

Post Point Heron Colony

Monitoring Annual Report 2006

prepared for:

The City of Bellingham
Department of Public Works

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EXECUTIVE SUMMARY

The Post Point Great Blue Heron Colony is the only known heron nesting site in the City of Bellingham. The colony was first documented in 2000 at its present location in south Bellingham on the nearshore bluff southwest of the Post Point Waste Water Treatment Facility. The colony is situated on City property, but is adjacent to private property proposed for residential development. Due to the sensitivity of the heronry and its uniqueness within the city, Bellingham Public Works requested a management plan (2004) followed by a scientific baseline study of the colony in 2005 to document breeding chronology, nesting activities, colony status and recent changes. Continued annual monitoring of the colony is necessary due to its sensitivity as a colonial nesting site, continued growth, local significance as a critical area and location in an urban environment.

Habitat used by the Post Point herons include upland forest, field, freshwater, estuarine and marine areas. All of these essential habitats are located in close proximity of the Post Point colony and form a matrix supporting staging, nesting, roosting and foraging. The heronry is situated on a nearshore bluff in mixed forest. The herons utilized this habitat for both nesting and roosting and are present seasonally in large concentrations to nest and in smaller year-round roosting congregations in the same contiguous forest occupied by the colony. The Post Point herons are unique in their use of upland human structures for staging at the Post Point wastewater treatment facility for staging. Herons forage along the intertidal shoreline of Post Point, the lagoon and Padden Creek estuary as well as shoreline areas of Bellingham Bay and Chuckanut Bay.

The results of the 2006 Post Point Great Blue Heron Colony Annual Monitoring are detailed in this report. The heron colony continues to be active, productive and expand. In 2006, 37 nests were active in 16 trees. The heron colony grew 19% from 2005. The Post Point heronry was spawned in 2000 with 6 nests in 5 nest trees. Over 6 years the colony has grown nearly 36% per year and the core area has doubled in size to the current nesting area of approximately 1 acre. Since 2000, the colony has expanded over 500%, from 6 to 37 active nests.

The Post Point Heron Colony was monitored between March and August, and included 16 site visits by a professional wildlife biologist who recorded observations, conducted nest counts and mapped the colony. The nesting season usually spans six to seven months from February or March to August. The herons stage in and near the colony in February or later prior to breeding and nesting. Nesting proceeds with nest building and enhancement and breeding in March. Egg laying and incubation start in late March and continue through April. Hatching of young in late April carry on through May, followed by rearing through June and fledging in July and August. By late August, most heron adults and juveniles have dispersed from Post Point. The 2006 nesting season was condensed with herons nesting soon after arrival in March and most young fledged in July. Based on occupancy and productivity data it is estimated that the colony fledged 91 young in 2006.

Disturbance in and around the heron colony appeared to be minimal in 2006. Bald eagles were on site regularly during the breeding season. However, the bald eagle nest near the heron colony was only occasionally occupied and no nesting or young were observed. The nest tree located approximately 62 feet from the colony core. Eagles are natural predators of herons and some disturbance and/or mortality in the colony related to eagles is expected, however no direct eagle predation of heron was observed or reported. Human related disturbance of foraging and fledging herons was observed both along the shoreline and at the Post Point Lagoon. A new

permanent fence and associated vegetation was placed around the colony buffer to the north and proved effective in limited human access to the nesting area.

Recommendations to the City of Bellingham for conservation of the Post Point Heron Colony include: an update of the 2003 Post Point Heron Management Plan, full protection of associated upland habitat around the colony and nearshore habitat, on-going annual monitoring of the colony, tracking of foraging areas and development of a bald eagle management plan.

The Post Point Heron Colony is thriving and growing on an annual basis, expanding about 36% per year. Due to the colony's unique occurrence within the city and its sustained growth, protection of the colony and associated habitats are imperative to the heronry's continued health and longevity. The Great Blue Herons of Post Point represent one of the City's greatest natural features and most sensitive wildlife areas.

INTRODUCTION

The Post Point Great Blue Heron Colony Annual Report is presented as a summary of the 2006 heron colony monitoring. The Post Point heronry is located near Fairhaven in south Bellingham, Washington (T37N/R2E/Section 2). This heronry is the only known heron nesting site in the City of Bellingham and is considered a sensitive breeding and habitat area. The colony is small, yet expanding annually.

The Great Blue Heron (*Ardea herodias*) is a resident or year-round species in this region and recognized as a Priority Species by Washington Department of Fish and Wildlife. Heron colony sites are also considered critical areas resulting in the protection of both the herons and their nesting habitat. Heron colonies are sensitive to disturbance and in most cases require special protective management to maintain their stability and productivity.

Due to the sensitivity of the Post Point Great Blue Heron Colony Heron Colony and its uniqueness the City of Bellingham Public Works has developed a management plan (2003), a scientific baseline study (2005) and continued monitoring of the site to follow through in appropriate management and conservation of the site. Continued monitoring of the colony has been recommended on an annual basis due to its sensitivity as a colonial nesting site, continued growth, local significance as a critical area and location in an urban environment

The 2006 Post Point Great Blue Heron monitoring includes three primary components: general monitoring, focusing on colony activity, breeding chronology, predation and disturbance; productivity, which focuses on nestling numbers and fledgling success; and nest survey providing an update on the number of nests and nest trees utilized during 2006. In addition, foraging surveys will be conducted to document foraging activity and locations. Monitoring spanned six months during the breeding season, plus post breeding documentation. Periodic progress reports were submitted documenting the heron's nesting activity in 2006.

The implementation of the study including on-site field observation and data collection was conducted by Ann Eissinger of Nahkeeta Northwest Wildlife Services based in Bow, Washington. Ms Eissinger has over fifteen years experience monitoring Great Blue Herons and is expert in their ecology, behavior, colony management and conservation. She is also the author of the 2003 Post Point Heron Colony Management Plan and 2005 Post Point Heron Colony Baseline Study prepared for the City of Bellingham, Department of Public Works. The Biologist is also actively involved in the development of interpretive displays and public education materials for Post Point. The point of contact for this project at the City of Bellingham Department of Public Works was Larry Bateman, Post Point Operations Supervisor.

Post Point Heron Colony Location



GENERAL MONITORING

General monitoring included on-site visits and observations made from various locations in close proximity to the colony. Due to the location and associated vegetation around the nesting area, views of certain nests were obscured following leaf-out. However, a representative sample of nests was visible for the duration of the nesting season.

General monitoring of the colony commenced early in the season beginning in March and extended into August 2006. The breeding season was documented from March 3 to August 11 at total of 23 weeks, five weeks less than 2005. Monitoring was conducted on-site on a biweekly basis. In 2006, a total of 13 on-site monitoring visits were made during the breeding/nesting season plus three colony nest count/mapping visits in the autumn during the non-nesting period.

Monitoring of the colony included three primary objectives: 1) documentation of the nesting cycle or breeding chronology and related behaviour 2) observed disturbance including predation, human disturbance and other natural or unnatural disturbances 3) habitat utilization. The results of the monitoring observations are detailed below.

Breeding Chronology

Starting in late February heron staging and roosting was reported in the colony. In March staging was brief, followed by reoccupation of the colony, courtship and the onset of nesting. By late-March 16 nests were occupied and incubation had begun for half those nests. In April 25 nests were occupied with incubation at most nests. Leaf-out obscured visibility, so more nests were occupied. Two nests appeared to be unoccupied, possibly predated. First hatching of young was documented May 3. Incubation, hatching and brooding continued through May along with the rearing of young. Rearing of young continued through June and July with early fledging (young leaving the nest) noted beginning at the end of June. Due to the asynchronicity of egg laying and hatching, young of the same nest fledged at different times. Fledging in 2006 occurred rapidly between June 27 and July 7 with over 50% of the colony dispersing at that time. Fledging continued through July with only 3 nests occupied in early August. Completion of the nesting season was documented August 11.

Post Point Heron Nesting Chronology Summary 2006

- February: Roosting, few heron staging on clarifiers
- March: Staging, colony reoccupation, nesting onset
- April: Incubation
- May: Incubation, hatching, brooding and rearing of young
- June: Rearing of young, early fledging
- July: Rearing of young and fledging
- August: Final fledging

Note: Nesting chronology and timing may vary yearly by 1-2 weeks. Between 2005-2006 nesting was condensed, by starting a little later and fledging earlier.

In addition to the seasonal chronology, a historic chronology was also developed. The historic chronology outlines the annual colony activity, nest count results and other pertinent occurrences for that year related to the herons. The historic chronology is included in the appendix of this report.

Predation

During each field visit to and in the vicinity of the heron colony, observations were made of potential predators such as: Bald Eagles, Red-tailed Hawks, Crows and Ravens. Crows and eagles had been noted consistently in the vicinity of the heron colony throughout the breeding season, ravens and hawks occurring occasionally. No harassment or predation was observed at the heronry.

Bald Eagle activity in particular was carefully monitored. An active Bald Eagle nest situated in a large Douglas fir tree, is located approximately 62 feet southeast of the heron colony. With an eagle nest in close proximity of the colony, the dynamic between the eagles and herons was watched closely. Although new nesting material was added to the nest and eagles were observed at the nest and perching nearby, no young were produced and no interaction with the herons was observed.

The Bald Eagle nest is protected under both State and Federal regulations and will require a Bald Eagle site management plan. The location and map illustrating the bald eagle nest location was forwarded to Washington Department of Fish and Wildlife's Region 6 Bald Eagle Specialist Julie Stofel in 2006.

Disturbance

No direct disturbance to the herons in the heron colony was observed by the Biologist during the 2006 nesting season. Remains of young were examined in the colony following dispersal, however, no cause of death was ascertained. Young heron that fall out of the nest are not attended by the adults and die of injury, starvation or predation on the ground.

A public trail and off lease area for dogs is located directly north of the heron colony. Dogs and people utilize the off-leash area with great frequency. An area of the field below the heron colony has been permanently fenced off restricting dogs and their owners from entering the no disturbance zone, 100 feet from the colony perimeter. This area appears to provide adequate buffering from people and dogs, since the colony is set on a forested hillside and is screened from most of the activity below and protected from intrusion. Herons have shown no response at any point during the breeding season to people and dogs in the off leash area, including loud barking during the monitoring visits.

Activity in and around the Post Point Waste Water Treatment Facility appears to have little effect on the nesting herons. Early in the season, herons were staging on the clarifiers at the water treatment plant and were occasionally flushed by plant personnel.

The Ski to Sea race over the Memorial Day weekend which concludes at Marine Park, directly north of Post Point and the Fourth of July activities along Bellingham Bay have the potential to disturb nesting herons. Both events draw hundreds of people to the shoreline area and adjacent park. Due to the significant fledging between June 27 and July 7, it is possible that the

fourth of July may have been a contributing factor. It is recommended that in 2007 great monitoring effort be made during this time.

The City of Bellingham Public Works Department completed vegetation enhancement and trail resurfacing around the Post Point Lagoon in the spring of 2006. The native vegetation will add to the habitat diversity in the immediate area and offer screening along the buffer fencing. With the added screening it is possible that herons may utilize this field area.

Disturbance and feeding herons along the intertidal area is observed on occasion. Due to the high number of people and off-leash dogs accessing the lagoon and marine shoreline from the park and railroad corridor, some disturbance is unavoidable.

Disturbance to the heron colony during the 2006 season was determined to be minimal with no obvious incursions or causes observed. Human and dog activities in the off-leash park upland area appear to have little impact on the herons. However, human and dog presence in intertidal and shoreline areas may conflict with heron use of these areas.

Habitat Utilization

The habitats utilized by the herons of Post Point include upland mixed forest, nearshore bluff, marine estuary, shoreline, intertidal and human structures. The upland mixed forest is situated along the nearshore bluff at Post Point and provides the substrate for seasonal nesting and year-round roosting. Within close proximity of the colony is marine shoreline, protected lagoon, estuary and intertidal area.

The upland forest where the nest colony is located is situated along a historic shoreline bluff. The bluff line allows the herons separation and elevation above the shoreline park and nearby municipal facilities. The forest is mixed second growth containing mature conifer and deciduous trees. The tree species utilized by the herons for nesting include Pacific paper birch (*Betula papyrifera*), big-leaf maple (*Acer macrophyllum*) and red alder (*Alnus rubra*). The nest stand is dominated by alder and Douglas fir (*Pseudotsuga menziesii*). Douglas fir define the bluff and provide a critical overstory and wind break for the colony; they also serve as the primary roost trees for herons and bald eagles.

Although field habitat is present adjacent to the heron colony at Post Point and a vole population is available for foraging, heron use of the fields has not been observed. However, vole casting were observed in the colony and vole tunnels were documented in the immediate field (Photos). The new fence separating the heron colony from off-lease dogs may help create a safe place for heron to forage in the future. Herons generally both stage and feed in field habitats and occasionally roost in fields during the day.

The heron's use of the Post Point Waste Water Treatment Facility is unique. Herons utilize the top of the clarifiers for staging and occasionally during the breeding season, fledging and winter roosting. Herons standing on the clarifier structures provide separation from the colony without the risk of human or animal (dog) disturbance. It is also a sunny and potential warmer area that the north-facing forest where they normally roost.

Foraging

Foraging habitats for herons include field, freshwater, estuaries and marine intertidal areas. The most productive foraging areas are frequented during the breeding season and provide the prey necessary to nourish young over an eight week rearing period. The foraging areas for the Post Point herons in and around Bellingham Bay were surveyed and mapped. The surveys were conducted by the Biologist and trained volunteers during the nesting season. The results of the foraging surveys will be described further in the final report. Foraging areas for Post Point herons included Post Point Lagoon and associated shoreline and intertidal areas inside and outside of the lagoon, particularly areas of native eelgrass (*Zostera marina*) as well as Padden Creek estuary and associated intertidal areas.

HERON FORAGING AREAS 2006

PRODUCTIVITY

The productivity of the heron colony was measured during visits in June and July. The method for productive survey in larger colonies is based on a sampling of representative nests during a single survey. This is done to reduce disturbance to the colony since access into or near the colony is necessary. For a smaller colony, such as Post Point where nests are easily viewed at a safe distance from the colony, nests were observed over a period of time and young recorded during each visit until fledging. This method provides numbers of young per nest, both pre and post fledging, plus fledging dates.

The productivity surveys were conducted during 4 monitoring visits in June and July. The results are as follows.

June 2: 17 active nests observed 8 nests with 24 young counted = 3.0 young/nest
June 15: 12 active nests observed 10 nests with 24 young counted = 2.4 young/nest
June 27: Fledging started
June 27: 15 active nests observed 14 nests with 33 young counted = 2.4 young per nest
July 7: 50% fledged

The mean productivity for 2006 was similar to 2005 with 2.6 young per nest. If this is applied to the colony's estimated 35 productive nests, the number of fledglings from the colony in 2006 is 91 young. This is a 17% increase in productivity over 2005. Based on this fledging number there is a potential for young to return to the colony to nest as adults in two years. If fledgling survival is estimated at 40%, the colony could experience an additional 36 nesting adults or 18 new nests in 2008 resulting from this year's progeny. Current growth of the colony indicates an influx of new breeding adults annually and is likely a result of maturing young from 2 years

previous. In other words, the successful fledging of young from the Post Point colony is compounding the colony's growth with returning fledglings as breeding adults.

AUTUMN NEST SURVEY & MAPPING UPDATE

The autumn nest count is the standard method for determining the number of nests within the heronry and indicates the number of active nesting pairs utilizing the site during that year. Autumn allows maximum viewing of the whole heronry following leaf drop, and is the most accurate count of the year. A record of nest locations is updated and new nests noted then transferred to a map which illustrates changes to the heronry year to year.

In review of previous years, 19 nests were active in 2004, two of which may not have supported young. In October 2005, the annual nest count was conducted resulting in a total of 31 nests counted in 10 nest trees. Of the nests counted in 2005, 13 were new for that year.

For 2006 a nest count was conducted in October. The results for 2006 totaled 37 nests in 15 trees. Of the nests counted one nest's use was in question, due to its location in the large Douglas fir and its small size. Four new nest trees were located along the stream corridor in alders. Another new nest and nest tree located to the west blew over earlier in the year and was not counted.

A mapping update of the colony was completed in November 2006. The colony maps (Figure 2-3) illustrate the colony, its location on the landscape, the core area, nest tree location and number of nests per tree. In addition, heron roosting and foraging areas are identified as well as the bald eagle nest near the colony. Property boundaries are also indicated on the map. Although the colony is situated on City property, many of the nests are bordering private property and with expansion of the colony, nesting could migrate onto proposed development land.

The colony core area, as indicated on the maps, constitutes the actual nesting area and is calculated 50 foot from the base of the nest trees in order to accommodate GPS variance and tree canopy. The core area is about 1 acre in size. A 100 foot buffer is illustrated as the non-disturbance area around the colony. The combined core area and buffer total 2.12?? acres. This buffer is recommended as the minimum no-entry area during the breeding season and area in which no vegetation should be removed.

During the annual nest count, each nest tree is tagged or existing tags are read, and tree condition is noted. Number and size of nests are recorded as well as the presence of egg shell, remains or blown down nests. A database of nests and nest trees is maintained and updated annually.

The following is a summary of nests and nest trees since 2000.

Post Point Heron Colony Annual Nest Count

Year	Total number Number of nests	Total number Number of nest trees	Percentage change (# of nests)
2000	6	5	----
2001	8 estimated	6 estimated	33%
2002	10	6	25%
2003	14	8	40%
2004	19	10	36%
2005	31	10	63%
2006	37	15	19%

Mean annual growth rate = 36% per year

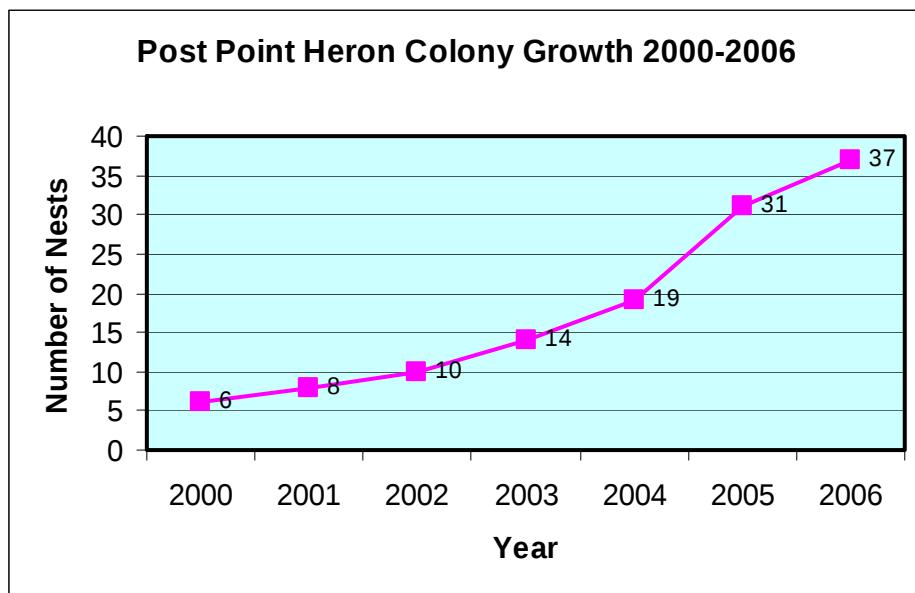
Figure 2

Figure 3

COLONY GROWTH

The Post Point Heron Colony has experienced significant growth since its establishment in 2000. Since 2000, the colony has expanded approximately 500%, from 6 to 37 nests. Over six years, the growth rate has been 36% annually. The growth of the Post Point heronry is significant and requires recognition. This colony is experiencing measurable, steady growth that exceeds annual trends at any comparable heronry in the Salish Sea (Puget Sound, Georgia Strait, Strait of Juan de Fuca). At the current rate of growth the colony is expected to exceed 100 nests (200 breeding adults) in four years. The colony site has the capacity to support this growth, however protection of the colony site and associated habitat is imperative to sustain its growth and attain maximum capacity.

Post Point Heron Colony Growth



PUBLIC EDUCATION and INTERPRETATION

Public education and information is an important component of the Post Point heron monitoring project. The location of the heronry, adjacent to a high-use undeveloped park, makes for a perfect setting for education and interpretation. During 2005-2006 interpretive signs were designed for the area and a video about the Post Point Lagoon was recorded for the local community TV channel. In addition, during the nesting season, one nest tree blew over and resulted in a perfect educational opportunity. The nest was recovered and placed in a portion of the tree at trailside. A simple interpretive sign was designed by the Biologist and placed at the nest for public viewing. A permanent interpretive sign will be placed in view of the heron colony sometime in 2007.

Post Point Heron Nest Display

Post Point Heron Colony ♀

This nest is from the great blue heron colony
situated on the forested bluff above ↑

Heron nests are built with large sticks and lined
with small fir branches

The herons nest from February to August

Each pair raise 1-4 young

Heron colonies are sensitive
please do not disturb



MANAGEMENT AND STEWARDSHIP RECOMMENDATIONS

In 2003, the Post Point Heron Colony Management Plan was prepared for the City of Bellingham. The plan provided background information, regulatory overview, status of the colony and recommendations. The recommendations in 2003 were based on a heron colony a fraction of the size it is today. Therefore, it is recommended that the Post Point Heron Colony Management Plan, be updated to reflect the current status and growth of the colony and its sensitivity.

Annual monitoring of the colony is recommended to continue. Monitoring is important for this colony for several reasons: annual growth and large number of herons within an urban setting, sensitivity to disturbance, proximity to public use area and planned residential development and facility expansion. Continued observation of foraging areas during the breeding season is also essential due to the dependence of the colony's success on these areas.

The development of an eagle management plan for the nearby eagle nest would be recommended for inclusive stewardship of the area as a functioning habitat unit. Finally, public acquisition of the adjacent upland area associated with the heronry and bald eagle habitat is suggested.

CONCLUSION

The Post Point Heron Colony was established in 2000 and has actively and successfully produced and fledged young for seven consecutive nesting season. The 2006 annual monitoring documented the full nesting season with continued growth and fledging of young. In addition to monitoring of nesting, foraging areas were also surveyed. Public education also was included as an incidental component of 2006 season.

The Post Point Great Blue Heron Colony has reached a total of 37 nests, with an estimated fledging of 91 young during the 2006 nesting season. The nesting season was condensed for unknown reasons, with nesting beginning in March and completing by early August, a total of 23 weeks, five weeks less than 2005. The growth of the colony is measurable, with 6 new nests and 5 new nest trees in 2006. Annual growth of the colony continues at an estimated 36% annually.

Predation and disturbance at the colony has been minimal. Disturbances in the heronry during the 2006 nesting season were not observed. Human related disturbance of foraging adults and fledging young near the Post Point Lagoon and marine shoreline were occasionally noted. Nesting related activities did not appear to have been disrupted nor was there direct disturbance observed from recreational activities in the off-leash park area. A new fence providing a barrier between the nest stand and off-leash area has greatly improved the security of the heronry and also provides a protected field area that could be utilized by foraging herons in the future.

Currently, the Post Point heron colony is both growing and thriving. Due to the continual growth and sensitivity of the colony, on-going monitoring of the colony during the breeding season is highly recommended.

Finally, Nahkeeta Northwest would like to extend our gratitude to Larry Bateman and the staff of the Post Point Waste Water Treatment Facility for their assistance in this monitoring effort. We particularly appreciate their providing a protective fence around the colony to improve security of the colony, habitat improvement and protection, assisting with interpretive display and maintaining good communication during the season. In addition, we would also like to thank Kate Newell GIS Specialist with the City of Bellingham for providing nest locations and mapping.

MAPS AND PHOTOS TO BE ADDED

APPENDIX

Historic Chronology