

Post Point Heron Colony

Baseline Study Annual Report 2005

prepared for:

The City of Bellingham
Department of Public Works

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Post Point Heron Colony

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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 near shore 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 development. Due to the sensitivity of the heronry and its uniqueness within the city, Bellingham Public Works sponsored a scientific baseline study of the colony in 2005 to document breeding chronology, nesting activities, colony status and recent changes.

The results of the 2005 Baseline Study are provided in the Post Point Great Blue Heron Colony Baseline Study Annual Report. In summary, the study included 21 site visits by a professional wildlife biologist who recorded observations, conducted nest counts and mapped the colony. The Post Point heronry was spawned in 2000 with 6 nests in 5 nest trees. Over 5 years the colony has grown nearly 40% per year to 10 nest trees occupying a core nesting area of 0.56 acres. Since 2000, the colony has expanded over 400%, from 6 to 31 nests.

The nesting season spans 7 months from February to August. The herons stage in and near the colony in February 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. Based on occupancy and productivity data it is estimated that the colony fledged over 70 young in 2005.

Disturbance in and around the heron colony appeared to be minimal. Bald eagles were on site daily during the breeding season and a bald eagle nest was later identified 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 was expected. Disturbance of foraging and fledging herons was observed both along the shoreline and at the Post Point Lagoon.

Habitat use by the herons include upland forest, field, freshwater, estuarine and marine areas. The Post Point herons utilize a mixed forest situated on the nearshore bluff for nesting and roosting. The herons nest seasonally and roost by day and night, year-round in the same contiguous forest occupied by the colony. The Post Point herons are also unique in their use of upland human structures for staging. Incidental observations were made of herons foraging along the intertidal shoreline of Post Point and within the lagoon and Padden Creek estuary as well as flying to and from Portage Bay and the Nooksack River delta.

Recommendations to the City of Bellingham for further management and 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, on-going annual monitoring of the colony, documentation 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 over 400% in five years. Currently the colony exceeds growth trends of any other comparable colony in the Salish Sea. Due to the colony's health and significant growth the protection of the colony and associated habitats are imperative to the heronry's continued expansion and longevity.

INTRODUCTION

The Post Point Great Blue Heron Colony Annual Report is presented highlighting the results of the 2005 Baseline Study and historical summary of the colony. The Post Point Great Blue Heron Colony 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 rapidly expanding annually. The great blue heron (*Ardea herodias*) is a resident or year-round species in the region and are recognized as a Priority Species by Washington Department of Fish and Wildlife 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. Given the sensitivity and vulnerability of the Post Point heron nesting site, the City of Bellingham embarked on a baseline study to define the general breeding chronology and habits of the associated herons. Results of this study are provided in this report and will be used to direct the management and conservation of the Post Point Heron Colony and its associated habitat.

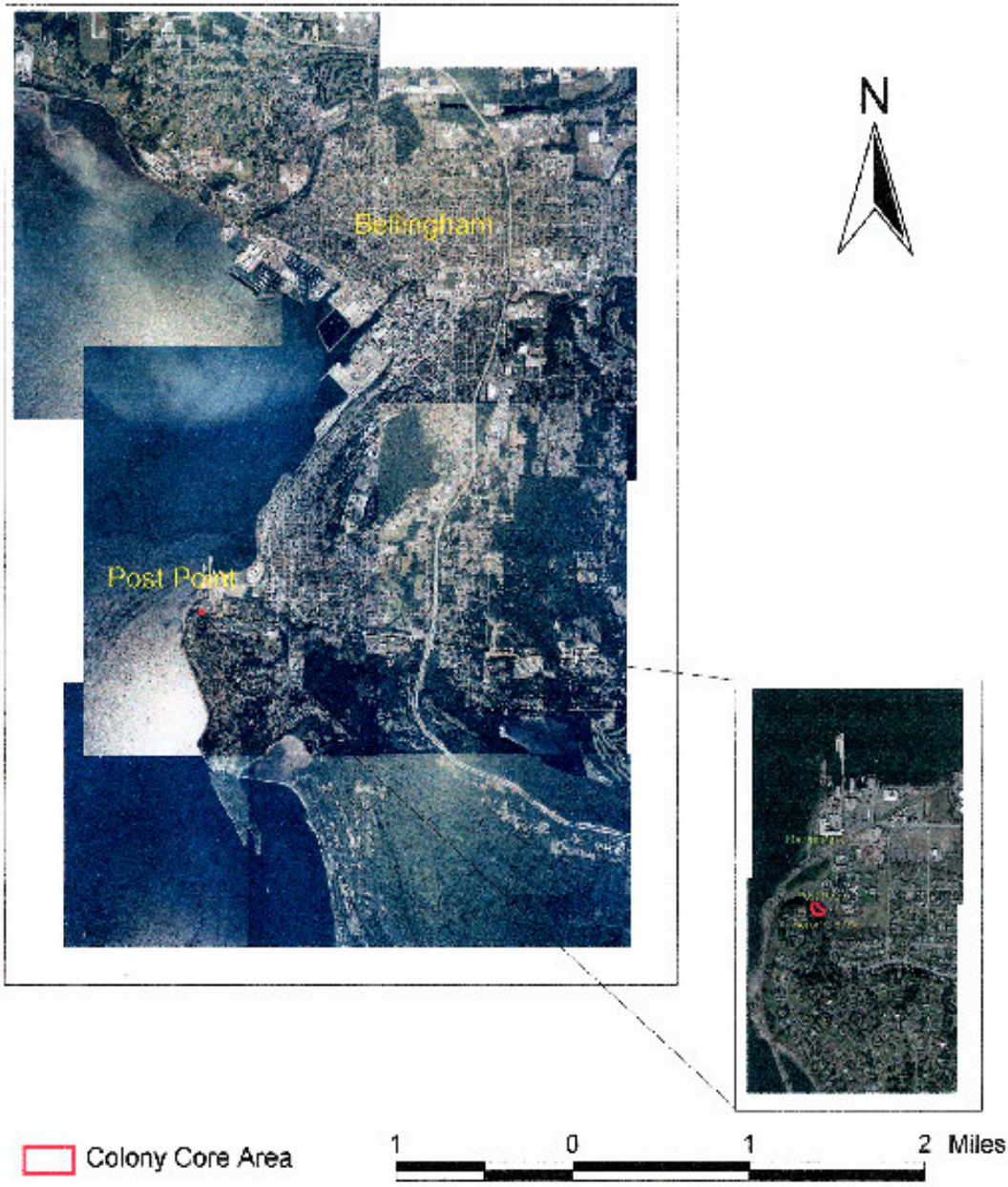
The Post Point Great Blue Heron Baseline Study included three primary components:

1. General Monitoring - breeding chronology, predation and disturbance.
2. Productivity Survey - nestling numbers and fledgling success.
3. Nest Survey – current and past number of nests and nest trees utilized.

The 2005 baseline study included field observations, periodic progress reports, informal communiqués and an annual report.

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 prepared for the City of Bellingham and is the current manager and lead monitoring biologist for the Birch Bay heron colony. 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 Study Area



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. One nest was monitored by a video camera through May at which time the camera went off line and was not resumed.

General monitoring of the colony commenced early in the season beginning in February and extended into August 2005. The breeding season was documented from February 11 to August 26, a total of 28 weeks, spanning 7 months. Monitoring was conducted on-site on a weekly or biweekly basis depending on colony activity. In 2005, a total of 19 on-site monitoring visits were made during the breeding/nesting season plus two colony nest count/mapping visits in the autumn during the non-nesting period. Monitoring of the colony was extended through the month of August due to the presence of dependant young remaining in the colony resulting from late nesting and probable second clutches.

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 February heron staging was documented followed by the reoccupation of the colony, courtship and the onset of nesting in March. By late March egg-laying and incubation had begun for many nests and continued through April. By late April the first hatching of young was noted. Incubation and hatching 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 at the end of June. Due to the asynchronicity of egg laying and hatching, young of the same nest also fledge at different times. The nesting season extended beyond its anticipated duration due to late nesting or failure of the first nest attempt for some pairs. In the event of a nest failure or predation of a nest, the herons may lay a second clutch of eggs. During the monitoring visits detailed observations were made and late copulation was documented, indicating a second nesting attempt. Completion of the nesting season was documented in late August.

Staging and Colony Reoccupation

Staging of the herons began in early February. Observations on February 11 included herons gathering near the colony in trees along the nearshore bluff and staging on the clarifiers of the Post Point waste water treatment facility (Figure 1). During staging the herons mainly stood or perched and occasionally flew into the colony. By late February herons had settled into the colony with 13 nests occupied: 3 by heron pairs and 10 yet unpaired single males. The colony was fully occupied and nesting underway by March 1.

Figure 1
Great Blue Herons Staging on Clarifiers in February 2005
Post Point Waste Water Treatment Plant – nesting colony in background



Nesting

The onset of nesting includes pairing, courtship and nest enhancement beginning February 22. In early March, 16 observable nests were occupied and activities in the heron colony included nest enhancement/building, mate selection and courtship. During this time new nests are also built. Based on nest count and evaluation, an estimated 13 new nests were built. Copulation, egg laying and incubation quickly followed the establishment of the pairs and their courtship. By March 21, 11 nests were occupied by incubating adults and 5 nests had single adults standing by. Incubation continued through most of April during which the weather was highly variable and herons were observed gathering fir branches for insulating their nests. All visible nests were occupied with the exception of 2, which were later occupied with late nesters. Hatching of young was first confirmed April 18. With full leaf-out of the forest, the number of nests visible from the ground was reduced. All nests appeared occupied at the end of April and incubation continued at some nests.

From April 18 through May, the colony was fully engaged in nesting and rearing activities including hatching, brooding, feeding and rearing of young. This time was also a period of unsettled weather including heavy rain, hail and wind. Certain nests may have failed during this period, either due to predation or weather or other causes. All observed nests had hatched young by the end of May.

Rearing and Fledging

By the first of June large young were noted in the colony and estimated at 6 weeks of age. The normal age for fledging is 8 weeks. Young were loud and boisterous at feeding. Young can be heard vocalizing consistently from the colony. Throughout the month of June, adult herons were intensively foraging for, feeding and rearing young. When not attending young, adults roosted nearby the colony. By the third week of June, the largest young (8 weeks old) were ready to fledge and taking test flights around the colony. Productivity of the colony based on a visible sample of 7 nests compared favorably to the earlier sample with a mean of about 3.0 young per nest. On June 27 fledging was documented. Fledglings were observed utilizing the lagoon and juveniles were observed flapping wings and limbing in the colony. With all the activity and some leaf decay, 18 nests were counted as active, with other nests obscured from view.

In July fledging was the primary activity in and around the colony. By July 7, herons continue to fledge from colony with and estimated 48% of young fledged from visible nests. Fledglings were recently reported observed in the lagoon in early morning hours and one was standing on a railroad box car. A single heron mortality was reported from the Post Point water treatment facility as a fledgling apparently drowned in the chlorine treatment tank. As of July 28, approximately 78% of the young had fledged with only 4 nests remaining active. Activity in the colony was greatly reduced however 7 adult heron were observed in roost trees both west and east of the nesting area and fledglings were observed flying near the colony.

August marked the conclusion of the heron nesting season at Post Point. At the onset of August two visible nests remained active and by mid-August only one active nest remained. Young from the remaining nest fledged between the 17th and 26th of August. One young was found within the colony understory hung in a tree and died of natural causes. It is likely that the deceased bird was one of the last remaining young and may have been flushed from the nest prior to fledging. Adult heron (5-6) remained in the vicinity of the colony roosting following the dispersal of young.

Post Point Heron Nesting Chronology Summary 2005

- February: Staging, reoccupation of colony and onset of breeding
- March: Nest building, mate selection, courtship, egg laying, incubation
- April: Incubation and early hatching
- May: Incubation, hatching, brooding and rearing of young
- June: Rearing of young, early fledging
- July: Rearing of young and fledging
- August: Late fledging

Note: Nesting chronology and timing may vary yearly by 1-2 weeks.

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 heronry observations were made of potential predators, such as bald eagles, red tailed hawks, crows and ravens. With the exception of two surveys, crows and eagles had been noted consistently in the vicinity of the heron colony throughout the breeding season, however no direct predation was observed.

Bald eagle activity in the area has been monitored with interest due to consistent presence of a pair of bald eagles. On February 22 an adult bald eagle male was observed perched in a dominant Douglas fir immediately west of colony. This is the primary perch of the bald eagles. On March 4 a group of bald eagles (adults and immature) were noted vocalizing to the west. On March 21 two adult bald eagles (male and female-appear to be a mated pair) were perched in the Douglas fir.

In April reports of eagle incursions included the video nest adult mantling and a pair of bald eagles landing in the heron colony disturbing the herons in mid-month. As the nesting season progressed, one or two adult bald eagles were observed perched in the same Douglas fir, indicating a primary perch or roosting site. It is likely that some bald eagle predation of herons had occurred, but it was assumed to be minor since no observers have reported witnessing incursions or young taken from nests. One observation of an eagle descending on the shoreline west of the colony resulted in the flushing of herons from that foraging area, but no heron was harmed and it is not clear if the herons or some other intertidal prey were targeted.

The persistence of bald eagles in the vicinity of the heron colony raised suspicion of a bald eagle nest in the area. Personnel at the Post Point waste water plant reported what appeared to be a mature bald eagle packing nest material to a tree near the heron colony. Later a possible bald eagle nest was reported by a neighbor in Shorewood, however no nest platform was identified. Further investigation in the Fall of 2005 confirmed a bald eagle nest situated in a large Douglas Fir southeast of the heron colony. The bald eagle nest tree is located approximately 62 feet southeast of the heron colony (Figure 3). 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.

No other predation on the nesting herons was observed or reported. Bald eagle incursions were reported early in the season, but ceased later in the season as the heron young reached large size. In addition to bald eagles, red-tailed hawks and crows were regularly noted flying over or near the colony. Ravens were rarely heard or seen near the colony.

Disturbance

With the exception of reported bald eagle incursions, no direct disturbance to the herons in the heron colony was observed by the Biologist. Several reported incidents of bald eagle incursions in the colony were received from citizens or facility personnel. To date, bald eagle-heron interactions appear to be inconsequential. However, more concentrated observations would define the impact eagles have on the heron colony.

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 was 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 upland area, including loud barking during the monitoring visits. Given the significant rise in noise levels from passing trains, dogs' barking seems negligible.

Activity in and around the Post Point Waste Water Treatment Facility appears to have little effect of 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. One heron mortality was reported at the plant due to the bird falling in a tank.

One human-related event was considered a potential disturbance, notably the Ski to Sea race which concludes at Marine Park, directly north of Post Point and draws hundreds of people to the area. An effort was made to visit the colony both prior to and just following the Ski to Sea event which was staged near the colony over the Memorial Day weekend. No change was noted between the two visits, resulting in a conclusion that Ski to Sea had no direct disturbance, however observations during the event were not made.

The City of Bellingham Public Works Department planned more vegetation enhancement around the Post Point Lagoon and proposed extending the work to an adjacent area, north and west of the heronry. During a meeting with Renee LaCroix from the City, the clearing and revegetation plan was discussed with the herons in mind. No work would use loud or large equipment or occur inside (on the colony side) of the pedestrian trail prior to complete fledging. If any disturbance was observed, workers were instructed to cease activity. Work was to be delayed until September to allow for the fledging of remaining young. However, clearing of blackberries was completed while some herons remained in the colony in August. Possible disturbance was not monitored.

Disturbance and flushing of birds, however was observed both in the intertidal area and shoreline to the west of the colony as well as within the lagoon during foraging and fledging. Flushing of herons was primarily caused by people and occasionally by off-leash dogs accessing the lagoon and marine shoreline from the railroad corridor. People are naturally drawn to herons in the open shoreline environment, but don't understand that disturbing the birds during feeding could result in inadequate food delivery to young. Fledglings from the colony also are drawn to nearshore areas and the lagoon, where they are subject to flushing by approaching people and dogs. Due to the increased use of those areas by both people and herons, conflicts are likely to increase as the heron colony expands.

Disturbance to the heron colony during the 2005 Baseline Study was determined to be minimal and restricted to bald eagle incursions early in the season. 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 has more effect on fledging activity and adult foraging.

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. These areas include 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.

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, the fields have not been used by the herons. Herons generally both stage and feed in field habitats and occasionally roost in fields during the day. It is likely that the off-leash dog use of the field area near the colony deter herons. Herons are not likely to utilize a field without a large open area with safe margin. It is possible that with the permanent fence placement in the field approximately 100 feet from the heronry will provide a protected area of potential heron use. A shoreline meadow area at the southwest end of the Post Point lagoon also has the potential to provide open habitat for heron now that it is restricted from dogs and people. Recent restoration efforts around Post Point lagoon with plantings of shrubs and trees will limit use of grass-dominated areas over time.

The herons use of the Post Point Waste Water Treatment Facility is unique. Herons utilize the top of the clarifiers for staging (Figure 1) and occasionally during the breeding season, fledging and winter. 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 than the north-facing forest where they normally roost. The posture of certain herons observed while staging also indicate sun-bathing, a behavior that is yet poorly understood. Heat escaping from the clarifiers may also account for winter use. This is only one of two documented consistent uses of human structures by great blue herons in western Washington. The other reported use is of powerline towers for nesting on Carr Inlet in south Puget Sound.

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 supporting the Post Point herons are not well documented, however based on random observation, herons were noted flying to and from Portage Bay, Nooksack River delta and other points around Bellingham Bay and Chuckanut Bay. These foraging areas consist of productive estuarine and intertidal habitats including eelgrass beds. Herons were also reported along Padden Creek. The estimated maximum foraging radius for the Post Point herons appears to be 5 miles.

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 6: 15 active nests observed 8 nests with 24 young counted = 3.0 young/nest
June 14: 11 active nests observed 6 nests with 19 young counted = 3.2 young/nest
June 20: Fledging begins
June 27: 18 active nests observed 12 nests with 25 young counted = 2.1 young per nest
July 7: 14 active nests observed 8 nests with 14 young counted = 1.75 young per nest

The mean productivity for 2005 is 2.5 young per nest. If this is applied to the total colony of 31 nests, the number of fledglings from the colony in 2005 is 77.5 young. 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 31 nesting adults or 15 new nests amounting to a doubling of the colony's current size in 2007. 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 February 2005 prior to the onset of nesting, a nest count was conducted due to the lack of data from autumn 2004. At that time a total of 20 nests were counted, two of which were very small and one appeared inactive. The small nests may account for first year nesters or early attempts, their success is however unknown. The inactive nest could be reused in the 2005 nesting season. It is therefore estimated that a total of 19 nests were active in 2004, two of which may not have supported young.

In October 2005, the annual nest count was conducted for the 2005 season. An additional count was made in November to update nest tree locations and mapping of the colony. Kate Newell, GIS Specialist from the City of Bellingham provided the GPS and GIS mapping support. A total of 31 nests were counted in 10 nest trees. Of the 31 nests counted, 13 were small nests. Based on the growth from 2004, 12 new nests were added in 2005, accounting for 63% growth.

Given that 13 of the nests were small, it is postulated that these small nests were first-year nests. When compared to previous nest data and growth of the colony, this idea is supported. Therefore, the small nests within the colony represent the new nests for the year and in the case of Post Point represent the new nesting pairs of the colony (with the exception of one in 2005).

Mapping of the colony was completed in November 2005. 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 0.56 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.

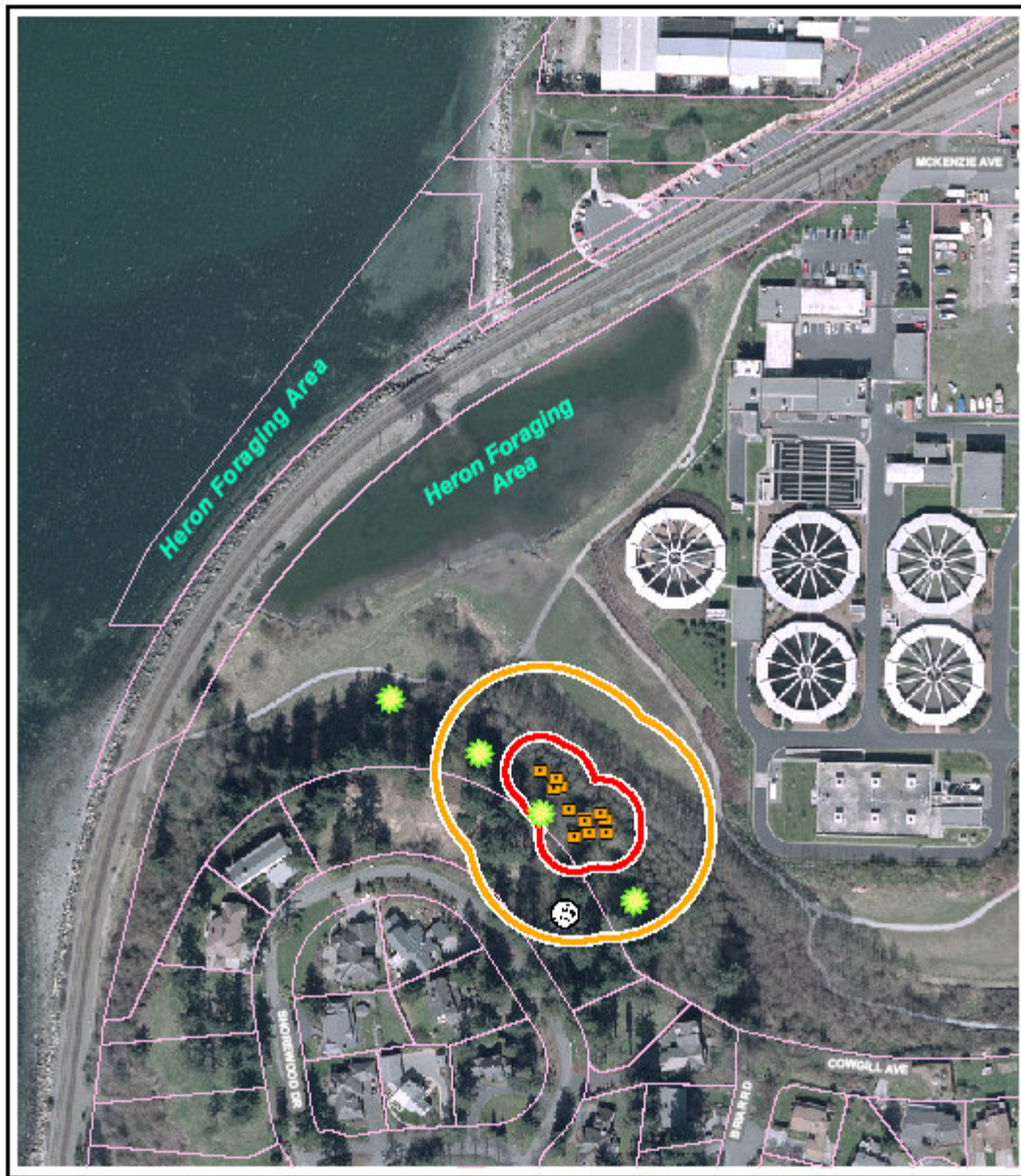
Post Point Heron Colony Annual Nest Count

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%

Mean annual growth rate = 39.4% per year

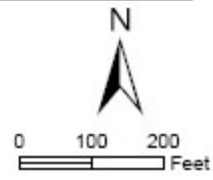
Figure 2

POST POINT HERON COLONY 2005



KEY:

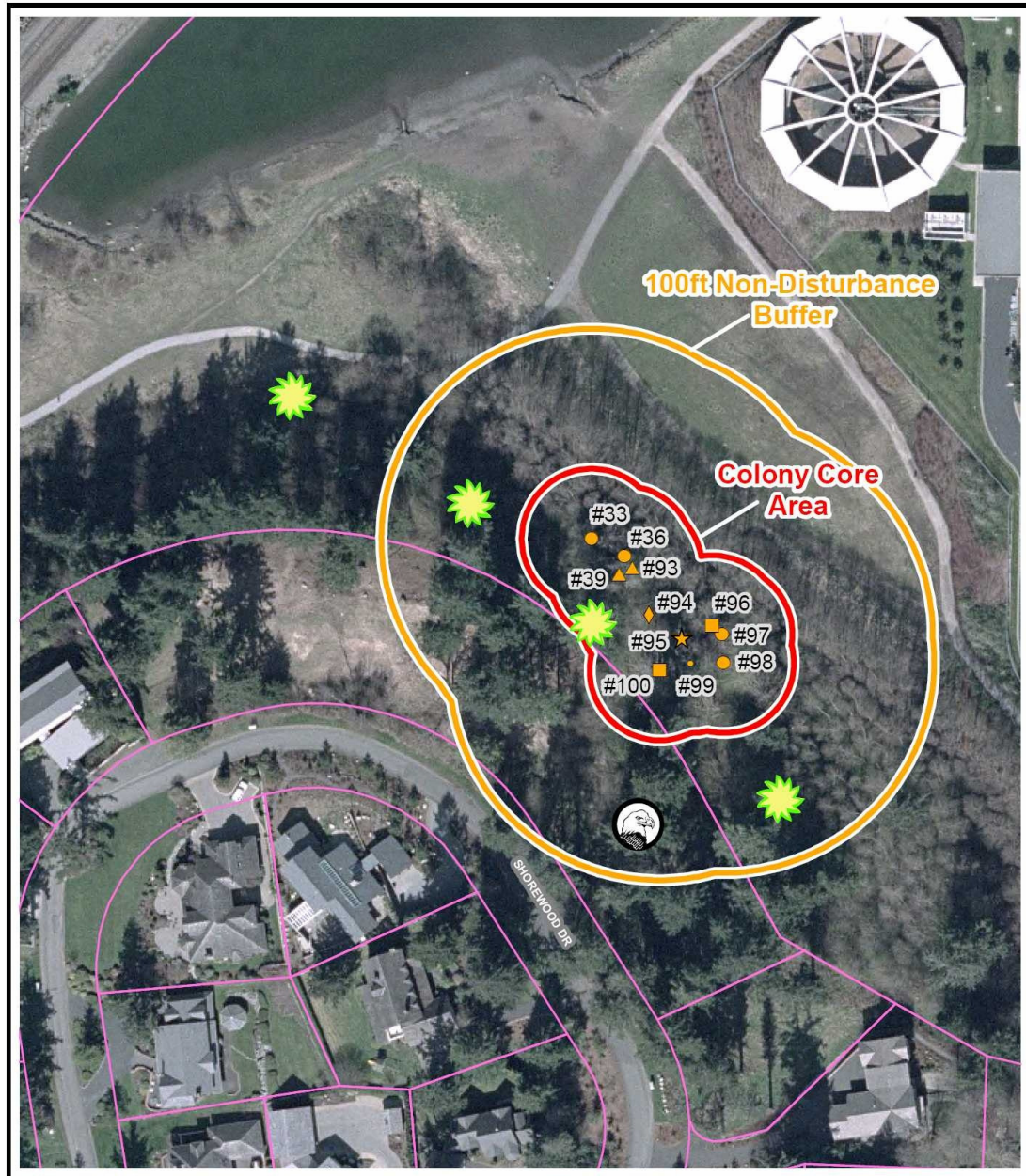
- | | |
|--|--|
|  Nest Trees |  Colony Core Area |
|  Roost Area |  100ft Non-Disturbance Buffer |
|  Bald Eagle's Nest Observed in Fir Tree | |



April 2002 Air Photo
City of Bellingham
November 2005

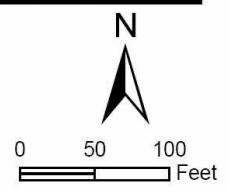
Figure 3

POST POINT HERON COLONY 2005



KEY:

- No Nest
- 1 Nest
- ▲ 2 Nests
- 4 Nests
- ◆ 6 Nests
- ★ 8 Nests
- ★ (Green Starburst) Roost Area
- 🦅 Bald Eagle's Nest Observed in Fir Tree

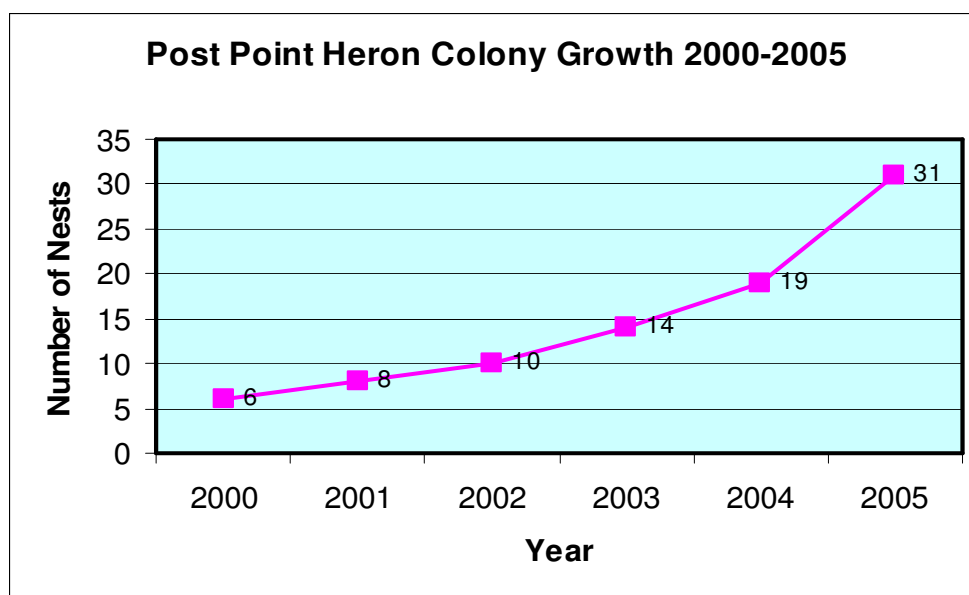


June 2002 Air Photo
 City of Bellingham
 November 2005

COLONY GROWTH

The Post Point Heron Colony has experienced significant growth since its establishment in 2000. Since 2000, the colony has expanded over 400%, from 6 to 31 nests. Over five years, the growth rate has been 39.4% 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



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 half 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.

Pending the Management Plan update it is recommended that annual monitoring of the colony continue. Monitoring is important for this colony for several reasons: 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. Identification 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 six consecutive nesting seasons. The 2005 Baseline Study documented one season of breeding and nesting at the colony. As part of the study, on-site observations were made and empirical data collected. The colony's nesting chronology was documented, in addition to habitat use, colony activity, productivity and success.

The results of the Baselines Study revealed the significant growth of the colony, averaging nearly 40% per year. The colony supported 31 nesting pairs and fledged an estimated 77 young in 2005. The nesting season commenced in February and the final young fledged in August, a period of 28 weeks or 7 months. Each stage of the nesting cycle was recorded.

Predation and disturbance at the colony has been minimal. Disturbance in the heronry during the nesting season was limited to bald eagle incursions. Human related disturbance of foraging adults and fledging young near the Post Point Lagoon and marine shoreline were also 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.

Habitat use by the herons include upland forest, estuarine, marine shoreline and intertidal areas. The nearshore bluff upland forest serves as nesting, loafing and roosting habitats for both herons and bald eagles. Roosting and foraging in the Post Point vicinity is year-round. The heron's unique use of the Post Point Waste Water Facility for staging and loafing was also documented.

An assessment of the colony and its success was documented for 2005. Productivity, annual nest count and mapping of the colony were all measured and recorded. The colony's productivity was estimated at 2.5 per nest and the number of nests counted for the year totaled 31 in 10 nest trees. The colony's nesting capacity continues to grow annually and is expanding faster than any comparable colony in the region.

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. An update of the 2003 Post Point Heron Colony Management Plan is also recommended. The discovery of the bald eagle nest near the colony also requires a management plan.

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 restrict access, dedicating a video monitor to an active heron nest and sharing observations that would not normally be witnessed from the ground or during monitoring visits.

APPENDIX

Historic Chronology

Post Point Great Blue Heron Colony

Colony Chronology (2005 update)

Pre 1999:

- Post Point bluff utilized by herons for roosting and possible nesting
- Post Point Lagoon and nearby shoreline utilized for foraging

1999

- Neighbors report heron nesting activity at Post Point (1-2 nests unconfirmed)
- Chuckanut heron colony abandon from Heron Estates
- Herons reported attempting to build nests in cottonwood north of Viewcrest, nesting attempt failed

2000

- Herons establish nesting colony in present location at Post Point
- Total 6 nests in 5 trees and successfully fledge young

2001

- Herons continue to nest at Post Point (no data available - 8 nests estimated)
- Pedestrian trail moved away from base of colony to 111 feet northeast

2002

- Herons continue to nest at Post Point increasing to 10 nests in 6 trees
- 66% growth from 2000 (estimated 25% annual growth from 2001)

2003

- Herons nesting at Post Point increase to 14 nests in 8 nest trees
- 133% growth from 2000 (40% annual growth from 2002)

2004

- Herons successfully nesting at Post Point for 6th year with 19 nests in 10 nest trees
- 216% growth from 2000 (36% annual growth from 2003)

2005

- Herons successfully nesting at Post Point for 7th year.
- 56-58 breeding adults.
- Staging reported February 11 with nesting commencing February 23.
- Nesting/fledging completed August 26.
- 28 week breeding cycle.
- Productivity: mean 2.5 young per nest = estimated 77 young fledged
- Total of 31 nests in 10 nest trees (including 1 blown down nest)
- 416% growth from 2000 (63% annual growth from 2004)
- Average growth rate = 39.4% annually over 5 years.