

# Great Blue Heron

*Ardea herodias herodias*

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*Disclaimer: The following document was compiled based on a literature review of information currently available for this species as of November 25, 2005. This document can be used to assist with the identification of this species and to support the development of management recommendations as they relate to forestry activities. For more information on this species, please refer to the reference section or consult with a Species at Risk specialist.*

## Description

The Great Blue Heron is the largest wading bird in North America, and measures approximately 60 cm in height, 97 to 137 cm in length, and 2.1 to 2.5 kg in mass. The wings are long and rounded, the bill is long, and the tail is short. Great Blue Herons fly with deep, slow wingbeats and with their necks folded in an S-shape. Plumage is mostly a blue-grey colour and adults have a white crown<sup>1,2</sup>. [Click here](#) for more information on this species including a recording of its vocalization.

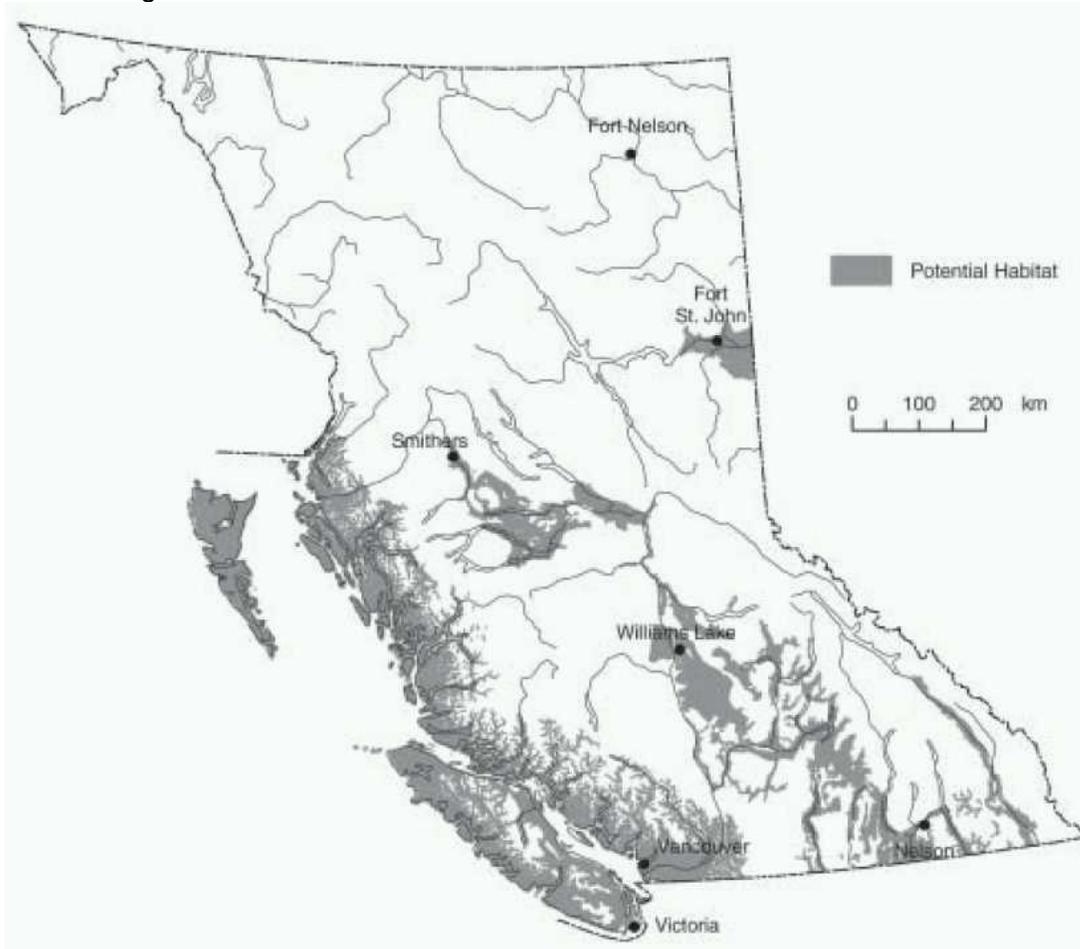


Photo: <http://www.freenaturepictures.com/pictures/blue-heron.html>

## Distribution

*A. herodias herodias* breeds from southern Canada south to Central America and the Galapagos. Winter ranges for *A. herodias herodias* include the Pacific coast of North America, the continental United States, Central America, and northern South America to Colombia, Venezuela, and the Galapagos<sup>2</sup>.

In British Columbia, *A. herodias herodias* occurs in southern interior regions of the province primarily during breeding and migratory periods. The highest concentrations of breeding herons occur in the Georgia Depression ecoprovince due to the presence of several large colonies<sup>3,4,5</sup>.



Map of potential Great Blue Heron habitat in British Columbia.

### Forest Districts<sup>1</sup>

- Forest District: Arrow Boundary Forest District (DAB)
- Central Cariboo Forest District (DCC)
- Chilcotin Forest District (DCH)
- Columbia Forest District (DCO)
- **Cascades Forest District (DCS)**
- Headwaters Forest District (DHW)
- **Kamloops Forest District (DKA)**
- Kootenay Lake Forest District (DKL)

- **100 Mile House Forest District (DMH)**
- Okanagan Shuswap Forest District (DOS)
- Prince George Forest District (DPG)
- Quesnel Forest District (DQU)
- Rocky Mountain Forest District (DRM)

**Ecoprovinces and Ecosections<sup>1</sup>**

- BOP: PEL, HAP
- CEI: BUB, CAB\*, CAP\*, CHP, FRB, NAU, NEU
- COM: CPR, CRU, EPR\*, HEL\*, KIM, KIR, MEM,
- NAM, NCF, NIM, NPR, NWC\*, NWL, OUF,
- QCL\*, QCT, SBR, SKP\*, SPR\*, WIM\*,
- WQC\*
- GED: FRL\*, GEL\*, LIM\*, NAL\*, SGI\*, SOG\*
- SBI: BAU, BUB, NEL, NSM, SSM
- SIM: BBT, CAM, CCM\*, EKT\*, EPM, MCR, NPK,
- SCM\*, SFH\*, SHH\*, SPK\*, SPM\*, UCV\*,
- UFT
- SOI: GUU\*, LPR, NIB\*, NOB\*, NOH\*, NTU\*,
- OKR, PAR, SCR, SHB\*, SOB\*, SOH, STU\*,
- THB, TRU\*

**Biogeoclimatic Units<sup>1</sup>**

- BG: xh1, xw1
- CDF: mm
- CWH: dm, ms1, ms2, vh1, vh2, vm1, vm2, wh1, xm
- ICH: dw, mk1, mk2, mk3, mw2, mw3, xw
- IDF: dk3, dm2, mw1, mw2, un, xh1, xh2
- MS: dk
- PP: dh2, xh1, xh2
- SBS: dk or dh, dw1

**Broad Ecosystem Units<sup>1</sup>**

- CB, CF, CR, ES, IM, PR, RR, SP, SR, WL, (UR in GED ecoprovince)

**Elevation**

In the interior of British Columbia, most herons occur in the lowlands and valley bottoms, though nesting and occurrences have been documented to 1100 m<sup>3</sup>.

**Map of Known Locations**

The Great Blue Heron occurrence data is considered sensitive by the Conservation Data Centre (CDC). Therefore, known location data for this species is not available to the public. Please contact the CDC to request this data at:

Phone: (250) 356-0928

Fax: (250) 387-2733

## Biology

Breeding is initiated in late March for *A. herodias herodias*. Males arrive at the colony site and establish territories, followed about 1 week later by the females. Courtship and nest repair and/or building take from several days to approximately one month. Monogamous pairs are established for the season. Clutch size ranges from one to eight, with three to five being typical<sup>1,2,3,5,6</sup>.

Incubation begins soon after the first egg is laid (March to April), resulting in asynchronous hatching. Hatching occurs after about 27 days of incubation. Young are reared on the nest for approximately 60 days and fed mostly fish that are caught near the colony site<sup>1,2,7</sup>.

One breeding cycle requires about 100 days, and herons reproduce for about 200 days around the Strait of Georgia. Thus, herons can potentially breed more than once if their first attempt fails. Breeding duration for the Interior is not known.

Colonies are dynamic, especially in areas of high disturbance. Nests can be built in 3 days and eggs can be laid within approximately 1 week<sup>1,8</sup>. Some colonies are used for many years, but most colonies, especially those under 50 nests, are relocated more frequently. In southern British Columbia, a mean colony size of 19 nests was reported with a range of 1 to 77 nests<sup>9</sup>.

Across British Columbia, it is not clear how frequently the same individuals return to the same nest site. However, at one colony on the Sunshine Coast, 40% of the breeding herons in 1978 did not return in 1979, and most breeding herons were on different nests and with different mates in 1979. Once a colony has been abandoned for more than 1 year, recolonization occurs infrequently<sup>1,2,5,7</sup>.

## Habitat

Heron colonies are located in groves of large trees along the banks of lakes, slow-moving rivers, sloughs, marshes and ponds in the North Okanagan. Grassy fields with abundant rodent populations may be important habitat for winter survival<sup>11</sup>.

### ***Important Habitats and Habitat Features***

Great Blue Herons require abundant and accessible prey within 10 km of a breeding location. In the interior, important foraging habitats include aquatic areas such as riverbanks, lakeshores, and wetlands. Shallow water fish species are the most important prey group for herons during breeding and non-breeding seasons<sup>1,2,10</sup>.

Inland fields are considered an important foraging habitat for both adults and juveniles in the lower Fraser Valley and on southern Vancouver Island. The number of herons that use non-aquatic foraging habitats is not known, but large numbers of herons reside in southcoastal areas so it is likely that these areas are an important foraging habitat for a significant portion of the heron populations in this area. The importance of non-aquatic foraging habitat for herons in the Interior and on other areas of the coast is not known<sup>1,5</sup>.

### **Nesting**

Nests are generally located in trees, 20-50 metres above the ground and are approximately 1 metre in diameter. Nests are typically built out of sticks and twigs, rushes, bark and evergreen boughs<sup>11</sup>.

Heronries can occupy up to 2 hectares of forest containing over 400 nests. Okanagan colonies are much smaller, usually comprising only four or five pairs<sup>11</sup>.

In the southeastern interior, black cottonwood comprises 54% of nest trees with coniferous species —Douglas-fir (*Pseudotsuga menziesii*), western white pine (*Pinus monticola*), hybrid white spruce (*Picea glauca x engelmannii*), ponderosa pine (*Pinus ponderosa*), western redcedar (*Thuja plicata*) and western hemlock (*Tsuga heterophylla*)—accounting for the remaining 46%. Nest in coniferous trees are more difficult to detect, even during aerial surveys<sup>1,9</sup>.



Heron rookery. Photo credit: Rhiannon Hamdi©

### **Foraging**

During the breeding season, adult herons range within about 30 km of their colonies, although most stay within 10 km. Great Blue Herons are prey generalists, although they primarily forage for fish. They stalk prey by walking or standing in shallow water along the shoreline of oceans, marshes, lakes, and rivers and in fields or other vegetated areas. In upland areas they stalk mostly small mammals such as rodents. This upland

foraging behaviour is more common in winter and for juveniles learning to hunt. Other prey types include amphibians, reptiles, invertebrates, and birds<sup>1,2,8</sup>.

Important foraging habitats include aquatic areas such as tidal mudflats, riverbanks, lakeshores, and wetlands. Shallow water fish species are the most important prey group for herons during breeding and non-breeding seasons. The importance of non-aquatic foraging habitat for herons in the Interior and on other areas of the coast is not known<sup>1,2</sup>.

## Conservation and Management

### **Status**<sup>12</sup>

Prov. Rank: S3B (Rare-uncommon for breeding population in province), S4N (Common for non-breeding population in province),  
BC List: Blue (Special Concern)

### **Threats**

Human activity near heron colonies poses the largest threat to this subspecies. The number of fledglings raised in heron colonies with frequent disturbance is significantly lower than at colonies with no disturbance, since disturbed adult herons leave eggs and nestlings unguarded and vulnerable to predation by Bald Eagles and other birds. The quiet forested areas near foraging habitats that are preferred by herons for nesting have become increasingly scarce in southern British Columbia, as a result of human encroachment<sup>1,13</sup>.

### **Population Threats**

Direct threats to Great Blue Heron populations in British Columbia include human disturbance and mortality from predators and humans, food supply limitations, contamination, and weather<sup>1,2,14</sup>.

### **Habitat Threats**

Threats to Great Blue Heron habitat in British Columbia include the loss of breeding and foraging areas to urban development, forestry, hydroelectric power development, and natural processes. Urban development and forestry are the main causes of habitat loss. Forestry can impact heron habitat through the removal of active or potential nest trees. Habitat is also threatened by weather-related problems such as tree or nest blowdown. Forest fragmentation may increase access to, or visibility of, breeding colonies for predators, such as Bald Eagles, thereby reducing the amount of suitable breeding habitat available to herons<sup>1,5,14</sup>.

## Management Recommendations

Consult with a Registered Professional Biologist prior to implementing the following management recommendations because certain situations may require custom solutions based on specific site characteristics.

### **General Recommendations**

- Identify locations where this species is known to occur: if available, obtain occurrence data from the Conservation Data Centre (<http://srmwww.gov.bc.ca/cdc/>) and if necessary conduct surveys to confirm presence or absence of this species.
- Budget permitting, develop a habitat model to help identify high value habitat found within your areas of interest. The complexity of the model, and therefore its accuracy, will be dependent on budgetary constraints.
- Based on the sensitive nature of this species, establish a 300 m restricted zone and 500 m management zone around the rookery to minimize human disturbance.
- Forestry activities (including harvest, salvage, hauling, and road construction) may only occur between September 1 and February 15 in areas outside of the 300 m restricted zone. No forestry activities should occur within the 300 m restricted zone.
- Do not enter the 300m restricted zone during the breeding season (February 15 to September 1).
- Mechanical site preparation is permitted between September 1 and February 15 in areas outside of the 300 m restricted zone.
- Planting areas outside of the 300 m restricted zone should occur as late as possible during the summer in order to minimize disturbance to the rookery during the incubation period (which generally occurs between April and May).
- Disturbance of feeding areas such as marshes, estuaries and fields should be avoided<sup>11</sup>.
- Maintain important structural elements for nesting and foraging (i.e. suitable nest trees, non-fragmented forest around nest trees, wetland characteristics for foraging if applicable, roost trees, and ground barriers to exclude mammalian predators)<sup>1</sup>.
- Do not use pesticides within the 500 m management zone.
- Report new sightings to the Ministry of Environment Kamloops office (John Surgenor. Ph: (250) 371-6306).

**Additional Management Considerations**

- Where permanent activities or habitat modifications are planned, vegetative screening should be planted or maintained between the activity and the colony as close to the activity area as possible. Where possible, the trees/shrubs planted should be a mixture of deciduous and coniferous, and half should be of the same species currently used for nesting<sup>1</sup>.
- Protect heron foraging resources, especially those within 4 km of colonies and in key wintering areas, from development, degradation, and pollution. Interior birds feed in marshes and along shallow shorelines of lakes and rivers; during winter they require areas of open (unfrozen) water<sup>1</sup>.
- Maintain perch trees adjacent to major summer and winter foraging areas.
- Maintain important interior riparian mature/old-growth forest nesting habitat.

## References

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- <sup>12</sup> BC Conservation Data Centre. Website: <http://srmapps.gov.bc.ca>
- <sup>13</sup> Environment Canada Species at Risk Website: [http://www.speciesatrisk.gc.ca/search/speciesDetails\\_e.cfm?SpeciesID=292](http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?SpeciesID=292)
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