyparkecology.ca/programs/public/ivyBusters.php> for background on the introduced species English Ivy killing trees in Stanley Park.
- Do not leave food or garbage outside in your backyard because it attracts bears and other wildlife. Realize that berries, fruits and vegetables growing in your backyard will attract animals.
- Do not feed wild animals. A wild animal can become dependent on humans for food and could become violent and attack humans when this food is not available. This is usually fatal to the animal because humans will retaliate and often kill the animal.
- Volunteer to help organizations like the Northwest Wildlife Preservation Society.

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- Take the time to learn about wildlife. Take a walk and observe the wildlife around where you live.

Other Interesting Facts

- The oldest Steller's jay was 16 years and 1 month old.
- Steller's jay populations do not migrate great distances but can sometimes be found in irregular habitats such as the Sonoran desert (beginning in Arizona) when irruptive movements occur.
- Nestlings usually develop their blue feathers when about 3 weeks old.
- Also called long-crested jay, mountain jay, and pine jay.
- Steller's jays especially favor peanuts in bird feeders, so if you'd like to see some near your home, set up a bird feeder with peanuts
- Steller's jays have evolved a brain morphology that allows for an advanced ability to cache food in many areas and the ability to find it later.
- As Steller's jays do not migrate frequently their wing morphology does not allow for very long-distance flight but they have evolved the ability to use their long legs to hop on the ground and to move from branch to branch in trees.
- Steller's jays have four toes, (three in the front and one flexible toe in the back called a hallux).

Where & When to View

Steller's jays are fairly common in their habitat range. The best places to look for them are forests or campgrounds near forests where more Steller's jays may gather to pick up leftover food. Steller's jays tend to be unafraid of humans and will come fairly close to observers, but if you own a set of binoculars this may allow you to view the bird at a respectful distance.

Bibliography

Web Resources:

- Bird Houses 101 summarizes the mating habits of blue Jays described in the life cycle section
<http://www.birdhouses101.com/blue-jay-mating.asp>
- Birdnote.org provides lots of information about birds and is a great resource to find out about conservation
<http://birdnote.org/take-action>
- Conservernature.org provides general information about the Steller's Jay
http://www.conservernature.org/learn_about_wildlife/rocky_mountains/stellers_jay.htm
- Audubon.org- This is a very informative birding website that provides general information about the Steller's Jay.

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<http://www.audubon.org/field-guide/bird/stellers-jay>

- Birdinginformation.com provides general information about Steller's Jays
<http://www.birdinginformation.com/birds/ravens-crows-magpies-jays/stellers-jay/>
- Bird Web provides general and distribution information about the Steller's Jay
http://www.birdweb.org/birdweb/bird/stellers_jay
- The Cornell Lab of Ornithology is a very comprehensive website about birds that provides general information about bird species as well as many related videos and audio files
http://www.allaboutbirds.org/guide/Stellers_Jay/lifehistory
- Bird Vancouver gives information about distinguishing features for juvenile, female, and male birds. http://www.birdvancouver.com/b_stellers_jay.html
- Clipper Woods Bird Observatory gives a list of threats to bird populations and conservation solutions. <http://www.wbu.com/chipperwoods/photos/threats.htm>
- The following website provides general information about the Steller's Jay and much of the information listed in the interesting facts section of this article.
https://bioweb.uwlax.edu/bio203/s2014/purtell_luke/adaptation.htm

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