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NORTHWEST WILDLIFE PRESERVATION SOCIETY

Black-capped chickadee

Poecile atricapillus



By Lucy Jeffreys

The black-capped chickadee is a small but highly curious bird that loves investigating people and its surroundings. They can be regularly seen visiting your backyard bird feeder and was even crowned Vancouver's official bird in 2005. They are highly social, flying in flocks and they can make over 15 different complex calls to communicate with other members of its flock or offspring. The most recognized one sounds like *chickadee-dee-dee* which gives the bird its name.

Characteristics

The black-capped chickadee can be recognized by its black cap and bib, grey wings, back and tail and white underside with rust brown flanks. From the tip of its beak to the tip of its tail the black-capped chickadee measures around 13cm in length. Their wingspan measures between 16-21cm and their body mass weighs between 9-14g. Both sexes look alike however the male is slightly larger than the female.

The Carolina chickadees are the most similar species to the black-capped chickadee however their range only overlaps in a narrow zone across north-central United States. They can be distinguished by their longer songs, less white wing-feathered edging and less distinguished cinnamon-buff coloring of the underparts. It was first thought that you would be able to distinguish the two species by their different vocalizations however it has now been found that where their ranges overlap they have often learnt each other's songs. Other similar species include the mountain chickadee can be distinguished by a white line over its eye and the boreal chickadee which can be distinguished by its brown cap and grey nape.

NWPS Headquarters
720-1190 Melville Street
Vancouver, BC V6E 3W1

NWPS Vancouver Island
PO Box 39058
RPO James Bay
Victoria, BC V8V 4X8

t Vancouver 604.568.9160
t Victoria 778.967.3379
e info@northwestwildlife.com
w www.northwestwildlife.com

Life Cycle

Mating pairs of the black-capped chickadee are formed in the fall, which stay together until the end of winter. When spring comes around the mating pair will break off from their flock and start to defend their nesting territory. A nesting cavity is formed within either rotten wood, an old woodpecker hole or in a nest box by both the male and the female. This nest cavity is normally situated around 1-7metres off the ground. The female then alone will create a cup-shaped nest with soft material such as moss and animal fur.

Black-capped chickadees will have one brood of around 6-8 eggs a year. These eggs are normally white in colour with fine dots of a reddish-brown. Over the first 12-13 days the female incubates the eggs, while the male brings food to the female on the nest. When born the hatchlings are naked and have their eyes closed. At this point both the male and female feed the chicks with insects, until after 16 days they are fully fledged and able to fly from the nest. At this point both the chicks and the parents leave the nest, but the parents will still feed their young until they are completely independent at around 5 to 6 weeks old. The maximum recorded lifespan of a black-capped chickadee is 12 years 5 months, however most individuals only live half that long.

Habitat

The black-capped chickadee can be found throughout Canada, from British Columbia to Newfoundland and northwards into the Northwest Territories and the Yukon. Their range also extends out of Canada, to far eastern U.S. and as far south as New Mexico. They are mostly found in tree covered areas such as orchards and woodlots, where they can find food and rotting wood to dig nest holes in. They are also known to live within residential areas as long as there are nest sites available. In general black-capped chickadees are non-migratory however they are known to travel small distances when food is scarce.

Behaviour

Black-capped chickadees are omnivores, with their diet consisting of a mixture of berries, seeds and insects. They can be seen hopping along and hanging off branches searching for hidden insects. They are also common backyard feeder birds which can be seen feeding with other small songbirds. During the breeding months their diets consists of around 80-90% invertebrates. However during the winter months it drops to around 50%, as invertebrates becomes scarce and they rely more on seeds and berries. Black-capped chickadees spend most of their time feeding, and are known to store their food throughout their habitat, under bark and in lichens. This gives them important energy resources when food is scarce.

The black-capped chickadee often form flocks of around 4-12 birds during the winter months. These flocks are also known to contain other bird species such as woodpeckers, nuthatches and brown creepers. When spring comes around these flocks break apart to form breeding pairs and a breeding territory.

Due to being non-migratory, the black-capped chickadees adapt their territorial behaviors as well as their feeding patterns to survive the cold winter conditions. Black-capped chickadees use night torpor, a regulated hypothermia, to lowers their body temperature by up to 14 degrees Fahrenheit at night. This allows them to save energy on the coldest nights by dropping their metabolic rate. They are also known to form communal roosting sites to conserve energy and forage at lower heights, providing them with wind protection.

The black-capped chickadee is also known for hiding its food and storing it for later within a cache. They have an incredible memory that allows then to remember thousands of hiding spots. Common hiding places that chickadees use to stash their food can be within dead leaves, under bark, in gutters and in the ground. These locations are remembered using a variety of spatial cues such as landmarks and also use

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the sun's compass orientation. To cope with their ever changing environment and social structure, the black-capped chickadee allows some of its old neurons to die every autumn. This allows space for new ones to grow. This occurs in the hippocampus region of the brain which is related to spatial learning and memory storage, allowing the chickadee to be able to remember the increasing number of cache locations in the winter months.

Black-capped chickadees have highly complex, almost language-like calls that convey information on predators, identity and recognition of other flock. They have at least 15 different calls which each convey different information. One such one only has two notes and sounds like "fee-bee". This song is only produced by males and is heard during the breeding season as a way of defending their territory and attracting females. A high pitched, high intensity "see" call is also used predominantly by males to warn of incoming danger. When this call is heard by other chickadees their response is to freeze until they hear a "chickadee-dee" call that signals that the threat has gone. In hetero-specific (mixed species) flocks which black-capped chickadees form with species such as nuthatches and brown creepers it has been found that these other bird species respond to the black-capped chickadees alarm calls, even though the alarm calls are not similar to their own.

Threats

The black-capped chickadee is classified by the IUCN Red List as a species of least concern due to its extremely large range. However, like most animals, there are always threats to their survival. As chickadees nest in cavities, they can suffer if too many dead logs are removed from forests as this reduces their natural nesting habitats. They are also at risk to natural predators. These include the northern shrikes, owls and hawks to the adults whilst the eggs and nestlings are most at threat from tree climbing mammals.

Black-capped chickadees play an important role in their ecosystem. Each season they excavate a new nest site, therefore providing habitat for cavity-nesting birds that cannot make their own cavity (secondary cavity-nesting species). Therefore they play an important part in the breeding cycle of other species. Black-capped chickadees are also important for local seed distribution and pest controllers through their diet.

What We Can Do To Help

- An easy way to help these birds is to keep a bird feeder and/or nest box in your garden. Black-capped chickadees are particularly attracted to nest boxes that contain wood shavings or sawdust. By doing this you are helping black-capped chickadee populations when natural food cavities are sparse and when food supplies are limited in the winter months. At feeders, black-capped chickadees favourite food is hulled sunflower seeds, black oil sunflower seeds, shelled peanuts, suet and peanut butter.
- 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.
- Reuse and recycle whenever possible.
- 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.

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- Volunteer to help organizations like the Northwest Wildlife Preservation Society.
- Take the time to learn about wildlife. Take a walk and observe the wildlife around where you live.

Other Interesting Facts

--- Black-capped chickadees will eat food equal to one third its weight every day!

--- Black-capped chickadees, due to their diet consisting of many insects, are extremely important pest controllers in forests and orchards. You can skip using pesticides in your garden and instead let these birds do the work for you. Chickadees love feeding on spiders, sawflies, insect eggs and larvae in your garden.

Where & When to view the animal

Due to their curious nature, black-capped chickadees are highly common in your backyard and can be commonly seen feeding from your bird feeder with other small songbirds all year round.

Planting berry bushes and plants such as sunflowers or other seed bearing plants, as well as a bird feeder and nest boxes is a great way to attract black-capped chickadees to your garden.

Bibliography

Web Resources:

All About Birds- great overview on the species with sound and video

https://www.allaboutbirds.org/guide/Black-capped_Chickadee/id

All About Birds- great information on birds caching food for later

<https://www.allaboutbirds.org/where-is-that-bird-going-with-that-seed-its-caching-food-for-later/>

Audubon Guide to North American birds-another great simple overview on the species

<http://www.audubon.org/field-guide/bird/black-capped-chickadee>

The Canadian Encyclopedia- simple overview on the black-capped chickadee

<http://www.audubon.org/field-guide/bird/black-capped-chickadee>

Gerbrandt- Great simple overview on chickadees and their winter survival techniques

<http://www.gerbrandt.com/matthew/chickadees.asp>

The New York Times- great overview on a study by Dr. Fernando Nottebohm & Dr. Anat Barnea on black-capped chickadee memory

<http://www.nytimes.com/1994/11/15/science/to-remember-seed-caches-bird-grows-new-brain-cells.html?pagewanted=all>

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w www.northwestwildlife.com

Original article:

https://www.openu.ac.il/personal_sites/download/anat-barnea/Seasonal-recruitment-of-hippocampal-neurons.pdf

The Spruce- article on how to easily attract chickadees to your garden

<https://www.thespruce.com/how-to-attract-chickadees-386246>

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