Post Point Heron Colony

2022 Monitoring – Annual Report

prepared for:

The City of Bellingham Department of Public Works
2221 Pacific Street
Bellingham, WA 98229

prepared by:

Matt Reed and Case Wyatt
Hamer Environmental
1023 S. 3rd Street
Mount Vernon, WA, 98273

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Executive Summary

First documented in 2000, the Post Point Heron Colony is the City of Bellingham's only known great blue heron nesting site. The colony is located in a city-owned forest patch in Bellingham's Fairhaven and Edgemoor Neigborhoods between the Post Point Resource Recovery Plant (PPRRP) and Shorewood Drive. In the fall of 2021 and spring of 2022, the city approved purchase of undeveloped parcels along Shorewood Drive considered critical buffer for the protection of the colony.

Due to the colony's location and sensitivity of heron colonies to human disturbances, in 2003 the City of Bellingham commissioned a management plan. A scientific baseline study of the colony followed in 2005 to analyze reproductive success, nesting tendencies, nearby habitat use and the status of the colony. Annual monitoring of the colony has been conducted every year since 2005 to further document colony productivity and success. The 2003 management plan was updated in 2019 and both documents along with all the annual reports are available online at Post Point Heron Colony Resources.

Results from the 2022 Post Point Heron Colony Annual Monitoring are provided in this annual report. Monitoring began on February 17th and ended on September 5th when it was determined that all the young had left the colony. A total of 28 site visits were needed for the 2022 nesting season, plus a kickoff meeting held at the colony prior to the herons returning.

In 2022, 50 nests were counted in 37 nest trees. A total of 100 young were observed throughout the season with an estimated 93 young surviving to fledging age. Bald eagles were observed flying over the colony but only one occurrence of a bald eagle incursion and possible predation event was recorded during the season.

Introduction

The Great Blue Heron (*Ardea herodia*) is a widely dispersed species that can be found throughout North America and is a year-round resident of western Washington. Washington Department of Fish and Wildlife (WDFW) categorizes herons as a Priority Species and their colony sites as Priority Areas. A heron colony is considered a Priority Area by WDFW due to heronries being vulnerable to human disturbance. Due to the Priority Species status of the heron colony, the City has protected it under the Critical Areas Ordinance as a Fish and Wildlife Habitat Conservation Area. The 2012 WDFW Management Recommendations for Great Blue Heron provides management guidelines and life history information pertaining to potential projects and activities near colonies.

The City of Bellingham has been proactive in supporting, researching, and monitoring the colony since it was first observed in 2000. The City funded the management plan of 2003, the scientific baseline study in 2005, the update to the management plan in 2019, and annual monitoring of colony since 2005.

The City of Bellingham also purchased the adjacent 1.72 acres along Shorewood Drive in 2022 to provide a buffer to the colony from residential development. The City has placed educational signs near the colony and at Marine Park informing the public about herons, the nesting colony and how to avoid disturbing them. In the fall of 2022, the temporary restoration protection fence installed next to the colony was removed. This fence was an effective means of deterring deer browsing vulnerable plants at the Post Point mitigation site. Once the plant establishment period ended, the fence was removed due to it being a risk to young herons that end up on the ground during their pre-fledging exploration flights around the colony.

Priorities for the 2022 Post Point Heron Colony monitoring included:

- General monitoring that focused on behavior, in-colony activities, and nesting chronology.
- Disturbance monitoring for recording disturbances to the herons in or near the colony.
- Productivity monitoring documenting nesting and fledging success of young.
- Nest and nest tree survey for updating and mapping the colony for 2022.
- Foraging observations documenting the use of nearby foraging habitats and disturbances to herons while feeding.

Monitoring for 2022 was carried out by Matt Reed and Case Wyatt of Hamer Environmental over the course of 7 months beginning in February and ending in September. Hamer provides environmental consulting services to government, private industry, tribal corporations, and non-profits throughout the Pacific Northwest and Pacific Islands. Hamer has offices in Portland, Oregon, Mount Vernon, Bellingham and Seattle, Washington, and in the Pacific islands.

Both Matt and Case were involved in the collection of data and observing the colony during the 2022 nesting season. Case was primarily responsible for colony observation, data compilation, organization and analysis and report preparation. Matt was the lead biologist primarily providing project management expertise, some colony observation, assistance, and oversight in report preparation.

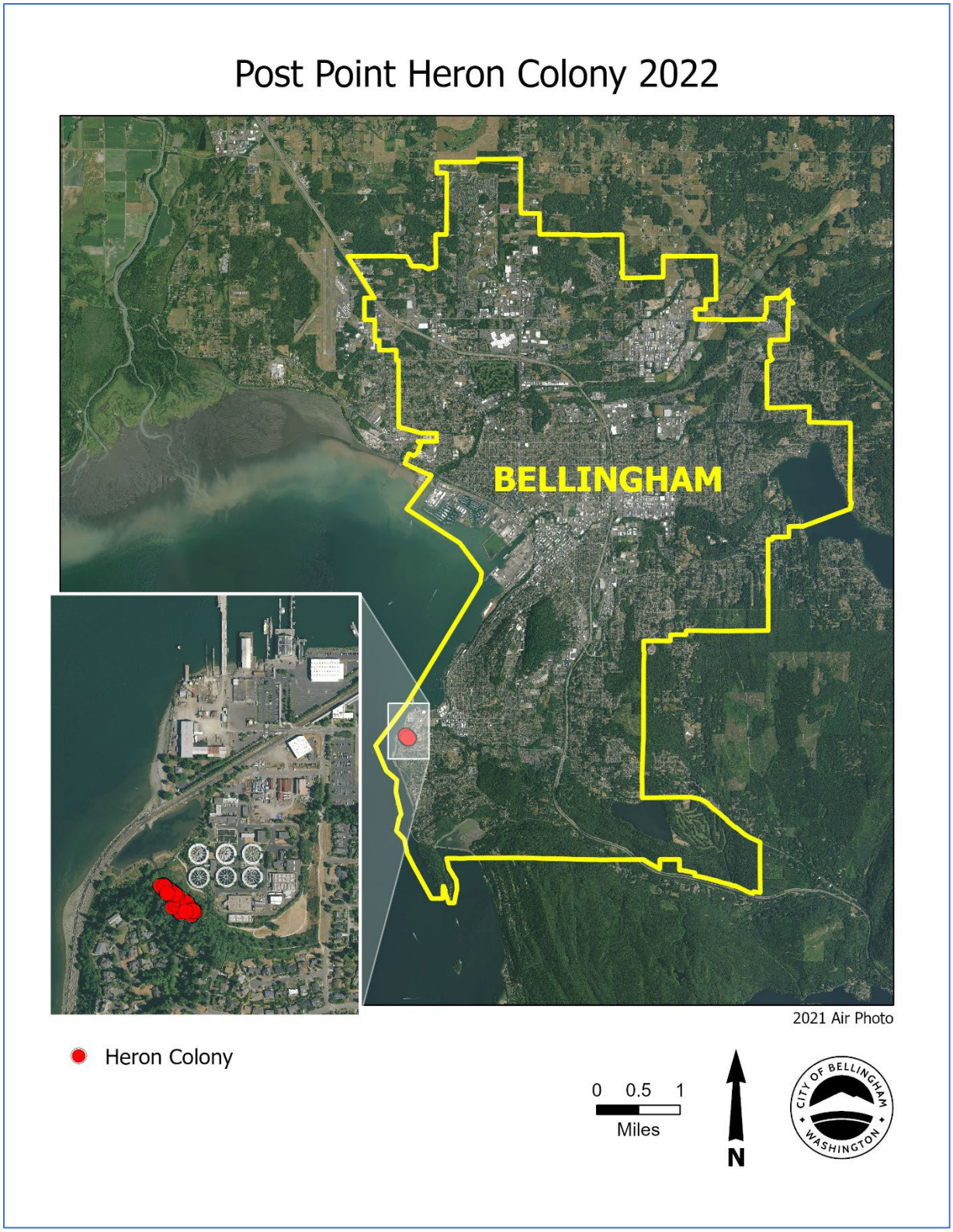

Figure 1: Post Point Heron Colony

Site Description

The Post Point Heron Colony is located near Post Point spanning the boundaries of Bellingham's Fairhaven and Edgemoor Neighborhoods (Figure 1). A forested slope extending to the south and west of the colony provides protection from prevailing winds and weather. The native mixed forest along the bluff has provided a buffer to the colony from residential and urban development. The proximity of the colony to Bellingham Bay provides direct access to foraging areas during the nesting season.

In 2022, the Bellingham City Council authorized the purchase of 1.72-acres in the Edgemoor Neighborhood adjacent to the property the colony is located on increasing the city-owned site to almost 32 acres. The forested area the colony is situated in is approximately 9 acres, the grassy and shrubby margins between the slope and the Post Point Resource Recovery Plant (PPRRP)is approximately 1.6 acres, and the Post Point Lagoon to the northwest is 3 acres. The BNSF railroad causeway west of the lagoon separates it from Bellingham Bay. The colony is situated between the residential neighborhood on Shorewood Drive to the southwest and the PPRRP to the northeast (Figure 2). The Lower Padden Park Trail borders the colony between it and the PPRRP.

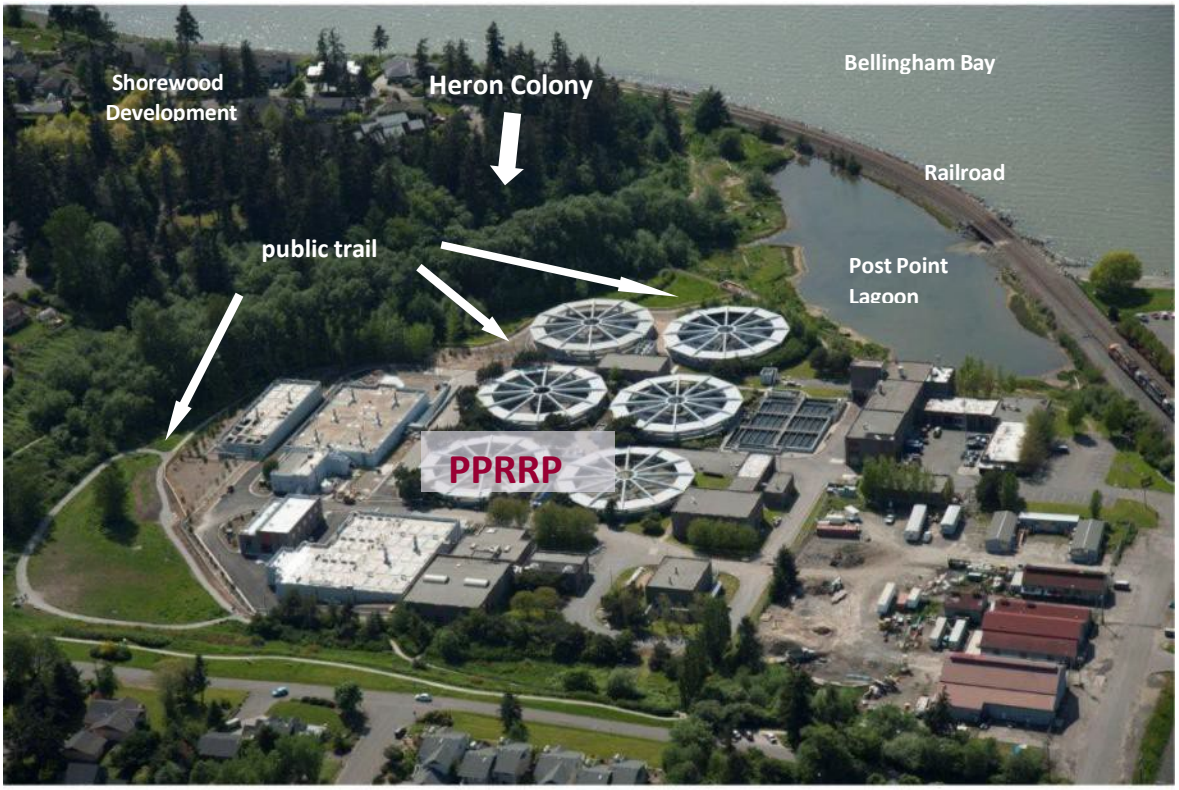

Figure 2: Post Point Resource Recovery Plant (PPRRP). (City of Bellingham Photo, 2014)

Heron Habitats

The area surrounding the colony provides a mix of habitat accessible to herons from mixed forest, wetland meadow, estuary, and marine shoreline. The buildings and clarifiers on the PPRRP grounds are occasionally used by the herons prior to nesting for staging. These habitats provide various benefits and uses for the heron colony throughout their nesting cycle.

The nest stand itself and the surrounding forest is a mixed age forest that provides the structure and material for the nests, the screening from wind, weather, and human activity. Red alder (*Alnus rubra*) and big-leaf maple (*Acer macrophyllum*) provide suitable support and material for large nests. Douglas fir (*Pseudotsuga menziesii*) provide screening and protection to the colony. Outside the nucleus of the colony, the forest provides cover for herons to loaf, roost, preen, stage, and collect nest materials.

Wetland meadow habitat found adjacent to the nest stand is the grassy margins near the lagoon that provide valuable foraging habitat for upland prey species, specifically meadow voles (*Microtus townsendii*). Herons are sometimes observed using this area throughout the nesting season.

Post Point Lagoon is a pocket estuary fed by surface water runoff and an unnamed seasonal stream that drains into Bellingham Bay under a BNSF railroad causeway bridge. The shoreline and salt marshes along the edges of the estuary are used for loafing and foraging. Eelgrass (*Zostera marina*) growing in the lagoon improves foraging opportunities for herons. The estuary also serves as a fledging spot as young herons start exploring outside the colony.

Bellingham Bay provides nearby marine shoreline habitat of eelgrass meadows and open intertidal areas suitable for heron feeding year-round. At low tide, the shoreline area at Marine Park provides access to a wide margin of suitable foraging habitat. While herons use other areas for foraging, this is the nearest marine foraging area to the heronry.

Figure 3: Overview of the Post Point Heron Colony and the Post Point Resource Recovery Plant

Monitoring Methods

Continuous monitoring of the colony since 2005 has provided an ongoing record of the colony's status, productivity, and health. The 2022 monitoring methods for the Post Point Heron Colony were developed based on Ann Eissinger's long-time monitoring of the colony and in part based on the Heron Working Group - Survey Protocol (Vennesland/Norman 2006).

Weekly on-site visits to the colony from February to August involve collecting data based on visual and audible observations of heron behavior, nests and nest trees, and potential disturbances or predations in the colony. Binoculars are the primary visual tool for observing herons perched in or near nests. Data is collected on standardized field forms and each visit compiled into a colony tracking spreadsheet. All visible nests are tracked throughout the nesting season and new nests are recorded as they are constructed. Any incidents or reports of disturbances were noted during weekly visits.

The timing of the visits throughout the monitoring season encapsulates the 6 stages of the nesting season.

- **Staging** near the colony in February as the herons prepare for reoccupation.
- **Colony reoccupation** in March as large concentrations of herons were active in the colony.
- **Courtship, mate selection** and **nest construction** coincided with colony reoccupation in March and remained active into May.
- **Egg laying** which takes each heron approximately 7 days and **Incubation** of the eggs that takes 28 days.
- **Hatching** of the nests and **Brooding/Rearing** of the young.
- **Fledging** is when young leave the nest typically around 8 weeks old.

2022 Monitoring Results

Monitoring for the 2022 Post Point Heron Colony nesting season began on February 17th and ended September 5th. Monitoring occurred on a weekly basis.

Staging and Colony Reoccupation

Herons were confirmed staging in the Post Point Heron Colony on February 17th and February 25th. Herons were seen standing on a PPRRP clarifier or perched in a Douglas Fir next to the colony.

Photos of herons staging on a PPRRP clarifier and perched in a Douglas Fir on February 17, 2022.

Although herons were observed in the colony during February, nesting activities were not observed until early March. On March 4th, 42 herons were observed in the colony actively constructing nests. Nest construction was observed throughout March with copulation observed on one visit and some nests showing signs of egg incubation.

By the end of March, 35 nests were visible and 33 were occupied. The colony would continue adding nests throughout April and May.

Herons reoccupied the colony on March 4, 2022.

Heron carrying a twig to a nest.

Egg-laying and Incubation

For 2022, egg-laying and the onset of incubation at the Post Point Heron Colony coincided with the colony reoccupation in March. By March 11, herons were observed in a horizontal position in 3 nests. While this posture is often indicative of egg laying or incubation in herons, this date doesn't correspond with the earliest observed hatching dates. The first observed copulation in the colony occurred on March 18th. On March 24th, six nests showed signs of egg-laying with herons assuming a horizontal posture in the nest. Herons will lay 4-5 eggs asynchronously but not all of those will survive to fledging.

Incubation follows egg-laying and is also indicated by herons taking a horizontal posture on the nest. Egg-laying continued throughout April and into May. Incubation of some late nests lasted until early June. Young herons hatch over several days after approximately 28 days of incubation. On April 2, 42 nests were counted with all but 1 nest showing signs of activity and evidence of egg-laying or incubation in 18 nests. By April 7, 32 out of the 42 nests had herons assuming a horizontal posture.

Hatching and Rearing

May is typically the busiest month for young hatching in the Post Point Heron Colony. 2022 was no different with the first hatchling observed in a nest on April 29th. Throughout May, young were increasingly observed in nests throughout the colony culminating into 35 nests with young on a May 20th visit. The hatching of young begins the onset of the 8-week rearing period.

The young will be brooded while adults continue to incubate unhatched eggs in the nest. Young are most susceptible to predation, heat and cold in the first few weeks of their life. They start out covered only by sparse downy fuzz but will be completely covered by feathers within three weeks. One adult will remain near the nest for the first 4 weeks of rearing to provide the young with protection from predators.

Adult heron with young wanting to be fed.

Fledging

The last stage for young herons as they leave the nest is fledging. Most young will fledge at about 8 weeks in age. To prepare to fledge, young are observed exercising their wings by flapping them, exploring limbs near the nest, and eventually taking test flights around the colony. As young explore further out from the colony nucleus, they can be seen loafing or foraging in the Post Point Lagoon or on its shoreline. Nests will fledge over the course of a week or more as the older young of a brood leave to follow adults to better foraging grounds first.

Pre-fledging behaviors were observed on June 16th with young seen flapping their wings and venturing out onto nearby limbs. Flights through the colony from young herons were increasingly common through the end of June. Fledging of nests were first documented on a July 1st visit but fledging of the colony rapidly took flight in the following weeks. By early September, 44 total nests would fledge young for the 2022 nesting season.

2022 Colony Fledging Progression

- On July 1st, 2 nests out of 46 active nests fledged (4.3%).
- From July 1st to July 13th, 19 nests out of 46 active nests fledged (41%).
- By July 22nd, 28 nests out of 46 active nests fledged (62%).
- 4 more nests fledged between July 22nd and August 3rd increasing the number of fledged nests to 31 (67%).
- By August 15th, 37 out of the 46 active nests had fledged (80%).
- The last 8 nests fledged between August 15th and September 5th.

The majority of the colony's young, 62%, fledged over the first 3 weeks of July. This is a week later than the 2021 fledging results but in line with the 2020 nesting season. Most of the fledging occurred over a 6-week period but some of the young remained in the colony to the end of August.

Post Point Heron Nesting Chronology Summary 2022

2022 was another successful nesting season for the Post Point Heron Colony. A chronology of the season is summarized below:

- February 2: kickoff meeting and site visit with no herons present
- February 17 and 25: staging of herons underway around the colony
- March 4: reoccupation of the colony, nest building and courtship
- March 24: incubation and egg-laying underway
- April 29: first hatched young observed
- May 20: young documented in 35 nests
- April 29 to August: rearing of young requiring 8 weeks
- July 1: fledging begins
- July 22: 62% of nests complete fledging
- August 15: fledging of nests reaches 80%
- September 5: no young remain in the colony

Total duration for the 2022 Post Point nesting period was nearly 28 weeks from when herons staged in February and the last heron young left in August.

Productivity

Visible nests in the Post Point Heron Colony are monitored annually for productivity which is determined by each on-site visit prior to fledging. This measure has been an important indicator of the health and stability of the colony. While herons have the potential to fledge a maximum of five young, nests are most likely to produce two to three surviving young.

Productivity surveys for the Post Point Heron Colony are measured by counting the number of young in every visible nest each visit. The best time to observe young in the nest generally corresponds to an adult feeding. The counting of young is then divided by number of nests to express colony productivity in 1 of 3 ways:

For 2022, 47 nests were visible to be observed without intruding into the colony. Of the 47 total nests, 46 were considered active at some point in the season. Weekly observations of the 46 nests observed determined 100 young in the colony. Out of the 100 total young, 93 survived until fledging.

Two young on a nest with an adult perched nearby.

Two young herons were visible dead in the nests (**see photo below**) and carcasses from other young were observed beneath the nests explaining why some young disappeared from the nest before fledging. A likely predation of a hatchling by a Bald Eagle occurred on May 4th, this hatchling isn't included in the total number of young due to the observer not visually seeing a young heron in the eagle's talons or knowing precisely which nest was targeted.

Single surviving heron young in a nest next to its deceased sibling.

Productivity of active nests is calculated by dividing the number of young counted by the number of active nests. The productivity of successful nests is calculated by dividing the number of young fledged by number of successful nests. Productivity rates for the Post Point Colony in 2022 were 2.17 per active nest and 2.07 per successful nest. 2022 productivity was down slightly from the previous 5 years while total number of young and number of young that fledged remained consistent with recent nesting seasons. The number of successful nests in 2022 was the highest in the colony's monitoring history

Table 1: Post Point Productivity since 2018

Year	Number of active nests	Number of successful nests	Number of young counted	Number of young fledged	Number of young per active nest	Number of young per successful nest
2022	46	45	100	93	2.17	2.07
2021	42	39	104	95	2.47	2.4
2020	40	37	103	94	2.51	2.54
2019	40	38	103	103	2.57	2.7
2018	44	41	97	97	2.2	2.3

Disturbance

Monitoring potential disturbances to the colony during the nesting season is an important objective of on-site monitoring annually. Disturbance, by definition, is an adverse behavioral and/or physiological response to a natural or man-made event (Sutherland 1996, Walker et al. 2006). Repeated disturbances to the colony can cause declining productivity, failure to reproduce or may even cause fragmentation, abandonment, or relocation.

Any disturbances to the colony or disruptions to herons within the colony or using habitats near the colony are documented. In 2022, no direct disturbances or disruptions by human activities were observed within the colony or surrounding habitats. Human/heron interactions of herons along the shoreline of Marine Park were documented between herons and beachgoers, dogs, and water-sports enthusiasts. Other potential passive disturbances to the colony include the BNSF train and aircraft flying over. The colony and herons were observed closely when any of these events occurred to see how the herons would respond to the intrusion.

The Ski to Sea Race returned to Marine Park on May 29th in 2022 and colony monitoring was conducted to overlap with the event activities that day. For May 29th, low tide was -1.1 feet at 11:23 AM resulting in good foraging conditions along the Marine Park shoreline until tide levels surpassed two feet around 2:30 PM. During peak afternoon event times, tide levels would have exceeded ideal foraging conditions being between 2.5 to 7.5 feet. Signs and temporary fencing were placed along the shoreline to educate and deter eventgoers from venturing into foraging habitat during low tide. The noises emanating from the event such as music, bell wringing, and announcers were only slightly louder than the background noise at the colony. No herons were seen foraging in the waters off Marine Park or in the Post Point Lagoon during the event. There were no signs of distress from the adults or young at the colony.

Bald Eagles (*Haliaeetus leucocephalus*) are the greatest predatory threat to the Post Point Heron Colony. Bald Eagles can disturb the colony by consuming unhatched eggs, preying on the young or flushing flightless young from the nests. Some eagles may even attempt to prey on

adult herons. Bald Eagles are a common sight flying over the colony or perching nearby. Most of the Bald Eagle flights over or near the colony elicit no response from the herons. On May 4th, a Bald Eagle was witnessed flying into the colony causing many adult herons to scream and flush off the nests. The herons returned to their nests, but it is highly likely that the Bald Eagle predated upon a young heron.

Other raptor and corvid species are seen in the area with crows nesting near the colony. Crows were seen chasing Bald Eagles that flew over the colony.

Foraging

Foraging surveys were conducted during the nesting season to document how the Post Point Herons are using the nearby foraging options at the Post Point Lagoon and along the Marine Parke shoreline. During the height of rearing season, additional monitoring was conducted at Marine Park during low tides when herons would most likely be accessing eelgrass meadows for foraging.

Herons were observed actively using the forage location on 3 out of the 6 foraging survey days. A resident reported seeing up to 7 herons along the Marine Park shoreline in June when tide was lowest for the month. Herons were often seen loafing and foraging along the shoreline of the Post Point Lagoon (**see photo below**)

Adult heron foraging in Post Point Lagoon

Nest Survey and Map Update

Conducting an annual nest count at the Post Point Heron Colony is an important tool for defining the overall health of the colony. Annual variation and/or fluctuation in nests may point to a change in the available nesting habitat, predation pressure, or abundance of prey resources in relation to the colony itself. Tracking nests throughout the nesting season can be difficult as nests are often masked by the leaf cover provided by the nesting habitat. The best time to assess the annual number of nests at the colony is in the fall after leaves have fallen from the nesting trees.

In 2022, the annual nest count was conducted by Hamer Environmental on November 23rd and 25th. A total of 50 nests were counted in 37 nesting trees. Most nesting trees contained a single nest (28), while seven trees contained 2 nests, one tree had 3 nests, and the remaining nest tree had 5 heron nests. Of the 37 nest trees found in 2022, 22 were previously identified as being used in the past while 15 new nest trees were identified. All but one of the nest trees were Red Alders while the remaining nest tree was a Big Leaf Maple. These new nest trees were primarily found along the western edge of the colony as seen in Figure 4. Data collected during the annual nest count included the nest tree # (if the nest tree was identified in previous years), tagging and GPSing new nest trees using a sub-meter GPS receiver, and the number of heron nests found in each tree. Other incidental information is also recorded, including the presence of egg shells, fallen nests, and deceased herons.

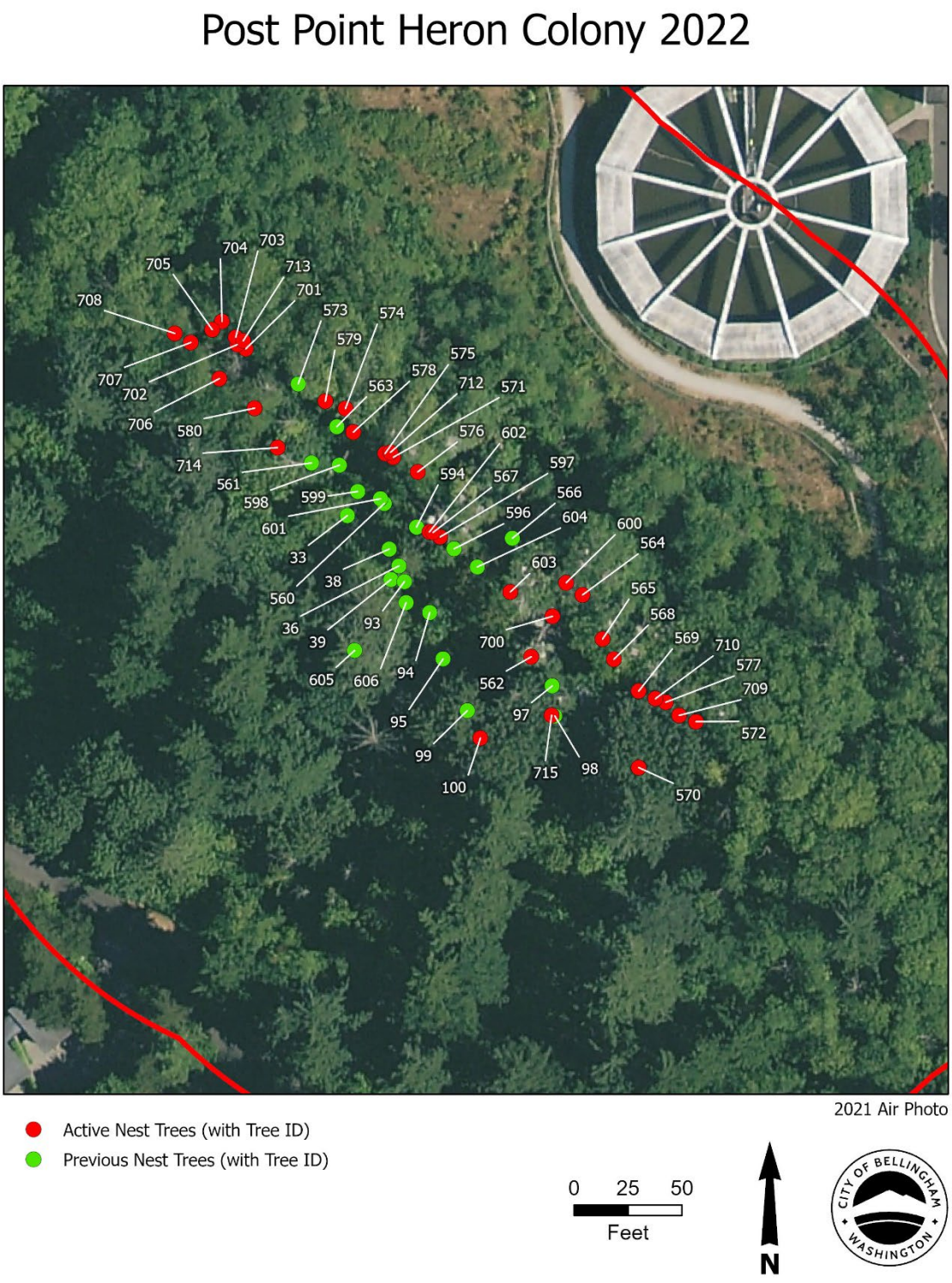

Figure 4: 2022 Post Point Heron Colony Nest Tree Map

Conclusion

The Post Point Heron Colony is important to the health and stability of the Great Blue heron population in the Salish Sea. It serves as a glimpse into nature for many local residents as they stop along the trail to watch in fascination as the herons take twigs for nest construction or feed their young. This is the 23rd season of herons returning to nest demonstrating a high level of fidelity to the colony and resilience to remain in an urban landscape.

The only significant disturbance or disruption observed or reported in 2022 was the single Bald Eagle incursion into the colony in early May, causing only a temporary disruption to brooding of young or incubating of eggs in a portion of the colony. Disruptions to herons in areas outside the colony were noted but the herons continued to use those areas in low numbers despite those interactions.

In 2022, 47 total heron nests were noted from observing the colony from the nearby Lower Padden Trail. Three more nests would be identified when collecting nest and nest tree data bringing the total up to 50 nests in 37 trees in the Post Point Heron Colony in 2022. A total of 100 young herons were counted in the 46 active nests visible from the trail. The colony would fledge 93 young in July and August.

Colony productivity in 2022 was slightly down, 2.17 per active nest and 2.07 per successful nest, from previous nesting seasons. The colony did, however, continue to produce over 2 young per nest while adding 15 new nest trees and having the highest number of active and successful nests observed in its history. The 2022 nesting season was a successful season for the Post Point Heron Colony.

Acknowledgements

Hamer Environmental would like to show appreciation to the City of Bellingham for supporting the continued conservation of the colony and all the assistance provided in our first year of monitoring the colony. We would also like to express gratitude for Nahkeeta Northwest and their 22 years of monitoring and advocating for the colony. Finally, we acknowledge the passion that so many of the citizens in the neighborhood surrounding the colony demonstrated over the 2022 nesting season.

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