# Research Report

Owl Research INSTITUTE
wildlife conservation through research & education

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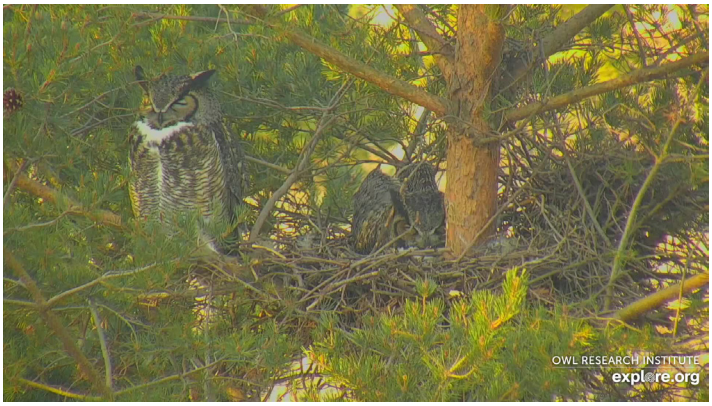
## Great Horned Owl Live Cam Citizen Science Observations Report

March 2022

### Introduction

In 2020, the Owl Research Institute (ORI) had a live camera on an active Great Horned Owl (*Bubo virginianus*) nest. The live stream provided a rare opportunity for non-invasive behavioral research.




ORI partners with explore.org to share the lives of owls and other raptors in Montana with viewers around the globe.

Visit ***www.owlresearchinstitute.org/owl-live-cams*** to learn more.

### Methods

To quantify breeding behaviors and timelines, we called for volunteers who were already watching the live cam to record the events they were seeing. After reading a set of instructions, we asked volunteers to sign up for time slots to record their observations. The chat forum on explore.org was helpful for collaboration and questions, such as asking about identification of prey species. We set up a data entry form that observers could use to log behavioral data. Each event was recorded with a date and time, as well as any other important details.

Observers logged in from all over North America (the United States and Canada). Observers logged in from 21 different states and one province, from 47 cities, and from 56 different computers.

**Events recorded**

- Egg pipping
- Egg hatching
- Chick opening eyes
- Prey delivery
- Chick swallowing whole prey
- Chick shows barred appearance
- Chick branching
- Predator near nest
- Female taking a break

## Observations

**Date of hatch:**

- First egg — March 23, 2020 at 01:00
- Second egg — March 25, 2020 at 04:56
- Third egg — March 27, 2020 at 14:00

This tells us that the eggs are hatching about 52 hours apart, and were likely laid about two days apart.

**Chicks opening eyes**

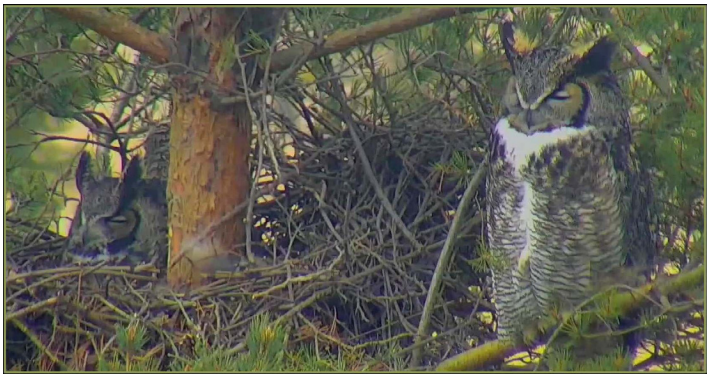
The oldest chick opened its eyes on Day 7, and the youngest chick opened its eyes on Day 10, which shows some variation in the age of the chicks when they first open their eyes. No data was recorded for the middle chick.

**Prey delivery**

106 prey deliveries were recorded, and 72% of those were able to be identified.

**Table 1: Type and number of prey delivered to nest**

| Type of prey | Number delivered |
|---|---|
| Vole | 44 |
| Mouse | 2 |
| Rodent | 27 |
| Rabbit | 1 |
| Bird | 2 |
| Snake | 1 |
| Unknown | 29 |



**Branching behavior**

Branching behavior was observed, and it was interesting to note that the chicks started branching (leaving the nest to perch on nearby branches, but returning to the nest) at a little over 5 weeks of age.

- April 26, 2020, at 22:55, Chick 1 branching near nest and came back later
- May 3, 2020, at 17:30, and May 5, 2020- Chick 1 branching a lot
- May 2, 2020- Chick 2 branching in nest tree, with Chick 1 in adjacent tree

**Fledging**

The chicks were observed fledging, or taking their first short flights, at 6-7 weeks of age.

**Predators near nest**

The only predators documented near the nest were Black-billed Magpies, which were observed two times and elicited reactions from the adult Great Horned Owls, and were an opportunity to record interesting behavioral observations. The female Great Horned Owl clacked her bill and postured defensively near the vulnerable young chicks in the nest, and the male Great Horned Owl flew in from nearby.

**Female taking a break**

Volunteers also documented intervals where the female Great Horned Owl stopped incubation to take a break off the nest. During this time she was not visible, but was likely defecating, casting pellets, stretching, perhaps washing herself, meeting the male as he delivered prey, or retrieving prey from a cache. The female was observed leaving the nest 50 times during incubation and brooding, for an average of about 10 minutes each time and a median of 7 minutes, with a maximum break of 31 minutes and a minimum of 1 minute. She was observed doing this several times a day, but data was not recorded 24/7 so we can't say for sure how many times she left the nest in a 24-hour period. See Table 2:

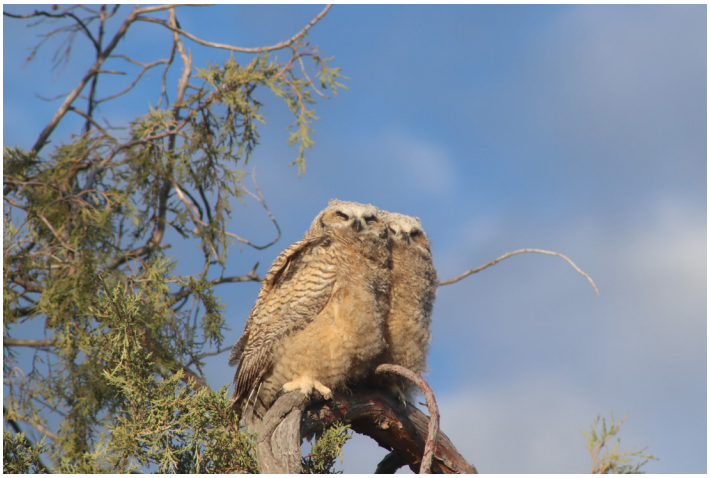
**Table 2: Time female Great Horned Owl spent away from nest during incubation and brooding period**

| Date | Time of day (24 hr) | Minutes away from nest |
|---|---|---|
| March 3, 2020 | 18:49 | 6 |
| March 3, 2020 | 21:58 | 29 |
| March 4, 2020 | 04:57 | 10 |
| March 4, 2020 | 18:27 | 16 |
| March 4, 2020 | 19:01 | 15 |
| March 4, 2020 | 21:11 | 11 |
| March 4, 2020 | 19:01 | 13 |
| March 5, 2020 | 01:11 | 3 |
| March 5, 2020 | 03:59 | 5 |
| March 5, 2020 | 06:02 | 5 |
| March 5, 2020 | 18:44 | 5 |
| March 6, 2020 | 16:54 | 7 |
| March 6, 2020 | 23:00 | 17 |
| March 7, 2020 | 06:14 | 4 |
| March 7, 2020 | 18:52 | 2 |
| March 7, 2020 | 21:45 | 6 |
| March 8, 2020 | 00:57 | 22 |
| March 8, 2020 | 04:18 | 4 |
| March 8, 2020 | 05:40 | 7 |
| March 8, 2020 | 07:04 | 4 |
| March 8, 2020 | 07:34 | 4 |
| March 8, 2020 | 19:40 | 6 |
| March 8, 2020 | 21:16 | 10 |
| March 9, 2020 | 01:33 | 22 |
| March 9, 2020 | 05:03 | 31 |
| March 9, 2020 | 06:51 | 9 |
| March 9, 2020 | 19:43 | 9 |
| March 9, 2020 | 21:39 | 14 |
| March 11, 2020 | 06:38 | 3 |
| March 15, 2020 | 02:42 | 3 |
| March 15, 2020 | 07:13 | 5 |
| March 20, 2020 | 06:21 | 5 |
| March 20, 2020 | 20:09 | 15 |
| March 23, 2020 | 06:21 | 7 |
| March 23, 2020 | 08:15 | 2 |
| March 24, 2020 | 05:13 | 6 |
| March 24, 2020 | 00:10 | 2 |
| March 24, 2020 | 05:17 | 1 |
| March 26, 2020 | 20:19 | 11 |
| March 27, 2020 | 04:37 | 5 |
| March 28, 2020 | 06:53 | 5 |
| March 30, 2020 | 01:31 | 19 |
| March 31, 2020 | 08:09 | 8 |
| April 1, 2020 | 08:21 | 23 |
| April 2, 2020 | 06:14 | 14 |
| April 2, 2020 | 09:22 | 5 |
| April 3, 2020 | 20:23 | 23 |
| April 4, 2020 | 18:52 | 8 |
| April 4, 2020 | 20:52 | 17 |

## Discussion

These volunteer efforts expanded our knowledge and understanding of these spectacular owls. We were able to create a new pathway for how research is conducted at ORI, and utilize the enthusiasm and interest of citizen scientists to contribute meaningful data to owl research and conservation.

In 2021 we were not able to repeat these observations because the Great Horned Owls chose a nest that didn't allow for close observations from the live cam. They have chosen a different nest with better views for 2022, and we hope to repeat and expand upon this research in future breeding seasons.




## Acknowledgments

This project would not be possible without the support of explore.org and the dedication of our cam watcher volunteers. THANK YOU!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## For more information:

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