
EXHIBIT 4
WILDLIFE HABITAT ASSESSMENT AND SURVEYS AND ADDENDUM TO THE FINAL 2024 REPORT



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Submitted to:

Jeff Shepherd, P.E.
Civil & Environmental
Consultants, Inc.

Submitted by:

Turnstone Environmental
Consultants, Inc.
PO Box 83362
Portland, OR 97283

Submitted:

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Final 2024 Report:

Wildlife Habitat Assessment and Surveys

for the Coffin Butte
Landfill Expansion Project

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INTRODUCTION

Civil & Environmental Consultants, Inc. ("CEC") contracted Turnstone Environmental Consultants, Inc. ("Turnstone") to perform a wildlife study for the Coffin Butte Landfill Expansion Project Area ("Project Area"). This study seeks to understand the following:

- Avian Monitoring
 - Likelihood of usage of the Project Area by protected grassland bird species
 - Occupancy status of the great blue heron nesting in the two known rookery sites
 - Behavior of bald eagles at the Coffin Butte Landfill Expansion Project Area
- Deer and Elk Study
 - Distribution and relative importance of deer and elk habitat surrounding and within the Coffin Butte Landfill Expansion Project Area

This report describes the findings of the habitat assessment and surveys as of July 12, 2024.

AVIAN MONITORING

Turnstone developed an Avian Monitoring Plan for the Coffin Butte Landfill Expansion Project (Appendix A). Wildlife biologists Jennifer Ringo and Gregory Reed from the Oregon Department of Fish and Wildlife (ODFW) and Jennifer Weikel from the Oregon Department of Forestry (ODF) reviewed the draft plan, suggested various edits, and ultimately approved the final monitoring plan. Communications with ODFW and ODF wildlife biologists are included in Appendix B. A copy of the draft report with imbedded ODFW and ODF wildlife biologist comments are available upon request.

The methods for the surveys are described in the Avian Monitoring Plan (Appendix A). The following topics are covered during training of all avian survey personnel:

Protocol and Data Procedures:

- General safety and survey techniques
- Scheduling
- General discussion of site maps
- Proper completion of forms
- Data management schedule

Great Blue Heron and Bald Eagle Life History:

- Ethology
- Suitable habitat
- Nesting chronology

Survey Procedures

- Basic flight patterns and vocalizations of the great blue heron and bald eagle
- Protocol and non-protocol weather conditions

Orienteering:

- GPS, UTM coordinates, map, and compass use
- Orthophoto interpretation



Grassland Bird Habitat

The project area contains closed landfill cells with open areas dominated by graminoids. These closed landfill cells are potential habitat for grassland birds, including the streaked horned lark (*Eremophila alpestris strigata*), a species protected by the Endangered Species Act of 1973.

In January of 2022, Turnstone ecologist Stephanie James visited the potential grassland bird habitat with ODFW grassland bird specialist Anne Mary Myers and ODFW wildlife biologist Gregory Reed to assess the likelihood of protected bird species using the Project Area as foraging and/or nesting habitat. Weather conditions were agreeable to observing the nest sites, with no rain or fog to impede visibility.

ODFW biologists determined the potential grassland habitat and rock quarry areas north of Coffin Butte Road are not likely used as nesting habitat by protected grassland birds, specifically the streaked horned lark (*Eremophila alpestris strigata*) and Oregon vesper sparrow (*Pooecetes gramineus* ssp. *affinis*); therefore, species-specific surveys for grassland birds are not needed.

Great Blue Heron Rookery Monitoring

Turnstone biologists are monitoring two great blue heron rookeries located within the Coffin Butte Landfill Expansion Project Area (Figure 1). In 2022 and 2023, Turnstone biologists conducted six reproductive productivity surveys each year for nesting great blue herons in the two known rookery locations. In 2024, at the time this report was finalized (July 12, 2024), Turnstone biologists have completed five out of six planned reproductive surveys. The survey forms for all years of monitoring are in Appendix C.



Figure 1. Great Blue Heron Rookeries in the Project Area and Observation Points

Year 1 Surveys (2022)

Turnstone biologists conducted six daytime surveys at each rookery site from February 17 through August 15, 2022 (Table 1 and Table 2). Turnstone biologists did not observe or detect any great blue herons nesting during any of the six visits at the western rookery (#2683). All surveys were conducted during mild weather conditions. One red-tailed hawk was observed several times during the survey and may be nesting in one of the potentially abandoned heron stick nests.

The great blue herons at the eastern site (#2716) occupied 14 stick nests during the first three surveys, from February through the end of April. The herons were generally standing and building on the nests, indicating a nest building period and possibly the initiation of an incubation period. In June, bald eagle juveniles invaded the colony and were observed moving between 10 of the 14 nests. All surveys were conducted during mild weather conditions.

Table 1. 2022 Great Blue Heron Survey Results for the Western Rookery (#2683)

Observation Period	Survey Date	Surveyor	Results of Reproductive Monitoring	
			Great Blue Heron	Other Birds Observed in Nests ¹
2/15 to 3/15	2/17	Stephanie James	10 inactive nests	RTHA
3/15 to 4/15	3/22	Stephanie James	10 inactive nests	RTHA
4/15 to 5/15	4/28	Stephanie James	10 inactive nests	RTHA
5/15 to 6/15	6/01	Stephanie James	10 inactive nests	RTHA
6/15 to 7/15	7/12	Stephanie James	10 inactive nests	RTHA
7/15 to 8/15	8/15	Stephanie James	10 inactive nests	RTHA, BAEA

Table 2. 2022 Great Blue Heron Survey Results for the Eastern Rookery (#2716)

Observation Period	Survey Date	Surveyor	Results of Reproductive Monitoring	
			Great Blue Heron	Other Birds Observed in Nests
2/15 to 3/15	2/17	Stephanie James	1 active nest	None
3/15 to 4/15	3/22	Stephanie James	11 active nests	None

¹ RTHA = red-tailed hawk, BAEA = bald eagle, CORA = common raven



Observation Period	Survey Date	Surveyor	Results of Reproductive Monitoring	
			Great Blue Heron	Other Birds Observed in Nests
4/15 to 5/15	4/28	Stephanie James	14 active nests	None
5/15 to 6/15	6/01	Stephanie James	14 inactive nests	BAEA
6/15 to 7/15	7/12	Stephanie James	14 inactive nests	None
7/15 to 8/15	8/15	Stephanie James	14 inactive nests	None

Year 2 Surveys (2023)

Biologists conducted six daytime surveys at each rookery site from March 1 through July 21, 2023 (Table 3 and Table 4). Turnstone biologists did not observe or detect any great blue herons nesting during any of the six visits at the two observation points. All surveys were conducted during mild weather conditions.

Table 3. 2023 Great Blue Heron Survey Results for the Western Rookery (#2683)

Observation Period	Survey Date	Surveyor	Results of Reproductive Monitoring	
			Great Blue Heron	Other Birds Observed in Nests
2/15 to 3/15	3/01	Stephanie James, Sarah McCord	10 inactive nests	CORA, RTHA, BAEA
3/15 to 4/15	3/31	Sarah McCord	10 inactive nests	RTHA, BAEA
4/15 to 5/15	5/05	Sarah McCord	10 inactive nests	RTHA
5/15 to 6/15	5/19	Sarah McCord	10 inactive nests	RTHA
6/15 to 7/15	6/16	Sarah McCord	10 inactive nests	RTHA
7/15 to 8/15	7/21	Sarah McCord	10 inactive nests	RTHA



Table 4. 2023 Great Blue Heron Survey Results for the Eastern Rookery (#2716)

Observation Period	Survey Date	Surveyor	Results of Reproductive Monitoring	
			Great Blue Heron	Other Birds Observed in Nests
2/15 to 3/15	3/01	Stephanie James, Sarah McCord	13 inactive nests	RTHA
3/15 to 4/15	3/31	Sarah McCord	13 inactive nests	RTHA
4/15 to 5/15	5/05	Sarah McCord	13 inactive nests	None
5/15 to 6/15	5/19	Sarah McCord	13 inactive nests	BAEA
6/15 to 7/15	6/16	Sarah McCord	13 inactive nests	None
7/15 to 8/15	7/21	Sarah McCord	13 inactive nests	None

Year 3 Surveys (2024)

At the time of the finalization of this report (July 12, 2024), Turnstone biologists had conducted five of the six required daytime surveys at each rookery site from February 22 through June 28, 2024 (Table 3). Turnstone biologists did not observe any great blue herons using the stick nests for nesting during any of the six visits at the two observation points. All surveys were conducted during mild weather conditions.

Table 5. 2024 Great Blue Heron Survey Results for the Western Rookery (#2683)

Observation Period	Survey Date	Surveyor	Results of Reproductive Monitoring	
			Great Blue Heron	Other Birds Observed in Nests
2/15 to 3/15	2/22	Sarah McCord	10 inactive nests	None
3/15 to 4/15	4/4	Sarah McCord	10 inactive nests	None
4/15 to 5/15	4/19	Sarah McCord	10 inactive nests	None
5/15 to 6/15	5/30	Sarah McCord	10 inactive nests	None
6/15 to 7/15	6/28	Sarah McCord	10 inactive nests	None
7/15 to 8/15	TBD	TBD	TBD	TBD



Table 6. 2024 Great Blue Heron Survey Results for the Eastern Rookery (#2716)

Observation Period	Survey Date	Surveyor	Results	
			Great Blue Heron	Other Birds Observed in Nests
2/15 to 3/15	2/22	Sarah McCord	13 inactive nests	None
3/15 to 4/15	4/4	Sarah McCord	13 inactive nests	None
4/15 to 5/15	4/19	Sarah McCord	13 inactive nests	None
5/15 to 6/15	5/30	Sarah McCord	13 inactive nests	None
6/15 to 7/15	6/28	Sarah McCord	13 inactive nests	None
7/15 to 8/15	TBD	TBD	TBD	TBD

Conclusion

Western Rookery (#2683)

During two years of protocol surveys (2022-2023), Turnstone biologists observed no active nesting by great blue herons within the western rookery (#2683). Three bird species were recorded visiting the stick nests during that time, including the common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), and bald eagle. A pair of red-tailed hawks were present during each survey, acting defensively, and are likely nesting in the in an abandoned stick nest the rookery in 2023.

Turnstone is continuing surveys in Year 3 (2024) to confirm the abandoned status, which requires three consecutive years of inactive status. At the time this report was finalized (July 12, 2024), Turnstone biologists completed five of the six required surveys. No nesting herons were observed as yet in 2024.

The western rookery is likely abandoned by great blue herons; however, the official status of the heron nests cannot be determined until the conclusion of the final sixth survey in 2024. Once the final visit is complete, Turnstone will submit an addendum to this report with the results.

Eastern Rookery (#2716)

During Year 1 (2022) surveys, Turnstone biologists observed active nesting by great blue herons within the eastern rookery (#2716) during the first three survey periods; however, in early June the colony had failed, and juvenile bald eagles were observed visiting the majority of the nests.

A red-tailed hawk pair was observed nesting in an abandoned stick nest in the rookery in Year 2 (2023). No great blue herons were observed in the eastern rookery (#2716) during any of the six 2023 reproductive productivity surveys; therefore, the rookery is considered inactive for 2023.



As with the western rookery, the eastern rookery is likely also abandoned by great blue herons. The official status of the heron nests cannot be determined until the conclusion of the final sixth survey in 2024. Once the final visit is complete, Turnstone will submit an addendum to this report with the results.

Mitigation and Protection Strategy for Great Blue Heron

As of the date of this final report, biologists have not observed any great blue heron nesting activity in the western rookery (#2683), which would be removed by the Landfill Expansion Project. If it is determined that there might be nesting activity during the final sixth survey of 2024, then mitigation measures would be implemented with the guidance of the state biologists with ODFW and ODF for compliance with state laws governing protections of resource sites.

If herons are found to be using the eastern rookery (#2716) during the final survey of 2024, then a Protection Strategy would be implemented during the Landfill Expansion Project activities, using a two-tiered approach with protection within the rookery itself (resource site) and within a buffer zone. This strategy provides effective protection within the rookery while allowing compatible activities at greater distances.

The relatively flat forested structure of the eastern rookery (#2716), existing tall hardwood trees in the contiguous forest extending away from Coffin Butte Road, and high human activity surrounding the rookery affect the shape of the buffer zones. The strategy for protecting the eastern rookery (#2716) includes providing protections within the resource site and a buffer zone extending 300 feet, measured from the perimeter of the rookery (Figure 2).

Great Blue Heron Rookery (within resource site)

The extent of the great blue heron rookery resource site was mapped on the ground to include active nest trees. Within the resource site, the land managers would retain all trees. There would be no habitat modification, such as overstory tree removal, vegetation clearing, construction of new roads, trails, buildings. Only actions allowed within the resource site would be deemed necessary by ODFW and the State Forester for improving the nesting habitat.

Vegetated Buffer Zone (within 300-ft buffer)

The Vegetated Buffer Zone would occur within the contiguous hardwood forest area which includes key components, perching and fledging trees, and replacement trees. No habitat modification, such as timber cutting, vegetation clearing, and development of new roads, trails, or buildings would occur within this zone.



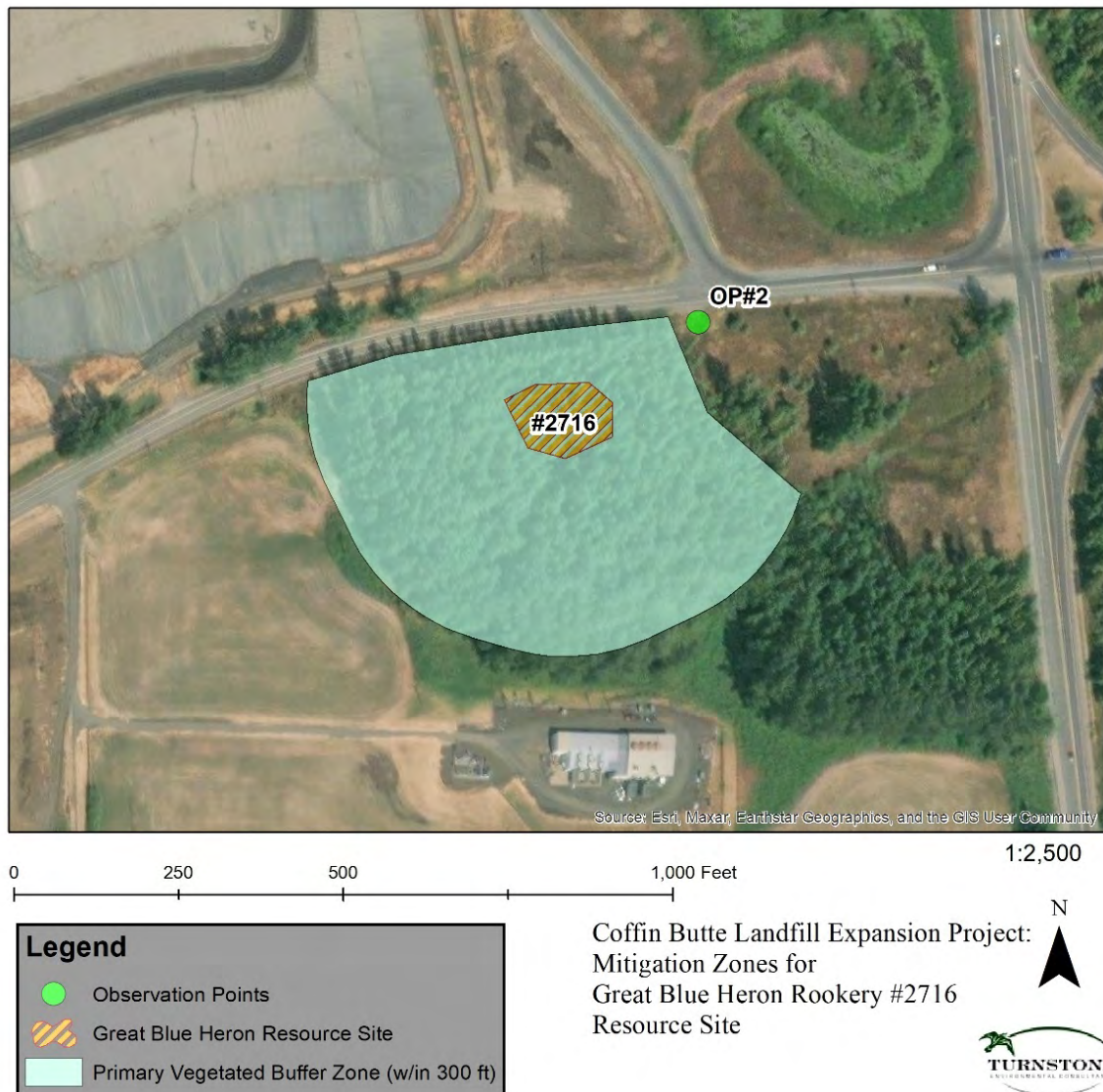


Figure 2. Great Blue Heron Protection Zone Surrounding the Eastern Rookery #2716

Due to the proximity of a high-use road, the great blue herons using the eastern rookery are likely habituated to the traffic noise; therefore, vehicular use of Coffin Butte Road within 300 feet of the rookery would be allowed during the great blue heron nesting period (February 15th to July 31st). The highest priority for protections within the Primary Vegetated Buffer Zone is the forest cover located between the resource site and Coffin Butte Road which acts as a visual screen. Forest management activities would only occur within the Primary Vegetated Buffer Zone with the approval of ODFW and the State Forester and for the enhancement of great blue heron nesting habitat. These enhancements may include tree topping to reduce windthrow potential and would only occur outside of the great blue heron nesting period (February 15th to July 31st).

Bald Eagle Activity

Turnstone conducted monthly monitoring of the behavior of bald eagles within Coffin Butte Landfill Expansion Project Area. The methods for the surveys are described in the Avian Monitoring Plan (Appendix A).

Year 1 (2022)

Turnstone biologists completed five surveys in 2022 for bald eagles during mild weather conditions which allowed for good visibility of the entire Coffin Butte Landfill Expansion Project Area. Biologists observed foraging and soaring behaviors in groups of eagles with as many as eleven juvenile bald eagles and six adult bald eagles. Biologists did not observe any bald eagles using nest sites within the study area.

Table 7. 2022 Bald Eagle Survey Results

Observation Period	Survey Date	Surveyor	Highest Number of Bald Eagles Observed at One Time	
			Juveniles	Adults
2/15 to 3/15	2/17	Stephanie James	4	6
3/15 to 4/15	3/22	Stephanie James	4	6
4/15 to 5/15	4/28	Stephanie James	4	6
5/15 to 6/15	6/01	Stephanie James	4	6
6/15 to 7/15	7/12	Stephanie James	4	6

Year 2 (2023)

Turnstone biologists completed five surveys in 2023 for bald eagles during mild weather conditions which allowed for good visibility of the entire Coffin Butte Landfill Expansion Project Area. Biologists observed foraging and soaring behaviors in groups of eagles with as many as four juvenile bald eagles and six adult bald eagles. Biologists did not observe any bald eagles using nest sites within the study area.

Table 8. 2023 Bald Eagle Survey Results

Observation Period	Survey Date	Surveyor	Highest Number of Bald Eagles Observed at One Time	
			Juveniles	Adults
2/15 to 3/15	2/17	Stephanie James, Sarah McCord	5	6
3/15 to 4/15	3/22	Sarah McCord	11	3



Observation Period	Survey Date	Surveyor	Highest Number of Bald Eagles Observed at One Time	
			Juveniles	Adults
4/15 to 5/15	4/28	Sarah McCord	3	2
5/15 to 6/15	6/01	Sarah McCord	5	3
6/15 to 7/15	7/12	Sarah McCord	0	0

Year 3 (2024)

Turnstone biologist Sarah McCord has completed all five surveys in 2024 for bald eagles during mild weather conditions which allowed for good visibility of the entire Coffin Butte Landfill Expansion Project Area. McCord observed roosting, foraging, and soaring behaviors in groups of eagles with as many as seven (7) juvenile bald eagles and (10) adult bald eagles.

McCord observed a golden eagle flying over the landfill with a blond nape and white based primaries during the first visit on February 22, 2024. Biologists did not observe any bald or golden eagles using nest sites within the study area in 2024.

Table 9. 2024 Bald Eagle Survey Results

Observation Period	Survey Date	Surveyor	Highest Number of Bald Eagles Observed at One Time	
			Juveniles	Adults
2/15 to 3/15	2/17	Sarah McCord	3	1
3/15 to 4/15	3/22	Sarah McCord	2	1
4/15 to 5/15	4/28	Sarah McCord	7	10
5/15 to 6/15	6/01	Sarah McCord	4	4
6/15 to 7/15	7/12	Sarah McCord	2	2

Conclusion

During three years (2022, 2023, and 2024) of monitoring bald eagle activity within the Coffin Butte Landfill Expansion Project Area, Turnstone biologists observed bald eagle juveniles and adults foraging, soaring, gliding, calling, and perching in adjacent trees. No bald eagles were observed nesting during any of the five surveys in each year; therefore, bald eagles are not likely nesting in the Coffin Butte Landfill Expansion Project.



DEER AND ELK STUDY

Turnstone is tasked with gathering existing information, performing field reconnaissance, and conducting a review of the use of the Coffin Butte Landfill Expansion Project Area by resident and/or migratory Columbian black-tailed deer (*Odocoileus hemionus columbianus*) and Roosevelt elk (*Cervus canadensis roosevelti*). The elk study uses a two-phase approach to gather information on deer and elk near the Project Area, integrating remote sensing, regional habitat analysis, and field reconnaissance by wildlife biologists.

The first phase of the deer and elk study includes a review of existing information, which is ongoing. The second phase of the deer and elk study included gathering additional baseline habitat data through field reconnaissance which aids in establishing locations for an array of trail cameras to document seasonal timing of deer and elk movement.

Habitat Assessment

The findings of this interim report are based on the information gathered during field investigation, recent aerial photographs, and the desktop evaluation of spatial data, including anecdotal observations within the 804-acre deer and elk Study Area, which includes all Coffin Butte Landfill Properties. The Deer and Elk Assessment Area includes the areas within a 5-mile radius of the Coffin Butte Study Area. The surrounding 5-mile Assessment Area includes 67,577 acres (Figure 3).

Turnstone wildlife biologists and geographic information system (GIS) analysts reviewed deer and elk habitat mapping created by ODFW in 2017.

The ODFW habitat categorization includes five habitat types with the following characteristics:

- **Summer Concentration Areas (Category 2):** provide essential and limited functions and values for concentrated migratory deer or elk typically from May through October
- **Winter Concentration Areas (Category 2):** provide essential and limited functions and values for concentrated migratory deer or elk typically from November through April
- **Year-round Major Habitat (Category 3):** provide essential functions and values for non-migratory deer or elk; not limited on a physiographic basis
- **Year-round Peripheral Habitat (Category 4):** provide important, but not essential functions and values for deer or elk
- **Impacted habitat (Category 4):** areas where the presence of deer and elk are considered in conflict with primary land uses

Deer and Elk Habitat Assessment Results

The study area contained no summer or winter concentration areas, which are essential for deer and elk that exhibit predominantly migratory behavior. These summer and winter concentration areas provide essential functions, such as thermal cover, protection from predation, and calving and fawning areas that are generally limited on the landscape. Over half of the surrounding 5-mile Assessment Area is considered Impacted Habitat, which are generally developed areas.

Year-round Major Habitat, which provides essential but not limited habitat for non-migratory deer and elk, occurs within about 27-percent of the surrounding 5-mile Assessment Area but



does not occur within the Coffin Butte study area. One hundred percent of the Coffin Butte study area is considered Year-round Peripheral Habitat, which provides important but not essential or limited functions, such as cover and forage. Table 10 summarizes the extent of elk habitat types within the Coffin Butte Study Area and surrounding 5-mile Assessment Area.

Turnstone biologists agree with the 2017 ODFW habitat mapping that found the deer and elk habitat within the Coffin Butte Study Area is likely important but not essential habitat for resident and migratory deer and elk populations.



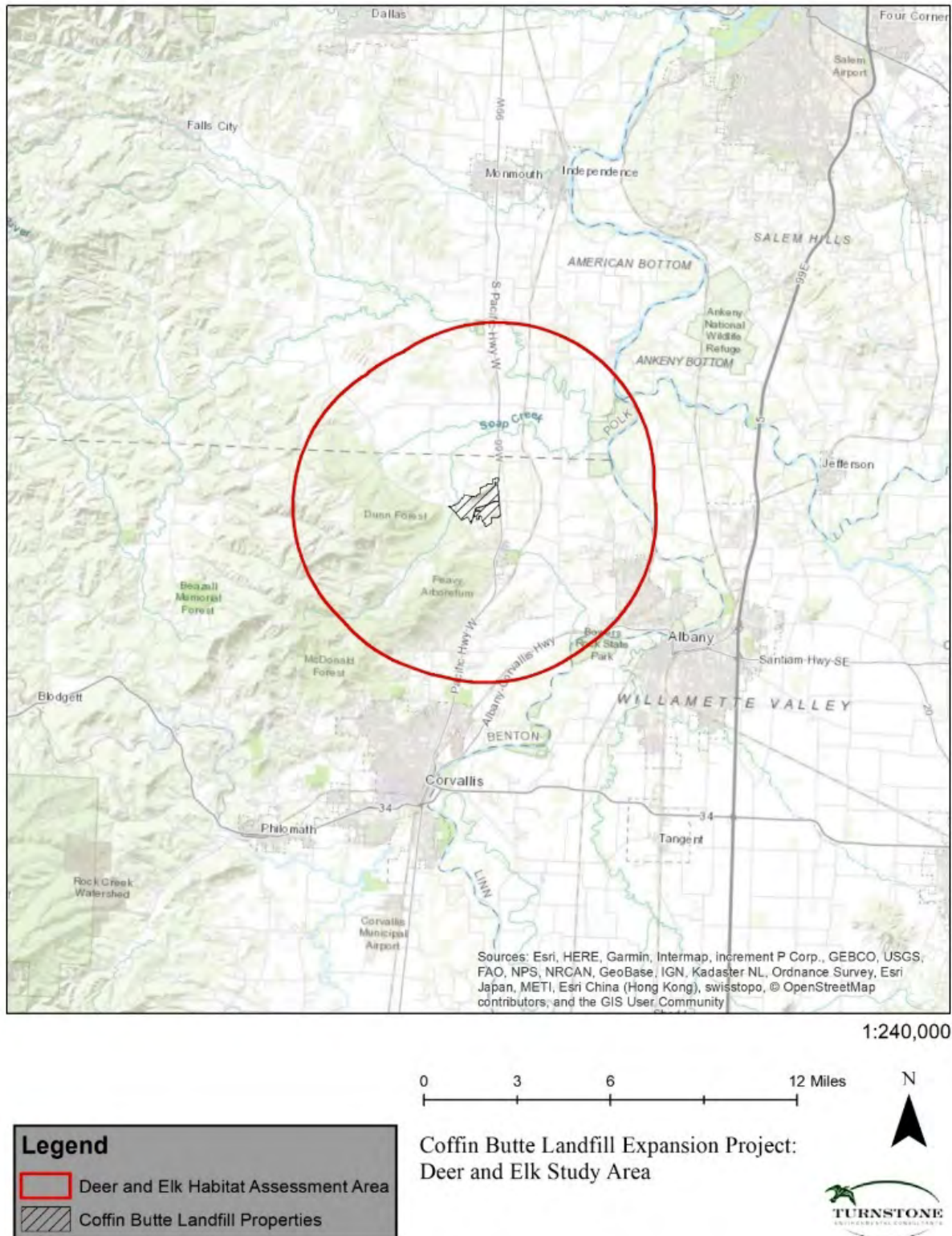


Figure 3. Study Area for the Elk Habitat Assessment

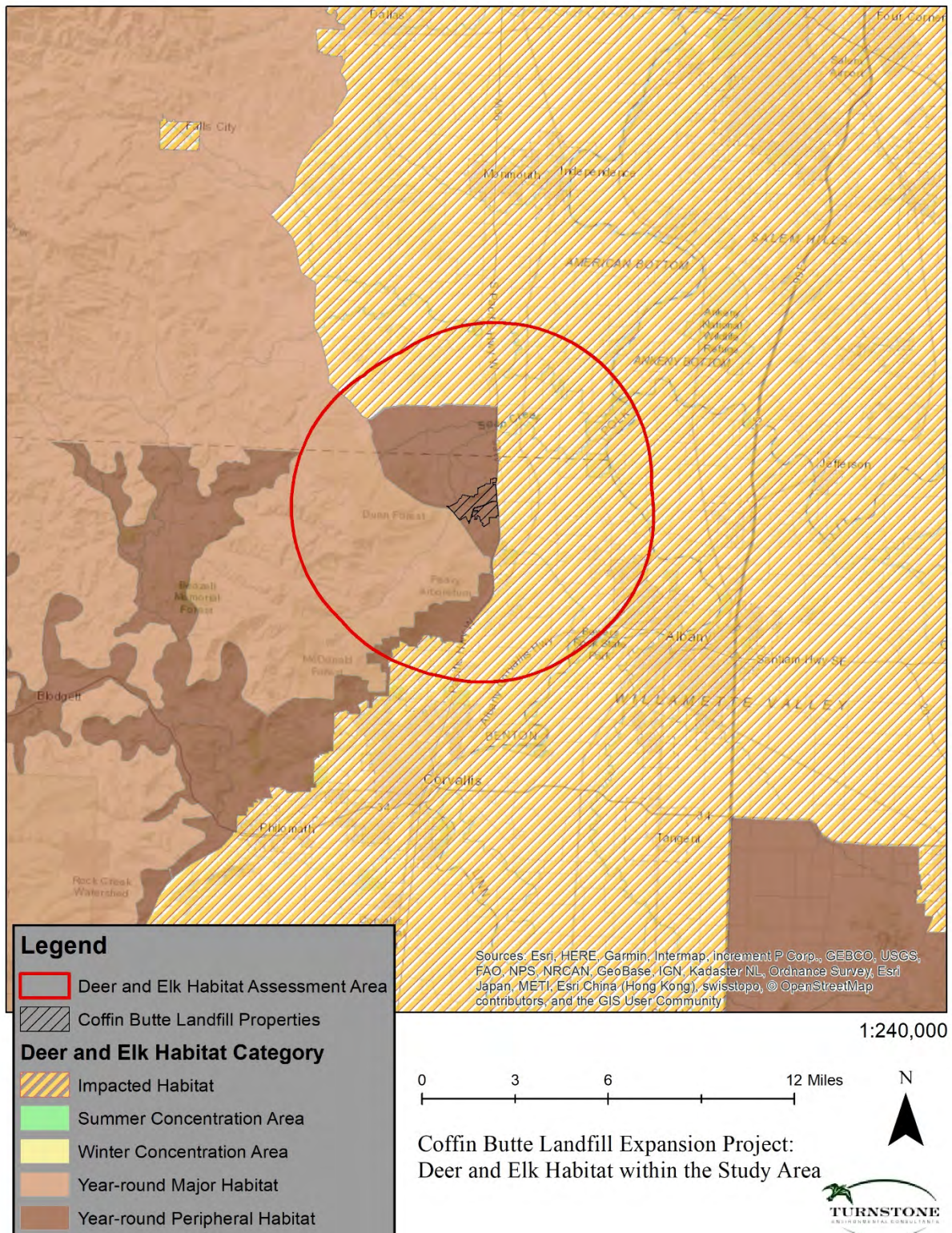


Figure 4. Deer and Elk Habitat in the Coffin Butte Landfill Expansion Project Study Area

Table 10. Elk Habitat within the Coffin Butte Landfill Expansion Project Study Area

Habitat Type	Habitat Category	Project Area (acres)	Percent of Project Area	Study Area (acres)	Percent of Study Area
Summer Concentration Area	2	0	0	0	0.0%
Winter Concentration Area	2	0	0	0	0.0%
Year-round Major Habitat	3	0	0	18,121	26.8%
Year-round Peripheral Habitat	4	804	100%	10,765	15.9%
Impacted Habitat	4	0	0	38,691	57.3%
Totals	--	804	100%	67,577	100%

Trail Camera Study

Turnstone wildlife biologists installed five trail cameras affixed to trees in five sampling areas with one camera in each sampling area in late May 2022. Two of the five cameras (A-4 and A-5) are located within the construction limits of the proposed landfill expansion site and three are outside the project site (A-1, A-3, and A-6). Turnstone biologists placed trail cameras along abandoned roads, game trails, and in forested areas with an open understory.

Large mammal species that occasionally use the Coffin Butte Landfill Expansion Project Area include the bobcat (*Lynx rufus*), cougar (*Puma concolor*), coyote (*Canis latrans*), Roosevelt elk (*Cervus canadensis roosevelti*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*).

Black-tailed deer use the project area throughout the year with the highest usage in the edge habit near Camera A-1, with an average of less than one (0.76) detection per day. All other trail cameras detected black-tailed deer an average of about once or twice per week (Table 11).

Table 11. Black-tailed Deer Detections per Day on Trail Cameras

Common Name	A-1	A-3	A-4	A-5	A-6
Black-tailed deer	276	76	160	143	134
Detections per day	0.76	0.21	0.13	0.39	0.37





Figure 5. Trail Camera Locations in the Coffin Butte Landfill Expansion Project Study Area

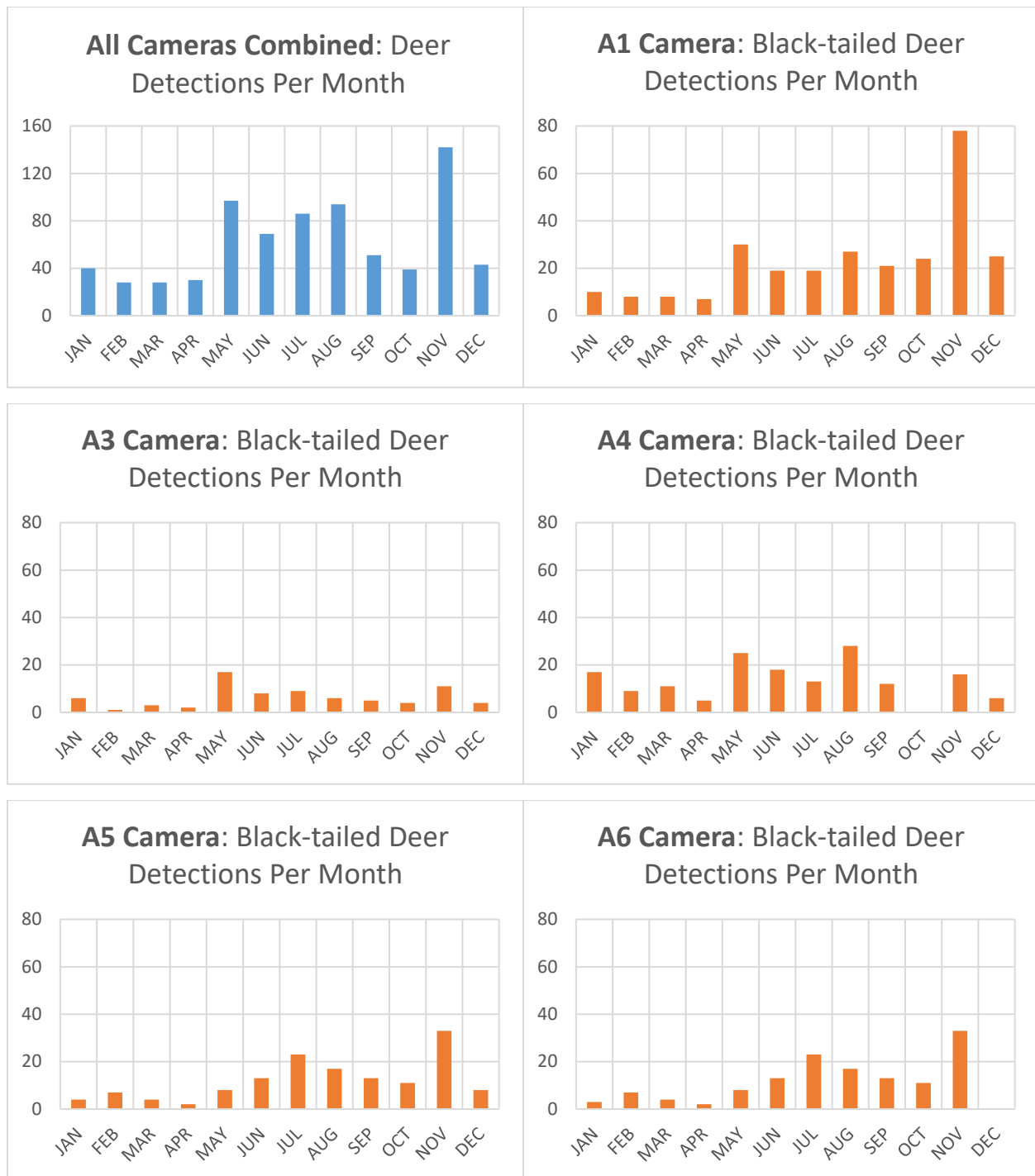


Figure 6. Black-tailed Deer Detections Per Month at Each Trail Camera

Table 12. Detections for Each Mammal Species Observed in the Camera Study Area

Common Name	A-1	A-3	A-4	A-5	A-6	Totals
Black-tailed deer	276	76	160	143	134	789
Bobcat	1	-	-	-	1	2
Cougar	1	-	1	-	-	2
Coyote	5	3	3	7	6	24
Elk	-	-	12	-	2	14
Raccoon	1	-	-	2	1	4
Skunk	-	-	-	-	3	3
All mammal species	283	80	176	152	148	838

A single cow and calf elk twosome were detected in late August and early September on Camera A-1 and A-4. A herd of elk were detected in mid-November during an 11-day period, numbering approximately 10 adults and 6 young of the year. A large herd of elk, numbering around 46 individuals visited the young coniferous forest stand in which Camera A-4 is placed for a 2-day period in early January.

The trail camera monitoring confirms the Coffin Butte study area is considered year-round habitat for black-tailed deer and peripheral habitat for elk and other large mammal species. This deer and elk habitat within the Coffin Butte Study Area provides cover and forage, that is likely important but not essential for resident and migratory deer and elk populations.



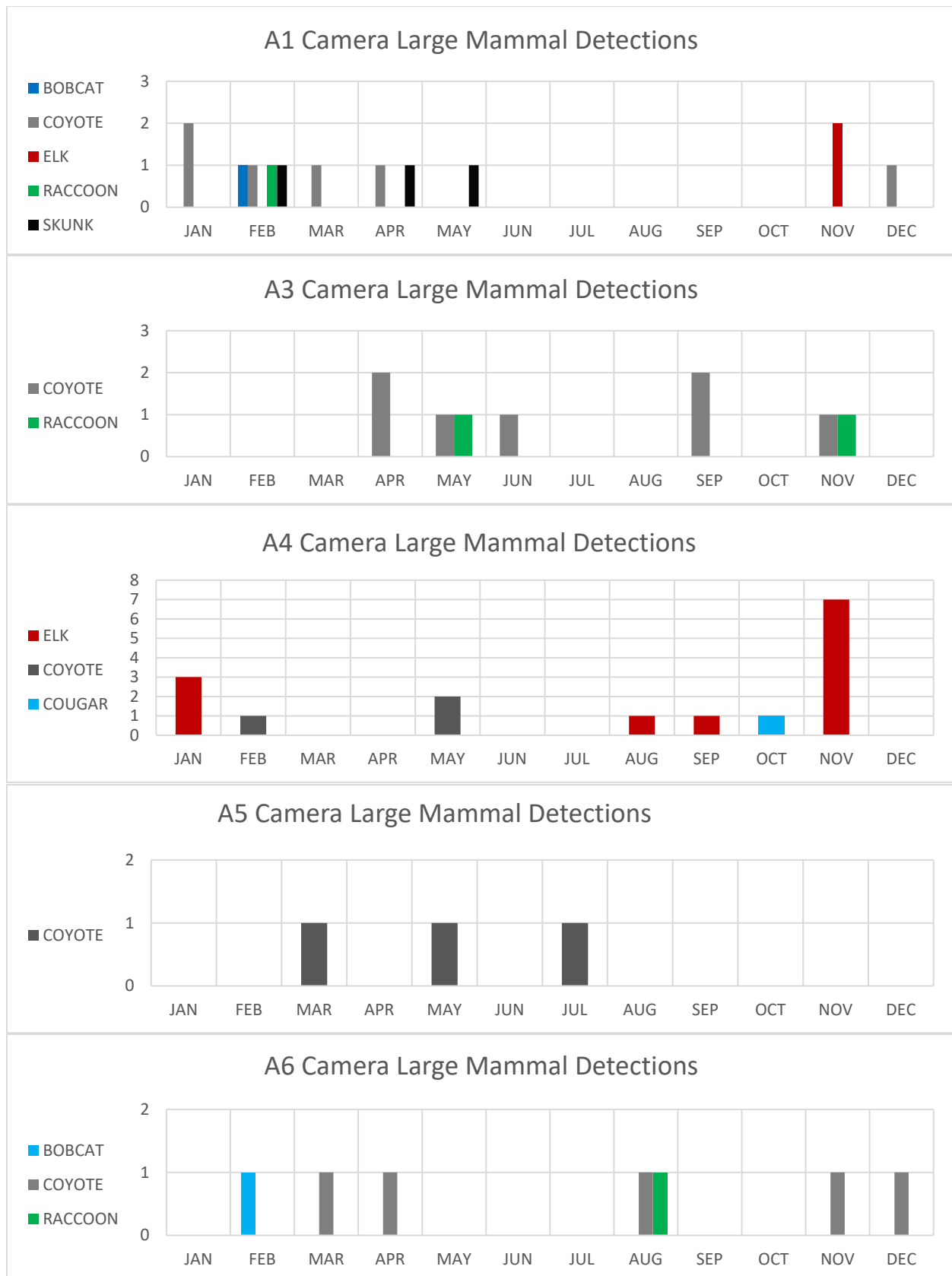


Figure 7. Large Mammals (excluding deer) Observed on Trail Cameras





Figure 8. Adult Female Black-tailed Deer with Young of the Year in July on Camera A-1



Figure 9. A herd of elk in the Young Coniferous Forest in Mid-November on Camera A-4



Figure 10. Adult Male black-tailed Deer on Camera A-5 on an August Morning

APPENDIX A: AVIAN MONITORING PLAN





Photo credit: S. James

Submitted to:

Civil & Environmental Consultants, Inc.
4045 NW 64th Street, Suite 415
OK City, OK 73116

Submitted by:

Turnstone Environmental Consultants, I
PO Box 83362
Portland, OR 97283

Date:

April 14, 2022



Final:

Avian Monitoring Plan

for Coffin Butte Landfill
Expansion Project Area

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INTRODUCTION

Turnstone Environmental Consultants, Inc. (Turnstone) proposes to conduct surveys for protected avian species within the Coffin Butte Landfill Expansion Project Area (Project Area) located in Benton County. Turnstone conducted a habitat assessment for the presence of protected bird species' habitat within the Project Area and found nesting habitat for the great blue heron (*Ardea herodias*) and foraging habitat for the bald eagle (*Haliaeetus leucocephalus*). Bald eagles are protected under the federal 1940 Bald Eagle Protection Act (16 USC 668–668d) and Heron rookeries are protected under the Oregon Forest Practices Act ("FPA"; OAR 629-665-0120). This monitoring plan details the species-specific survey methods for great blue herons and bald eagles which are known or suspected to occur within the Project Area.

HABITAT ASSESSMENT

Turnstone ecologist Stephanie James visited the western great blue heron rookery (#2683) and potential grassland bird habitat covering the closed landfill cells with wildlife biologists Anne Mary Myers and Gregory Reed from the Oregon Department of Fish and Wildlife (ODFW) in January 2022 to assess the likelihood of protected bird species using the Project Area as habitat. Weather conditions were agreeable to observing the nest sites, with no rain or fog to impede visibility.

ODFW biologists determined the potential grassland habitat and rock quarry areas north of Coffin Butte Road are not likely to be used as nesting habitat by protected grassland birds, specifically the streaked horned lark (*Eremophila alpestris strigata*) and Oregon vesper sparrow (*Pooecetes gramineus ssp. affinis*); therefore, surveys for grassland birds will not be needed.

Bald eagles were observed soaring and foraging in the Project Area. The bald eagle uses the Project Area as foraging habitat; however, it is unlikely bald eagles use the Project Area as nesting habitat.

Great blue herons likely use the western rookery (#2683) as nesting habitat. James and the ODFW wildlife biologists accessed the western rookery on foot and observed 24 stick nests in 17 nest trees. James documented the likely use of the eastern rookery (#2716) in October 2021 noting the signs of recent use such as the presence of stick nests with whitewash below. In January 2022, James observed 11 stick nests in 9 trees at the eastern rookery.

Monitoring Great blue heron nests could be accomplished from an observation point outside the forest stand and at least 150 feet from the closest nest, where there is low risk of disturbing or disrupting nesting (Figure 1).





Figure 1. Observation Points for Avian Monitoring

SPECIES-SPECIFIC STUDIES

Great Blue Heron

Turnstone biologists will assess the extent of each rookery and conduct surveys during the breeding season. Mapping the extent of key components of each rookery will include the drip line of trees with stick nests and perching, fledgling, and replacement trees plus a forested buffer area as described in Forest Practice Rules.

Survey Schedule

In 2022, Turnstone will install one observation point for each of the two great blue heron rookeries. Turnstone will survey the two known sites for heron nesting, when heron court and initiate their breeding season and into the egg laying/incubation breeding stage. Turnstone biologists will assess the current nesting status of the known sites by conducting at surveys once per month during the breeding season. Turnstone recommends surveying the two known sites for occupancy and breeding status by conducting five survey visits during the breeding season (February 15 to Aug 15).



Survey Methodology

Surveys for the great blue heron will include estimating the number of occupied nests and breeding success, if possible, at the two known rookery sites located within the Project Area.

Biologists will survey each of the two rookeries to assess the current occupancy status. At the western rookery (#2683), biologists will monitor as many of the 24 great blue heron nests as possible from a single observation point (OP#1). Biologists will also determine breeding status for as many as possible of the 24 nests and any newly constructed nests. At the eastern rookery (#2716), biologists will monitor as many of the 11 great blue heron nests as possible from a single observation point (OP#2). Biologists will also determine breeding status for as many as possible of the 11 known nests and any newly constructed nests.

Table 1. Survey Visit Timing and Great Blue Heron Nesting Stages

Visit #	Date	Nesting Stage	Information Collected
1	February 15 to March 15	Nest building	Mapping and photographing each nest visible from the observation point at each rookery, noting if it is active or inactive, and noting any human disturbances and heron response during the observation period
2	March 15 to April 15	Egg laying/ Incubation	Mapping any new nests, recording active/inactive status for each visible nest, and noting any human disturbances and heron response during the observation period
3	April 15 to May 15	Incubation/Nestling	Recording active/inactive status and juvenile presence for each visible nest, and noting any human disturbances and heron response during the observation period
4	May 15 to June 15	Nestling/Fledgling	Recording active/inactive status and juvenile presence for each visible nest, and noting any human disturbances and heron response during the observation period
5	June 15 to July 15	Fledgling	Recording active/inactive status and juvenile presence for each visible nest, and noting any human disturbances and heron response during the observation period



Visit #	Date	Nesting Stage	Information Collected
6	July 15 to August 15	Fledgling	Recording active/inactive status and juvenile presence for each visible nest, and noting any human disturbances and heron response during the observation period

During each visit, surveyors would observe each heron nesting site for a 2-hour observation period during daylight hours when weather conditions are mild. Biologists will note any key components associated with a nest site, such as perching trees, fledgling trees, and replacement nest trees, by observing herons use during visits.

A heron nest would be considered active if it has known or inferred presence of a mated pair as indicated by observance of at least one of the following activity patterns:

- Two adult herons are present on or near a nest, which has recently been repaired with fresh sticks (clean breaks) or fresh boughs on top, and/or having droppings and/or molted feathers on its rim or the ground underneath
- One adult heron is sitting low in the nest, presumably incubating
- Adult observed feeding young
- Eggs are present
- Young in nest or fledglings are present, by audio or visual detection

A heron nest would be considered unoccupied for the year if no presence activity (as described above) is observed during all five visits. If activity is observed initially but then no activity is observed for three consecutive visits the rookery would be considered active, but the nest failed.

Bald Eagle Surveys

Bald eagles are known to forage at the Coffin Butte landfill site; however, there are no known nest sites in or adjacent to the Project Area. Turnstone recommends surveying from a prominent point for a 2-hour observation period during daylight hours during the following survey windows. Additionally, the landfill site will be surveyed for bald eagle usage to determine if they are nesting, roosting, and/or foraging in the vicinity during nesting season which starts in February.

Table 2. Survey Timing for Bald Eagle Monitoring

Visit #	Date	Information Collected
1	February 15 to March 15	Record bald eagle activity within project area
2	March 15 to April 15	Record bald eagle activity within project area
3	April 15 to May 15	Record bald eagle activity within project area



Visit #	Date	Information Collected
4	May 15 to June 15	Record bald eagle activity within project area
5	June 15 to July 15	Record bald eagle activity within project area

Survey Methods

Turnstone biologists will assess the use of the Project Area as foraging habitat for bald eagles by observing their behavior from one of the two observation points (Figure 1) for a 2-hour observation period during daylight hours, concurrent with great blue heron observation period. During each visit, surveyors will record the greatest number of bald eagle adults and the greatest number of bald eagle juveniles seen at one time during the observation period.

If a new bald eagle nest is observed in or adjacent to the Project Area, then Turnstone biologists will assess the current nesting status of the bald eagle sites. This would be accomplished by conducting four-hour visits one per month between March 1 and July 15, coinciding with the primary nest initiation and young rearing periods, and from a vantage point using scope and binoculars that do not disturb eagles during suitable observation conditions.

Reporting

Within 4 weeks of the survey completion, Turnstone will submit a field survey technical memorandum that includes the survey methods, results, and mapping that depicts complete survey area and results. Turnstone will submit detection location information in GIS format within 2 weeks of completion and in a technical memo, which also documents the survey approach, protocols, and mapped results within 4 weeks of completion.



APPENDIX B: COMMUNICATIONS WITH ODFW AND ODF WILDLIFE BIOLOGISTS



From: [WEIKEL Jennifer * ODF](#)
To: [Stephanie James](#); [REED Gregory C * ODFW](#)
Cc: [AnneMary Myers](#)
Subject: RE: Coffin Butte site visit
Date: Wednesday, March 16, 2022 12:00:04 PM
Attachments: [CB_monitoring_plan_2022-03-02 - ODF edits.docx](#)

Looks good Stephanie. I only have one comment in the document.

Your plan would exceed what we'd need for any Forest Practices-related issues. If you find that one of the rookeries is not active in 2022, I would recommend at least two additional years of surveys. If we have three consecutive years surveys with no nesting, we can change the status of that rookery to abandoned under the FPA.

Jennifer Weikel
Wildlife Biologist, Forest Resources Division
Oregon Department of Forestry
jennifer.weikel@odf.oregon.gov

From: Stephanie James <stephanie@turnstoneenvironmental.com>
Sent: Wednesday, March 02, 2022 2:59 PM
To: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>
Cc: AnneMary Myers <AnneMary.Myers@state.or.us>; WEIKEL Jennifer * ODF <Jennifer.WEIKEL@odf.oregon.gov>
Subject: RE: Coffin Butte site visit

Greetings,

Greg and Jennifer R – Thank you for reviewing and providing input. This draft monitoring plan includes responses to your comments/edits. Turnstone is currently under contract to survey for 2022 only. However, the plan at this point is to conduct surveys each year indefinitely.

Jennifer W – Please review the attached monitoring plan for the Coffin Butte Landfill Expansion project.

Thanks,
Stephanie

Stephanie A. James - Environmental Scientist
Turnstone Environmental Consultants, Inc.
(503) 283-5338 x103

From: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>

Sent: Wednesday, February 23, 2022 5:12 PM
To: Stephanie James <stephanie@turnstoneenvironmental.com>
Cc: AnneMary Myers <AnneMary.Myers@state.or.us>
Subject: RE: Coffin Butte site visit

Hi Stephanie,

Thanks for sending the survey plan. Overall, I think the plan looks good. We made a few edits and asked a few questions with track changes. Our manager, Jennifer Ringo, also added some suggestions throughout. We were also curious how many years the surveys are planned?

If you haven't done so already, I would also recommend coordinating with ODF's private lands wildlife biologist, Jennifer Weikel (jennifer.weikel@odf.oregon.gov) or the Stewardship Forester for this area. They would probably have some guidance on what would be deemed an inactive or unoccupied rookery based on the FPA rules. Let us know if there are any follow up questions or clarifications needed.

Best,

Greg Reed
District Wildlife Biologist
Oregon Department of Fish and Wildlife
7118 NE Vandenberg Ave
Corvallis, OR 97330
Office: 541-757-5226
Cell: 541-961-6381

My email address has changed to: gregory.c.reed@odfw.oregon.gov

From: Stephanie James <stephanie@turnstoneenvironmental.com>
Sent: Wednesday, February 16, 2022 6:53 AM
To: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>
Cc: AnneMary Myers <AnneMary.Myers@state.or.us>
Subject: RE: Coffin Butte site visit

Hi Greg and Anne Mary,

Please find attached a survey plan for the Coffin Butte Expansion Project. Let us know if there are any modifications needed. We plan to conduct the first surveys in early March.

Thanks,
Stephanie

Stephanie A. James - Environmental Scientist
Turnstone Environmental Consultants, Inc.
(503) 283-5338 x103

From: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>
Sent: Wednesday, January 19, 2022 11:44 AM
To: Stephanie James <stephanie@turnstoneenvironmental.com>
Subject: RE: Coffin Butte site visit

Sounds good. I assume we will just meet at the main office building for the Coffin Butte?

From: Stephanie James <stephanie@turnstoneenvironmental.com>
Sent: Wednesday, January 19, 2022 11:35 AM
To: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>
Subject: RE: Coffin Butte site visit

That would be great to have Anne Mary join. Wednesday at 1pm works for me. I'll make sure that we have a decent path for accessing the western rookery. Please be ready to encounter lots of poison oak!

Stephanie A. James - Environmental Scientist
Turnstone Environmental Consultants, Inc.
(503) 283-5338 x103

From: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>
Sent: Wednesday, January 19, 2022 11:31 AM
To: Stephanie James <stephanie@turnstoneenvironmental.com>
Subject: RE: Coffin Butte site visit

Does 1 pm on Wed work for you? I would also like the Assistant District Wildlife Biologist, Anne Mary Myers, to come along, if that is alright? Previously, she was ODFW's Grasslands Biologist, so she is a great asset if we are going to look at grassland bird habitat.

-Greg

From: Stephanie James <stephanie@turnstoneenvironmental.com>
Sent: Wednesday, January 19, 2022 11:14 AM
To: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>
Subject: RE: Coffin Butte site visit

Hi Greg –

Wednesday or Thursday next week would work for me. I would like to access the western GBHE rookery in the conifers on Poison Oak Hill, and then also look at potential grassland bird habitat (SHLA and VESP) on some of the closed landfill cells north of Coffin Butte road. It shouldn't take more than 2 hours.

Also, please let me know if ODFW can release the location(s) of any other GBHE rookeries in the area.

Thanks,
Stephanie

Stephanie A. James - Environmental Scientist
Turnstone Environmental Consultants, Inc.
(503) 283-5338 x103

From: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>
Sent: Wednesday, January 19, 2022 11:02 AM
To: Stephanie James <stephanie@turnstoneenvironmental.com>
Subject: RE: Coffin Butte site visit

Hi Stephanie,

Sorry for not getting back to you. I would be happy to meet with you next week. What are you wanting to look at on the site visit? I am available Tues afternoon, and most of Wed-Fri next week. There is a very small chance we will start our elk helicopter surveys next week, which would limit my availability.

Thanks,

Greg Reed
District Wildlife Biologist
Oregon Department of Fish and Wildlife
7118 NE Vandenberg Ave
Corvallis, OR 97330
Office: 541-757-5226
Cell: 541-961-6381

My email address has changed to: gregory.c.reed@odfw.oregon.gov

From: Stephanie James <stephanie@turnstoneenvironmental.com>

Sent: Wednesday, January 19, 2022 10:48 AM

To: REED Gregory C * ODFW <Gregory.C.REED@odfw.oregon.gov>

Subject: RE: Coffin Butte site visit

Hi Greg – Please let me know if you're available for a site visit next week.

Thanks,
Stephanie

Stephanie A. James - Environmental Scientist
Turnstone Environmental Consultants, Inc.
(503) 283-5338 x103

From: Stephanie James

Sent: Monday, January 17, 2022 10:35 AM

To: Gregory.C.Reed@odfw.oregon.gov

Subject: Coffin Butte site visit

Hi Greg,

Are you available the week of January 24 to visit the GBH rookeries at the Coffin Butte site?

Stephanie A. James - Environmental Scientist
Turnstone Environmental Consultants, Inc.
(503) 283-5338 x103

APPENDIX C: FIELD FORMS



Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West		Colony Code: #2683
Date: 02/22/2024	Visit No: 1	Previous Visit Date: N/A
Arrival Time: 07:45		Departure Time: 09:45
Observers: Sarah McCord		
Weather: Partly cloudy, dry, calm		
Comments: No GBHE observed in the rookery during survey. One RTHA seen in and around the nests, calling and perched, likely using stand for nesting.		

Nest Status Codes		Nest Activity Code eg's	
STD - adult standing		1AS/2AS - 1 or 2 adult stand	
INC - incubation		ASN - adult stand near	
YNG - young in nest		EX - adult exchange	
NV - birds not visible		COP - copulatory behaviour	
FN - failed nest		STICK - stick brought to nest	
Young Age Codes			
1 - 1 to 2 wks old		3 - 4 to 6 wks old	
2 - 2 to 4 wks old		4 - 6 to 8 wks old	

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 04/04/2024 **Visit No:** 2 **Previous Visit Date:** 02/22/2024

Visit No: 2 **Previous Visit Date: 02/22/2024**

Previous Visit Date: 02/22/2024

Arrival Time: 07:47 Departure Time: 09:47

Departure Time:09:47

Observers: Sarah McCord

Weather: Overcast, dry, calm

Comments: RTHA in the stand. No heron activity.

[illegible]

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
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STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old **4 - 6 to 8 wks old**

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 04/19/2024 **Visit No:** 3 **Previous Visit Date:** 04/04/2024

Visit No: 3 **Previous Visit Date: 04/04/2024**

Previous Visit Date: 04/04/2024

Arrival Time: 12:46 Departure Time: 14:46

Departure Time:14:46

Observers: Sarah McCord

Weather: Breezy, dry, clear

Comments: No GBHE observed in the rookery during survey.

[illegible]

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
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STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old **4 - 6 to 8 wks old**

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 05/30/2024 **Visit No:** 4 **Previous Visit Date:** 04/19/2024

Visit No: 4 **Previous Visit Date: 04/19/2024**

Previous Visit Date: 04/19/2024

Arrival Time: 07:56 Departure Time: 09:56

Departure Time:09:56

Observers: Sarah McCord

Weather: Breezy, scattered clouds, dry

Comments: Two adult BAEA, three sub-adult BAEA, and two adult RTHA in the stand.
No heron activity.

[illegible]

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old **4 - 6 to 8 wks old**

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Name: Coffin Butte - West **Colony Code:** #2683

Date: 05/30/2024 **Visit No:** 5 **Previous Visit Date:** 04/19/2024

Date: 05/30/2024 **Visit No:** 5 **Previous Visit Date:** 04/19/2024

Date: 05/30/2024 **Visit No:** 5 **Previous Visit Date:** 04/19/2024

Arrival Time: 06:52 Departure Time: 08:52

Arrival Time: 06:52 Departure Time: 08:52

Observers: Sarah McCord

Weather: Breezy, scattered clouds, dry

Comments: Two juvenile BAEA in stand upon arrival. Two STJA juveniles begging and being fed by adult. No herons.

[illegible]

Nest Status Codes	Nest Activity Code eg's
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001	
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STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

INC - incubation **ASN** - adult stand near

INC - incubation **ASN** - adult stand near

YNG - young in nest **EX** - adult exchange

YNG - young in nest **EX** - adult exchange

NV - birds not visible **COP** - copulatory behaviour

NV - birds not visible **COP** - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

FN - failed nest **STICK** - stick brought to nest

Young Age Codes	
-----------------	--

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

2 - 2 to 4 wks old 4 - 6 to 8 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X Reproductive Productivity

Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
---	---------------------------

Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East	Colony Code: #2716
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Colony Code: #2716

Date: 02/22/2024 **Visit No:** 1 **Previous Visit Date:** N/A

Visit No: 1 Previous Visit Date: N/A

Previous Visit Date: N/A

Arrival Time: 09:48	Departure Time: 11:48
----------------------------	------------------------------

Departure Time:11:48

Observers: Sarah McCord

Weather: Partly cloudy, dry, calm

Comments: 13 stick nests observed with no GBHE.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation	ASN - adult stand near
-------------------------	-------------------------------

ASN - adult stand near

YNG - young in nest	EX - adult exchange
----------------------------	----------------------------

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old	4 - 6 to 8 wks old
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4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East	Colony Code: #2716
---	---------------------------

Colony Code: #2716

Date: 04/04/2024 **Visit No:** 2 **Previous Visit Date:** 02/22/2024

Visit No: 2 **Previous Visit Date: 02/22/2024**

Previous Visit Date: 02/22/2024

Arrival Time: 09:50	Departure Time: 11:50
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Departure Time:11:50

Observers: Sarah McCord

Weather: overcast, dry, calm

Comments: Songbirds observed. No heron activity.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation	ASN - adult stand near
-------------------------	-------------------------------

ASN - adult stand near

YNG - young in nest	EX - adult exchange
----------------------------	----------------------------

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

3 - 4 to 6 wks old

2 - 2 to 4 wks old	4 - 6 to 8 wks old
--------------------	--------------------

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East	Colony Code: #2716
---	---------------------------

Colony Code: #2716

Date: 04/19/2024 **Visit No:** 3 **Previous Visit Date:** 04/04/2024

Visit No: 3 Previous Visit Date: 04/04/2024

Previous Visit Date: 04/04/2024

Arrival Time: 10:44	Departure Time: 12:44
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Departure Time:12:44

Observers: Sarah McCord

Weather: Clear, dry, breezy

Comments: No herons, only songbirds observed.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation	ASN - adult stand near
-------------------------	-------------------------------

ASN - adult stand near

YNG - young in nest	EX - adult exchange
----------------------------	----------------------------

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

3 - 4 to 6 wks old

2 - 2 to 4 wks old	4 - 6 to 8 wks old
--------------------	--------------------

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 05/30/2024 **Visit No:** 4 **Previous Visit Date:** 04/19/2024

Visit No: 4 **Previous Visit Date: 04/19/2024**

Previous Visit Date: 04/19/2024

Arrival Time: 10:00 Departure Time: 12:00

Departure Time:12:00

Observers: Sarah McCord

Weather: Scattered clouds, dry, breezy

Comments: No herons observed.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
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STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Name: Coffin Butte - East **Colony Code:** #2716

Date: 06/28/2024 **Visit No:** 5 **Previous Visit Date:** 05/30/2024

Date: 06/28/2024 **Visit No:** 5 **Previous Visit Date:** 05/30/2024

Date: 06/28/2024 **Visit No:** 5 **Previous Visit Date:** 05/30/2024

Arrival Time: 09:00	Departure Time: 11:00
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Arrival Time: 09:00	Departure Time: 11:00
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Observers: Sarah McCord

Weather: Scattered clouds, dry, breezy

Comments: No herons observed, only songbirds

Nest Status Codes	Nest Activity Code eg's
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Nest Status Codes	Nest Activity Code eg's
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STD - adult standing	1AS/2AS - 1 or 2 adult stand
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STD - adult standing	1AS/2AS - 1 or 2 adult stand
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INC - incubation	ASN - adult stand near
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INC - incubation	ASN - adult stand near
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YNG - young in nest **EX** - adult exchange

YNG - young in nest **EX** - adult exchange

NV - birds not visible **COP** - copulatory behaviour

NV - birds not visible **COP** - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
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FN - failed nest	STICK - stick brought to nest
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Young Age Codes	
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1 - 1 to 2 wks old	3 - 4 to 6 wks old
<p>1. Stomach</p> <p>2. Small Intestine</p> <p>3. Large Intestine</p> <p>4. Rectum</p> <p>5. Anal</p>	<p>1. Stomach</p> <p>2. Small Intestine</p> <p>3. Large Intestine</p> <p>4. Rectum</p> <p>5. Anal</p>

1 - 1 to 2 wks old	3 - 4 to 6 wks old
<p>1. Stomach</p> <p>2. Small Intestine</p> <p>3. Large Intestine</p> <p>4. Rectum</p> <p>5. Anal</p>	<p>1. Stomach</p> <p>2. Small Intestine</p> <p>3. Large Intestine</p> <p>4. Rectum</p> <p>5. Anal</p>

2 - 2 to 4 wks old	4 - 6 to 8 wks old
<p>1. Stomach</p> <ul style="list-style-type: none"> • Stomach • Small intestine • Large intestine • Rectum • Anus 	<p>1. Stomach</p> <ul style="list-style-type: none"> • Stomach • Small intestine • Large intestine • Rectum • Anus

2 - 2 to 4 wks old	4 - 6 to 8 wks old
<p>1. Stomach</p> <ul style="list-style-type: none"> • Stomach • Small intestine • Large intestine • Rectum • Anus 	<p>1. Stomach</p> <ul style="list-style-type: none"> • Stomach • Small intestine • Large intestine • Rectum • Anus

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X Reproductive Productivity

Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 7/11/2024 **No. of Visits:** 5

No. of Visits: 5

Observers: S. McCord

Weather: Surveys conditions were dry and calm or breezy

GPS Coordinates: 44.6959, -123.2316

Comments:

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
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Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Date: 03/01/2023 **Visit No:** 1 **Previous Visit Date:**

Arrival Time: 10:25	Departure Time: 12:25
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Observers: Stephanie James, Sarah McCord

Weather: Partly cloudy, dry, calm

Comments: No GBHE observed in the rookery during survey. On separate occasions, 1 COHA, 2 RTHA adults, 1 BAEA juv, and 2 BAEA adults visited the rookery.

Nest Status Codes	Nest Activity Code eg's
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STD - adult standing	1AS/2AS - 1 or 2 adult stand
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INC - incubation	ASN - adult stand near
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YNG - young in nest **EX** - adult exchange

NV - birds not visible **COP** - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
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Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

2 - 2 to 4 wks old	4 - 6 to 8 wks old
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[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 03/31/2023 **Visit No:** 2 **Previous Visit Date:** 03/01/2023

Visit No: 2 **Previous Visit Date:** 03/01/2023

Previous Visit Date: 03/01/2023

Arrival Time: 10:37 Departure Time: 12:37

Departure Time:12:37

Observers: Sarah McCord

Weather: Overcast, drizzling rain, calm

Comments: No GBHE observed in the rookery during survey. On separate occasions, 2 RTHA adults, 2 BAEA juv, and 1 BAEA adult visited the rookery.

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 05/05/2023 **Visit No:** 3 **Previous Visit Date:** 03/31/2023

Arrival Time: 11:05 Departure Time: 13:05

Observers: Sarah McCord

Weather: Breezy, scattered clouds, dry until last 45 mins then misty rain

Comments: Ravens. RTHA pair begging and chatting, keeping close watch on me and escorting ravens away from stand. Coopers hawk fly-over.

Nest Status Codes	Nest Activity Code eg's
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STD - adult standing	1AS/2AS - 1 or 2 adult stand
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INC - incubation **ASN** - adult stand near

YNG - young in nest **EX** - adult exchange

NV - birds not visible **COP** - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 05/19/2023 **Visit No:** 4 **Previous Visit Date:** 05/05/2023

Visit No: 4 Previous Visit Date: 05/05/2023

Previous Visit Date: 05/05/2023

Arrival Time: 08:13 Departure Time: 10:13

Departure Time:10:13

Observers: Sarah McCord

Weather: Breezy, scattered clouds, dry

Comments: No GBHE observed in the rookery during survey. RTHA pair in stand, calling, chasing off other birds and scolding me for my presence.

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
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3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 06/16/2023 **Visit No:** 5 **Previous Visit Date:** 05/19/2023

Visit No: 5 Previous Visit Date: 05/19/2023

Previous Visit Date: 05/19/2023

Arrival Time: 08:47 Departure Time: 10:47

Departure Time:10:47

Observers: Sarah McCord

Weather: Breezy, scattered clouds, dry

Comments: No GBHE observed in the rookery during survey. RTHA screaming soft raspy but not a juv, pair responses, may be on nest.

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
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3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 07/21/2023 **Visit No:** 6 **Previous Visit Date:** 06/16/2023

Visit No: 6 **Previous Visit Date: 06/16/2023**

Previous Visit Date: 06/16/2023

Arrival Time: 08:35 Departure Time: 10:35

Departure Time:10:35

Observers: Sarah McCord

Weather: calm, clear, dry

Comments: No GBHE observed in the rookery during survey. RTHA present and calling in stand, vultures and small birds.

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 3/24/2023 **No. of Visits:** 6

No. of Visits: 6

Observers: S. James, S. McCord

Weather: Surveys conditions were calm and dry or with light precipitation

GPS Coordinates: 44.6988, -123.2235

Comments: No GBHE observed in the rookery site. RTHA are likely nesting in an abandoned stick nest within the rookery site.

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
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Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
1	1
2	2
3	3
4	4
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6	6
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97	97
98	98
99	99
100	100

Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 03/01/2023 **Visit No:** 1 **Previous Visit Date:**

Visit No: 1 Previous Visit Date:

Previous Visit Date: _____

Arrival Time: 08:15	Departure Time: 10:15
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Departure Time:10:15

Observers: Stephanie James, Sarah McCord

Weather: Partly cloudy, dry, calm

Comments: 14 stick nests observed with no GBHE. One nest is likely occupied by a breeding pair of RTHA, one of which was stilling low in Nest #6.

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation	ASN - adult stand near
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ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old	4 - 6 to 8 wks old
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4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East	Colony Code: #2716
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Colony Code: #2716

Date: 03/31/2023 **Visit No:** 2 **Previous Visit Date:** 03/01/2023

Previous Visit Date: 03/01/2023

Arrival Time: 08:32	Departure Time: 10:32
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Departure Time:10:32

Observers: Sarah McCord

Weather: Overcast, drizzling rain, calm

Comments: 14 stick nests observed with no GBHE. One nest is likely occupied by a breeding pair of RTHA

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation	ASN - adult stand near
-------------------------	-------------------------------

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
<p>1. 1 - 1 to 2 wks old</p> <p>2. 3 - 4 to 6 wks old</p>	<p>3. 1 - 1 to 2 wks old</p> <p>4. 3 - 4 to 6 wks old</p>

3 - 4 to 6 wks old

2 - 2 to 4 wks old	4 - 6 to 8 wks old
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4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 05/05/2023 **Visit No:** 3 **Previous Visit Date:** 03/31/2023

Visit No: 3 **Previous Visit Date: 03/31/2023**

Previous Visit Date: 03/31/2023

Arrival Time: 08:20 Departure Time: 10:28

Departure Time:10:28

Observers: Sarah McCord

Weather: Breezy, scattered clouds, dry

Comments: No GBHE observed in the rookery during survey. Turkey vulture and ravens soaring above stand.

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 05/19/2023 **Visit No:** 4 **Previous Visit Date:** 05/05/2023

Visit No: 4 Previous Visit Date: 05/05/2023

Previous Visit Date: 05/05/2023

Arrival Time: 10:20 Departure Time: 12:20

Departure Time:12:20

Observers: Sarah McCord

Weather: Breezy, scattered clouds, dry

Comments: No GBHE observed in the rookery during survey. 1 adult

BAEA chased out of stand by blackbird. 1 J BAEA perched in stand before flying back to landfill. 1 GBHE fly-over.

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
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3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 06/16/2023 **Visit No:** 5 **Previous Visit Date:** 05/19/2023

Visit No: 5 Previous Visit Date: 05/19/2023

Previous Visit Date: 05/19/2023

Arrival Time: 10:49 Departure Time: 12:49

Departure Time:12:49

Observers: Sarah McCord

Weather: Breezy, clear, dry

Comments:No GBHE observed in the rookery during survey. Vultures and small birds, one GBHE fly-by headed to field to the west.

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Date: 07/21/2023 **Visit No:** 6 **Previous Visit Date:** 06/16/2023

Arrival Time: 10:40	Departure Time: 12:40
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Observers: Sarah McCord

Weather: Breezy, clear, dry

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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YNG - young in nest

FN - failed nest

1AS/2AS - 1 or 2 adult stand

EX - adult exchange

STICK - stick brought to nest

1 - 1 to 2 wks old	3 - 4 to 6 wks old
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4 - 6 to 8 wks old

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - East

Colony Code: #2716

Date: 3/24/2023

No. of Visits: 6

Observers: S. James, S. McCord

Weather: Surveys conditions were calm and dry or with light precipitation

GPS Coordinates: 44.6959, -123.2316

Comments: No GBHE adults observed, RTHA defending and sitting low in Nest #6

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
1	1
2	2
3	3
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99	99
100	100

Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 3/24/2023 **No. of Visits:** 6

No. of Visits: 6

Observers: S. James, S. McCord

Weather: Surveys conditions were calm and dry or with light precipitation

GPS Coordinates: 44.6959, -123.2316

Comments:

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
1	1
2	2
3	3
4	4
5	5
6	6
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100	100

Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 02/17/2022 **Visit No:** 1 **Previous Visit Date:**

Visit No: 1 Previous Visit Date:

Previous Visit Date:

Arrival Time: 12:51 Departure Time: 14:51

Departure Time:14:51

Observers: Stephanie James

Weather: Partly cloudy, misty, calm

Comments: No GBHE observed during survey. A RTHA adult was aggravated calling, seen flying to/from the forest stand

Nest Status Codes	Nest Activity Code eg's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 03/22/2022 **Visit No:** 2 **Previous Visit Date:** 02/17/2022

Visit No: 2 **Previous Visit Date:** 02/17/2022

Previous Visit Date: 02/17/2022

Arrival Time: 09:33 Departure Time: 11:33

Departure Time:11:33

Observers: Stephanie James

Weather: Cloudy, dry, light breeze

Comments: No GBHE observed during survey. Two RTHA adults calling from the forest stand.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 04/28/2022 **Visit No:** 3 **Previous Visit Date:** 03/22/2022

Arrival Time: 12:40 Departure Time: 14:40

Observers: Stephanie James

Weather: Cloudy, dry, light breeze

Comments: No GBHE observed during survey. Two RTHA adults seen and heard, likely occupying a stick nest in the rookery.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

INC - incubation **ASN** - adult stand near

YNG - young in nest **EX** - adult exchange

NV - birds not visible **COP** - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 06/01/2022 **Visit No:** 4 **Previous Visit Date:** 04/28/2022

Visit No: 4 Previous Visit Date: 04/28/2022

Previous Visit Date: 04/28/2022

Arrival Time: 12:27 Departure Time: 14:27

Departure Time:14:27

Observers: Stephanie James

Weather: Clear, calm, dry

Comments: No GBHE observed during survey. Two RTHA adults seen and heard, likely occupying a stick nest in the rookery.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 07/12/2022 **Visit No:** 5 **Previous Visit Date:** 06/01/2022

Visit No: 5 **Previous Visit Date:** 06/01/2022

Previous Visit Date: 06/01/2022

Arrival Time: 11:20 Departure Time:13:20

Departure Time:13:20

Observers: Stephanie James

Weather: Clear, calm, dry

Comments: No GBHE observed during survey. Two RTHA adults seen and heard, likely occupying a stick nest in the rookery.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 08/15/2022 **Visit No:** 6 **Previous Visit Date:** 07/12/2022

Visit No: 6 **Previous Visit Date: 07/12/2022**

Previous Visit Date: 07/12/2022

Arrival Time: 18:20 Departure Time: 20:20

Departure Time:20:20

Observers: Stephanie James

Weather: Clear, calm, dry

Comments: No GBHE observed. Two juv BAEA inspected some of the stick nests. Two RTHA adults seen and heard, likely occupying a stick nest in the rookery.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 8/20/2022 **No. of Visits:** 6

No. of Visits: 6

Observers: S. James

Weather: Surveys conditions were calm and dry or with light pricipitation

GPS Coordinates: 44.6988, -123.2235

Comments: No GBHE observed in the rookery site. RTHA are likely nesting in an abandoned stick nest within the rookery site.

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
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Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 02/17/2022 **Visit No:** 1 **Previous Visit Date:**

Visit No: 1 Previous Visit Date:

Previous Visit Date:

Arrival Time: 10:42 Departure Time: 12:42

Departure Time:12:42

Observers: Stephanie James

Weather: Partly cloudy, misty, calm

Comments: Eleven stick nests observed, one active.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 03/22/2022 **Visit No:** 2 **Previous Visit Date:** 02/17/2022

Visit No: 2 Previous Visit Date: 02/17/2022

Previous Visit Date: 02/17/2022

Arrival Time: 11:39	Departure Time: 13:48
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Departure Time:13:48

Observers: Stephanie James

Weather: Partly cloudy, misty, calm

Comments: Eleven stick nests observed, eleven active.

Nest Status Codes	Nest Activity Code eq's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
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3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Date: 04/28/2022 **Visit No:** 3 **Previous Visit Date:** 03/22/2022

Arrival Time: 10:02	Departure Time: 12:36
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Observers: Stephanie James

Weather: Partly cloudy, misty, calm

Comments: Fourteen stick nests observed, all active.

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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INC - incubation	ASN - adult stand near
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YNG - young in nest **EX** - adult exchange

NV - birds not visible **COP** - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
<p>1. 1st egg laid</p> <p>2. 2nd egg laid</p> <p>3. 3rd egg laid</p> <p>4. 4th egg laid</p> <p>5. 5th egg laid</p> <p>6. 6th egg laid</p> <p>7. 7th egg laid</p> <p>8. 8th egg laid</p> <p>9. 9th egg laid</p> <p>10. 10th egg laid</p> <p>11. 11th egg laid</p> <p>12. 12th egg laid</p> <p>13. 13th egg laid</p> <p>14. 14th egg laid</p> <p>15. 15th egg laid</p> <p>16. 16th egg laid</p> <p>17. 17th egg laid</p> <p>18. 18th egg laid</p> <p>19. 19th egg laid</p> <p>20. 20th egg laid</p> <p>21. 21st egg laid</p> <p>22. 22nd egg laid</p> <p>23. 23rd egg laid</p> <p>24. 24th egg laid</p> <p>25. 25th egg laid</p> <p>26. 26th egg laid</p> <p>27. 27th egg laid</p> <p>28. 28th egg laid</p> <p>29. 29th egg laid</p> <p>30. 30th egg laid</p> <p>31. 31st egg laid</p> <p>32. 32nd egg laid</p> <p>33. 33rd egg laid</p> <p>34. 34th egg laid</p> <p>35. 35th egg laid</p> <p>36. 36th egg laid</p> <p>37. 37th egg laid</p> <p>38. 38th egg laid</p> <p>39. 39th egg laid</p> <p>40. 40th egg laid</p> <p>41. 41st egg laid</p> <p>42. 42nd egg laid</p> <p>43. 43rd egg laid</p> <p>44. 44th egg laid</p> <p>45. 45th egg laid</p> <p>46. 46th egg laid</p> <p>47. 47th egg laid</p> <p>48. 48th egg laid</p> <p>49. 49th egg laid</p> <p>50. 50th egg laid</p> <p>51. 51st egg laid</p> <p>52. 52nd egg laid</p> <p>53. 53rd egg laid</p> <p>54. 54th egg laid</p> <p>55. 55th egg laid</p> <p>56. 56th egg laid</p> <p>57. 57th egg laid</p> <p>58. 58th egg laid</p> <p>59. 59th egg laid</p> <p>60. 60th egg laid</p> <p>61. 61st egg laid</p> <p>62. 62nd egg laid</p> <p>63. 63rd egg laid</p> <p>64. 64th egg laid</p> <p>65. 65th egg laid</p> <p>66. 66th egg laid</p> <p>67. 67th egg laid</p> <p>68. 68th egg laid</p> <p>69. 69th egg laid</p> <p>70. 70th egg laid</p> <p>71. 71st egg laid</p> <p>72. 72nd egg laid</p> <p>73. 73rd egg laid</p> <p>74. 74th egg laid</p> <p>75. 75th egg laid</p> <p>76. 76th egg laid</p> <p>77. 77th egg laid</p> <p>78. 78th egg laid</p> <p>79. 79th egg laid</p> <p>80. 80th egg laid</p> <p>81. 81st egg laid</p> <p>82. 82nd egg laid</p> <p>83. 83rd egg laid</p> <p>84. 84th egg laid</p> <p>85. 85th egg laid</p> <p>86. 86th egg laid</p> <p>87. 87th egg laid</p> <p>88. 88th egg laid</p> <p>89. 89th egg laid</p> <p>90. 90th egg laid</p> <p>91. 91st egg laid</p> <p>92. 92nd egg laid</p> <p>93. 93rd egg laid</p> <p>94. 94th egg laid</p> <p>95. 95th egg laid</p> <p>96. 96th egg laid</p> <p>97. 97th egg laid</p> <p>98. 98th egg laid</p> <p>99. 99th egg laid</p> <p>100. 100th egg laid</p>	<p>1. 1st egg laid</p> <p>2. 2nd egg laid</p> <p>3. 3rd egg laid</p> <p>4. 4th egg laid</p> <p>5. 5th egg laid</p> <p>6. 6th egg laid</p> <p>7. 7th egg laid</p> <p>8. 8th egg laid</p> <p>9. 9th egg laid</p> <p>10. 10th egg laid</p> <p>11. 11th egg laid</p> <p>12. 12th egg laid</p> <p>13. 13th egg laid</p> <p>14. 14th egg laid</p> <p>15. 15th egg laid</p> <p>16. 16th egg laid</p> <p>17. 17th egg laid</p> <p>18. 18th egg laid</p> <p>19. 19th egg laid</p> <p>20. 20th egg laid</p> <p>21. 21st egg laid</p> <p>22. 22nd egg laid</p> <p>23. 23rd egg laid</p> <p>24. 24th egg laid</p> <p>25. 25th egg laid</p> <p>26. 26th egg laid</p> <p>27. 27th egg laid</p> <p>28. 28th egg laid</p> <p>29. 29th egg laid</p> <p>30. 30th egg laid</p> <p>31. 31st egg laid</p> <p>32. 32nd egg laid</p> <p>33. 33rd egg laid</p> <p>34. 34th egg laid</p> <p>35. 35th egg laid</p> <p>36. 36th egg laid</p> <p>37. 37th egg laid</p> <p>38. 38th egg laid</p> <p>39. 39th egg laid</p> <p>40. 40th egg laid</p> <p>41. 41st egg laid</p> <p>42. 42nd egg laid</p> <p>43. 43rd egg laid</p> <p>44. 44th egg laid</p> <p>45. 45th egg laid</p> <p>46. 46th egg laid</p> <p>47. 47th egg laid</p> <p>48. 48th egg laid</p> <p>49. 49th egg laid</p> <p>50. 50th egg laid</p> <p>51. 51st egg laid</p> <p>52. 52nd egg laid</p> <p>53. 53rd egg laid</p> <p>54. 54th egg laid</p> <p>55. 55th egg laid</p> <p>56. 56th egg laid</p> <p>57. 57th egg laid</p> <p>58. 58th egg laid</p> <p>59. 59th egg laid</p> <p>60. 60th egg laid</p> <p>61. 61st egg laid</p> <p>62. 62nd egg laid</p> <p>63. 63rd egg laid</p> <p>64. 64th egg laid</p> <p>65. 65th egg laid</p> <p>66. 66th egg laid</p> <p>67. 67th egg laid</p> <p>68. 68th egg laid</p> <p>69. 69th egg laid</p> <p>70. 70th egg laid</p> <p>71. 71st egg laid</p> <p>72. 72nd egg laid</p> <p>73. 73rd egg laid</p> <p>74. 74th egg laid</p> <p>75. 75th egg laid</p> <p>76. 76th egg laid</p> <p>77. 77th egg laid</p> <p>78. 78th egg laid</p> <p>79. 79th egg laid</p> <p>80. 80th egg laid</p> <p>81. 81st egg laid</p> <p>82. 82nd egg laid</p> <p>83. 83rd egg laid</p> <p>84. 84th egg laid</p> <p>85. 85th egg laid</p> <p>86. 86th egg laid</p> <p>87. 87th egg laid</p> <p>88. 88th egg laid</p> <p>89. 89th egg laid</p> <p>90. 90th egg laid</p> <p>91. 91st egg laid</p> <p>92. 92nd egg laid</p> <p>93. 93rd egg laid</p> <p>94. 94th egg laid</p> <p>95. 95th egg laid</p> <p>96. 96th egg laid</p> <p>97. 97th egg laid</p> <p>98. 98th egg laid</p> <p>99. 99th egg laid</p> <p>100. 100th egg laid</p>

1 - 1 to 2 wks old	3 - 4 to 6 wks old
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2 - 2 to 4 wks old **4 - 6 to 8 wks old**

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 06/01/2022 **Visit No:** 4 **Previous Visit Date:** 04/28/2022

Visit No: 4 Previous Visit Date: 04/28/2022

Previous Visit Date: 04/28/2022

Arrival Time: 14:33	Departure Time: 16:38
----------------------------	------------------------------

Departure Time:16:38

Observers: Stephanie James

Weather: Clear, dry, calm

Comments: Four BAEA juveniles visited most of the nests, in groups of two or four. No GBHE observed during survey.

Nest Status Codes	Nest Activity Code eq's
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Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
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1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 07/12/2022 **Visit No:** 5 **Previous Visit Date:** 06/01/2022

Visit No: 5 **Previous Visit Date: 06/01/2022**

Previous Visit Date: 06/01/2022

Arrival Time: 09:08 Departure Time: 11:08

Departure Time:11:08

Observers: Stephanie James

Weather: Clear, dry, calm

Comments: No GBHE observed during survey.

[illegible]

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old 3 - 4 to 6 wks old

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 08/15/2022 **Visit No:** 6 **Previous Visit Date:** 07/12/2022

Visit No: 6 **Previous Visit Date: 07/12/2022**

Previous Visit Date: 07/12/2022

Arrival Time: 16:15 Departure Time: 18:15

Departure Time:18:15

Observers: Stephanie James

Weather: Clear, dry, calm

Comments: No GBHE observed during survey.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Activity Code eg's

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

1AS/2AS - 1 or 2 adult stand

INC - incubation **ASN** - adult stand near

ASN - adult stand near

YNG - young in nest **EX** - adult exchange

EX - adult exchange

NV - birds not visible **COP** - copulatory behaviour

COP - copulatory behaviour

FN - failed nest **STICK** - stick brought to nest

STICK - stick brought to nest

Young Age Codes

1 - 1 to 2 wks old	3 - 4 to 6 wks old
--------------------	--------------------

3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

4 - 6 to 8 wks old

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 8/20/2022 **No. of Visits:** 6

No. of Visits: 6

Observers: S. James

Weather: Surveys conditions were calm and dry or with light pricipitation

GPS Coordinates: 44.6959, -123.2316

Comments: GBHE adults were observed nest building, potentially, incubating eggs during March, April. After June 1, no GBHE observed, 2-4 juvenile BAEA visited/raided most nests.

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
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Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 8/20/2022 **No. of Visits:** 6

No. of Visits: 6

Observers: S. James

Weather: Surveys conditions were calm and dry or with light pricipitation

GPS Coordinates: 44.6959, -123.2316

Comments:

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
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Arrival/Departure

Colony Floor Search

	Climbing
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[illegible]

Bald Eagle Observation Data Sheet - Coffin Butte Landfill

Date: 02/22/2024	Visit No: 1	Most BAEA adults observed at one time:	1
Observer(s): S. McCord	Arrival Time: 07:45	Most BAEA juveniles observed at one time:	3
Weather: Some fog, scattered clouds, calm,dry	Departure Time: 11:48	Most GOEA adults observed at one time:	1
Comments: GOEA seen soaring over landfill. BAEA adult and 3 immature seen soaring over landfill.		Most GOEA juveniles observed at one time:	0

Date: 04/04/2024	Visit No: 2	Most BAEA adults observed at one time:	1
Observer(s): S. McCord	Arrival Time: 07:47	Most BAEA juveniles observed at one time:	2
Weather: Dry, calm, overcast	Departure Time: 11:50	Most GOEA adults observed at one time:	0
Comments: 1 adult BAEA, 2 juvenile BAEA observed over the landfill		Most GOEA juveniles observed at one time:	0

Date: 04/19/2024	Visit No: 3	Most BAEA adults observed at one time:	10
Observer(s): S. McCord	Arrival Time: 10:44	Most BAEA juveniles observed at one time:	7
Weather: Breezy, clear, dry	Departure Time: 14:46	Most GOEA adults observed at one time:	0
Comments: 10 adults and 7 juveniles (17 soaring a thermal together!) BAEA		Most GOEA juveniles observed at one time:	0

Date: 05/30/2024	Visit No: 4	Most BAEA adults observed at one time:	4
Observer(s): S. McCord	Arrival Time: 07:56	Most BAEA juveniles observed at one time:	4
Weather: Breezy, scattered clouds, dry	Departure Time: 12:00	Most GOEA adults observed at one time:	0
Comments: 4 adults and 4 juvenile BAEA observed over the landfill		Most GOEA juveniles observed at one time:	0

Date: 06/28/2024	Visit No: 5	Most BAEA adults observed at one time:	2
Observer(s): S. McCord	Arrival Time: 06:52	Most BAEA juveniles observed at one time:	2
Weather: Breezy, scattered clouds, dry	Departure Time: 11:00	Most GOEA adults observed at one time:	0
Comments: 2 adults and 2 juvenile BAEA observed over the landfill		Most GOEA juveniles observed at one time:	0

Date:	Visit No:	Most BAEA adults observed at one time:	
Observer(s):	Arrival Time:	Most BAEA juveniles observed at one time:	
Weather:	Departure Time:	Most GOEA adults observed at one time:	
Comments:		Most GOEA juveniles observed at one time:	

Bald Eagle Observation Data Sheet - Coffin Butte Landfill

Date: 03/01/2023	Visit No: 1	Most BAEA adults observed at one time:	6
Observer(s): S. James	Arrival Time: 08:25	Most BAEA juveniles observed at one time:	5
Weather: Partly cloudy, dry, calm	Departure Time: 12:30	Most GOEA adults observed at one time:	0
Comments: BAEA adults and juveniles were seen soaring, perching, foraging, and commingling above and near the landfill.		Most GOEA juveniles observed at one time:	0

Date: 03/31/2023	Visit No: 2	Most BAEA adults observed at one time:	3
Observer(s): S. McCord	Arrival Time: 08:32	Most BAEA juveniles observed at one time:	11
Weather: Overcast, drizzling rain, calm	Departure Time: 12:37	Most GOEA adults observed at one time:	0
Comments: AEA adults and juveniles were seen soaring, perching, foraging, and commingling above and near the landfill.		Most GOEA juveniles observed at one time:	0

Date: 05/05/2023	Visit No: 3	Most BAEA adults observed at one time:	2
Observer(s): S. McCord	Arrival Time: 08:20	Most BAEA juveniles observed at one time:	3
Weather: Breezy, scattered clouds, dry	Departure Time: 13:05	Most GOEA adults observed at one time:	0
Comments: Surprisingly few raptors visible this morning. Eagles soaring among some turkey vultures. May have been more on other side of landfill.		Most GOEA juveniles observed at one time:	0

Date: 05/19/2023	Visit No: 4	Most BAEA adults observed at one time:	3
Observer(s): S. McCord	Arrival Time: 08:13	Most BAEA juveniles observed at one time:	5
Weather: Breezy, scattered clouds, dry	Departure Time: 12:20	Most GOEA adults observed at one time:	0
Comments: One adult BAEA perched in cottonwood rookery stand before flying back to dump. Eagles soaring and foraging above and near landfill.		Most GOEA juveniles observed at one time:	0

Date: 06/16/2023	Visit No: 5	Most BAEA adults observed at one time:	0
Observer(s): S. McCord	Arrival Time: 08:47	Most BAEA juveniles observed at one time:	0
Weather: Breezy, clear, dry	Departure Time: 12:49	Most GOEA adults observed at one time:	0
Comments: No bald eagles observed. Vultures and corvids seen around landfill.		Most GOEA juveniles observed at one time:	0

Date: 07/21/2023	Visit No: 6	Most BAEA adults observed at one time:	2
Observer(s): S. McCord	Arrival Time: 08:35	Most BAEA juveniles observed at one time:	0
Weather: Clear, calm, dry	Departure Time: 12:40	Most GOEA adults observed at one time:	0
Comments: 2 adult bald eagles seen near landfill. No juveniles observed. Vultures and corvids present.		Most GOEA juveniles observed at one time:	0

Bald Eagle Observation Data Sheet - Coffin Butte Landfill

Date: 02/22/2024	Visit No: 1	Most BAEA adults observed at one time:	1
Observer(s): S. McCord	Arrival Time: 07:45	Most BAEA juveniles observed at one time:	3
Weather: Some fog, scattered clouds, calm,dry	Departure Time: 11:48	Most GOEA adults observed at one time:	1
Comments: GOEA seen soaring over landfill. BAEA adult and 3 immature seen soaring over landfill.		Most GOEA juveniles observed at one time:	0

Date: 04/04/2024	Visit No: 2	Most BAEA adults observed at one time:	1
Observer(s): S. McCord	Arrival Time: 07:47	Most BAEA juveniles observed at one time:	2
Weather: Dry, calm, overcast	Departure Time: 11:50	Most GOEA adults observed at one time:	0
Comments: 1 adult BAEA, 2 juvenile BAEA observed over the landfill		Most GOEA juveniles observed at one time:	0

Date: 04/19/2024	Visit No: 3	Most BAEA adults observed at one time:	10
Observer(s): S. McCord	Arrival Time: 10:44	Most BAEA juveniles observed at one time:	7
Weather: Breezy, clear, dry	Departure Time: 14:46	Most GOEA adults observed at one time:	0
Comments: 10 adults and 7 juveniles (17 soaring a thermal together!) BAEA		Most GOEA juveniles observed at one time:	0

Date: 05/30/2024	Visit No: 4	Most BAEA adults observed at one time:	4
Observer(s): S. McCord	Arrival Time: 07:56	Most BAEA juveniles observed at one time:	4
Weather: Breezy, scattered clouds, dry	Departure Time: 12:00	Most GOEA adults observed at one time:	0
Comments: 4 adults and 4 juvenile BAEA observed over the landfill		Most GOEA juveniles observed at one time:	0

Date: 06/28/2024	Visit No: 5	Most BAEA adults observed at one time:	2
Observer(s): S. McCord	Arrival Time: 06:52	Most BAEA juveniles observed at one time:	2
Weather: Breezy, scattered clouds, dry	Departure Time: 11:00	Most GOEA adults observed at one time:	0
Comments: 2 adults and 2 juvenile BAEA observed over the landfill		Most GOEA juveniles observed at one time:	0

Date:	Visit No:	Most BAEA adults observed at one time:	
Observer(s):	Arrival Time:	Most BAEA juveniles observed at one time:	
Weather:	Departure Time:	Most GOEA adults observed at one time:	
Comments:		Most GOEA juveniles observed at one time:	



Photo credit: S. James

Submitted to:

Jeff Shepherd, P.E.
Civil & Environmental
Consultants, Inc.

Submitted by:

Turnstone Environmental
Consultants, Inc.
PO Box 83362
Portland, OR 97283

Submitted:

August 6, 2024



*Addendum to the
Final 2024 Report:*

Wildlife Habitat Assessment and Surveys

for the Coffin Butte
Landfill Expansion Project

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INTRODUCTION

Civil & Environmental Consultants, Inc. ("CEC") contracted Turnstone Environmental Consultants, Inc. ("Turnstone") to perform a wildlife study for the Coffin Butte Landfill Expansion Project Area ("Project Area"). This document is an addendum to the *Final 2024 Report: Wildlife Habitat Assessment and Surveys for the Coffin Butte Landfill Expansion Project* (Turnstone, 2024).

Great Blue Heron Rookery Monitoring

Turnstone biologists are monitoring two great blue heron rookeries located within the Coffin Butte Landfill Expansion Project Area (Figure 1). In 2022 and 2023, Turnstone biologists conducted six reproductive productivity surveys each year for nesting great blue herons in the two known rookery locations. In 2024, at the time the Final 2024 Report was finalized (July 12, 2024), Turnstone biologists had completed five out of six planned reproductive surveys for the great blue heron reproductive monitoring. The survey forms for the final sixth visit of 2024 great blue heron rookery monitoring are in Appendix A.



Figure 1. Great Blue Heron Rookeries in the Project Area and Observation Points



Year 3 Surveys (2024)

At the time of the finalization of this report (July 12, 2024), Turnstone biologists had conducted five of the six required daytime surveys at each rookery site from February 22 through June 28, 2024 (Turnstone, 2024). The final visit was conducted on July 18, 2024, and Turnstone biologists did not observe any great blue herons using the stick nests for nesting during any of the six visits at the two observation points. All surveys were conducted during mild weather conditions.

Table 1. 2024 Great Blue Heron Survey Results for the Western Rookery (#2683)

Observation Period	Survey Date	Surveyor	Results of Reproductive Monitoring	
			Great Blue Heron	Other Birds Observed in Nests
2/15 to 3/15	2/22	Sarah McCord	10 inactive nests	None
3/15 to 4/15	4/4	Sarah McCord	10 inactive nests	None
4/15 to 5/15	4/19	Sarah McCord	10 inactive nests	None
5/15 to 6/15	5/30	Sarah McCord	10 inactive nests	None
6/15 to 7/15	6/28	Sarah McCord	10 inactive nests	None
7/15 to 8/15	7/18	Sarah McCord	10 inactive nests	None

Table 2. 2024 Great Blue Heron Survey Results for the Eastern Rookery (#2716)

Observation Period	Survey Date	Surveyor	Results	
			Great Blue Heron	Other Birds Observed in Nests
2/15 to 3/15	2/22	Sarah McCord	13 inactive nests	None
3/15 to 4/15	4/4	Sarah McCord	13 inactive nests	None
4/15 to 5/15	4/19	Sarah McCord	13 inactive nests	None
5/15 to 6/15	5/30	Sarah McCord	13 inactive nests	None
6/15 to 7/15	6/28	Sarah McCord	13 inactive nests	None
7/15 to 8/15	7/18	Sarah McCord	13 inactive nests	None



Conclusion

Western Rookery (#2683)

During consecutive three years of protocol surveys (2022-2024), Turnstone biologists observed no active nesting by great blue herons within the western rookery (#2683). Three bird species were recorded visiting the stick nests during that time, including the common raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), and bald eagle. A pair of red-tailed hawks were present during each survey, acting defensively, and are likely nesting in the in an abandoned stick nest the rookery in 2023. The western rookery is likely abandoned by great blue herons; therefore, the western rookery (#2683) is an abandoned Great Blue Heron Resource Site.

Eastern Rookery (#2716)

During Year 1 (2022) surveys, Turnstone biologists observed active nesting by great blue herons within the eastern rookery (#2716) during the first three survey periods; however, in early June the colony had failed, and juvenile bald eagles were observed visiting the majority of the nests.

A red-tailed hawk pair was observed nesting in an abandoned stick nest in the rookery in Year 2 (2023). No great blue herons were observed in the eastern rookery (#2716) during any of the six 2023 reproductive productivity surveys; therefore, the rookery is considered inactive for 2023.

As with the western rookery, the eastern rookery is likely also abandoned by great blue herons. The eastern rookery (#2716) is considered inactive for 2024. Turnstone recommends continuing surveys in 2025 to determine if the eastern rookery is inactive for a third consecutive year, which would deem this Great Blue Heron Resource Site officially abandoned.



APPENDIX A: FIELD FORMS



Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Name: Coffin Butte - West **Colony Code:** #2683

Date: 07/18/2024 **Visit No:** 5 **Previous Visit Date:** 05/30/2024

Date: 07/18/2024 **Visit No:** 5 **Previous Visit Date:** 05/30/2024

Date: 07/18/2024 **Visit No:** 5 **Previous Visit Date:** 05/30/2024

Arrival Time: 07:22 Departure Time: 09:22

Arrival Time: 07:22 Departure Time: 09:22

Observers: Sarah McCord

Weather: Breezy, scattered clouds, dry

Comments: No herons observed.

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

INC - incubation **ASN** - adult stand near

INC - incubation **ASN** - adult stand near

YNG - young in nest **EX** - adult exchange

YNG - young in nest **EX** - adult exchange

NV - birds not visible **COP** - copulatory behaviour

NV - birds not visible **COP** - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

Young Age Codes	
-----------------	--

1 - 1 to 2 wks old 3 - 4 to 6 wks old

1 - 1 to 2 wks old 3 - 4 to 6 wks old

2 - 2 to 4 wks old	4 - 6 to 8 wks old
<p>1. Stomach</p> <p>2. Small Intestine</p> <p>3. Large Intestine</p> <p>4. Rectum</p> <p>5. Anal</p>	<p>1. Stomach</p> <p>2. Small Intestine</p> <p>3. Large Intestine</p> <p>4. Rectum</p> <p>5. Anal</p>

2 - 2 to 4 wks old	4 - 6 to 8 wks old
<p>1. Stomach</p> <p>2. Small Intestine</p> <p>3. Large Intestine</p> <p>4. Rectum</p> <p>5. Anal</p>	<p>1. Stomach</p> <p>2. Small Intestine</p> <p>3. Large Intestine</p> <p>4. Rectum</p> <p>5. Anal</p>

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - West **Colony Code:** #2683

Colony Code: #2683

Date: 8/6/2024	No. of Visits: 6
-----------------------	-------------------------

No. of Visits: 6

Observers: S. McCord

Weather: Surveys conditions were calm and dry or with light precipitation

GPS Coordinates: 44.6988, -123.2235

Comments: No GBHE observed in the rookery.

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
---	---------------------------

Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron Data Sheet - Colony Reproductive Productivity

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Name: Coffin Butte - East **Colony Code:** #2716

Date: 07/18/2024 **Visit No:** 5 **Previous Visit Date:** 06/28/2024

Date: 07/18/2024 **Visit No:** 5 **Previous Visit Date:** 06/28/2024

Date: 07/18/2024 **Visit No:** 5 **Previous Visit Date:** 06/28/2024

Arrival Time: 09:29 Departure Time: 11:29

Arrival Time: 09:29 Departure Time: 11:29

Observers: Sarah McCord

Weather: Scattered clouds, dry, breezy

Comments: No herons observed.

[illegible]

Nest Status Codes	Nest Activity Code eg's
-------------------	-------------------------

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

STD - adult standing	1AS/2AS - 1 or 2 adult stand
-----------------------------	-------------------------------------

INC - incubation **ASN** - adult stand near

INC - incubation **ASN** - adult stand near

YNG - young in nest **EX** - adult exchange

YNG - young in nest **EX** - adult exchange

NV - birds not visible **COP** - copulatory behaviour

NV - birds not visible **COP** - copulatory behaviour

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

FN - failed nest	STICK - stick brought to nest
-------------------------	--------------------------------------

Young Age Codes	
-----------------	--

1 - 1 to 2 wks old 3 - 4 to 6 wks old

1 - 1 to 2 wks old	3 - 4 to 6 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

2 - 2 to 4 wks old 4 - 6 to 8 wks old

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - East **Colony Code:** #2716

Colony Code: #2716

Date: 8/6/2024 **No. of Visits:** 6

No. of Visits: 6

Observers: S. McCord

Weather: Surveys conditions were dry and calm or breezy

GPS Coordinates: 44.6959, -123.2316

Comments: No GBHE observed in the stand.. STJA, RTHA and BAEA were observed in the stand.

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X	Reproductive Productivity
---	---------------------------

Arrival/Departure

Colony Floor Search

Climbing

[illegible]

Great Blue Heron - Coffin Butte Landfill Annual Colony Visits Summary

Colony Name: Coffin Butte - East

Colony Code: #2716

Date: 8/6/2024

No. of Visits: 6

Observers: S. McCord

Weather: Surveys conditions were dry and calm or breezy

GPS Coordinates: 44.6959, -123.2316

Comments:

No. Data Sheets Used in Season:

Summary

Tree Mapping

Disturbance

X Reproductive Productivity

Arrival/Departure

Colony Floor Search

Climbing

[illegible]