

# Predation and Parental Care at Blue-Wing Teal (*Anas discors*) Nests in North Dakota

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## Introduction

Blue-winged teal (*Anas discors*; BWTE) are an upland nesting duck commonly found in the Prairie Pothole Region. Despite being one of the most common duck species in North Dakota, very little research has been conducted regarding its nesting behavior. To gain a better understanding of BWTE nesting ecology, we used continuously recording video-surveillance systems to monitor BWTE nests at the Coteau Ranch in Denhoff, North Dakota during the 2015 breeding season.

## Objectives

Specifically, we aimed to evaluate:

- 1) rates of predation and key nest predators, and
- 2) hen behaviors associated with parental care (e.g., nest attendance, number of recesses, and nest defense).

## Methods

### Field Methods

- ❖ Study Site: Ducks Unlimited Coteau Ranch in central North Dakota (Sheridan Co).
  - Habitat: mixed grass prairie and interspersed wetlands within an agricultural landscape managed with rotational grazing.



We located nests using chain dragging between 8am and 3pm.



For each nest we recorded: date, time, nest status (e.g., hen presence, age of eggs), clutch size, visual obstruction readings, and vegetation cover.



We located a total of 67 BWTE nests from mid-May to mid-July, 2015.



Miniature 24-hour infrared surveillance cameras were installed at 33 BWTE nests.

### Video Analysis



All nests were reviewed to determine fate date, fate type (success/fail), and predator if applicable.



25 nests were reviewed from camera installation until nest fate for attendance patterns.

### Data Analysis

- ❖ We calculated summary statistics and graphically represent the daily number, duration, and timing of recess events.
- ❖ We compared number, duration, and timing of recesses for failed and successful nests.

## Preliminary Results

### Predation

- ❖ 22% of all nests succeeded (Table 1).
- ❖ Most nests were depredated by **badgers** (Table 1).
  - Secondary predators included ground squirrels (5, 15%) and raccoons (1, 3%).



**Table 1:** Nest fate by monitoring technique and type of predator in the event of failures at camera monitored nests. n = number of nests monitored by monitoring technique.

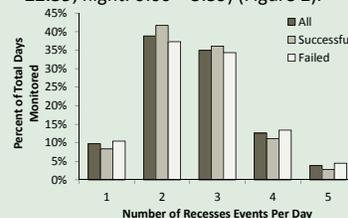
Nest Fate	All Nests n = 67	No Camera n = 34	Camera n = 33
Successful	15, 22%	6, 18%	9, 27%
Failed	52, 78%	28, 82%	24, 73%
Badger <i>Taxidea taxus</i>	-	-	14, 42%
Raccoon <i>Procyon lotor</i>	-	-	1, 3%
Northern Harrier <i>Circus cyaneus</i>	-	-	1, 3%
Other Failures	-	-	8, 24%

### Parental Care

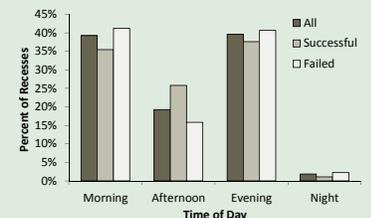
- ❖ We found BWTE took **2 – 3 recesses/day for approximately 103 minutes**, and were similar between successful and failed nests (Figure 1 and Table 2).
- ❖ Most recess events occurred in the **morning and evening (morning: 4:00 – 10:59, afternoon: 11:00 – 16:59, evening: 17:00 – 22:59, night: 0:00 – 3:59)** (Figure 2).

**Table 2:** Recess duration (in minutes) by fate type.

Nest Fate	Mean	SD	Range	# Recesses
All	103.52	101.13	0.02 – 838.05	269
Successful	100.28	72.15	0.10 – 326.55	93
Failed	105.24	113.66	0.02 – 838.05	176



**Figure 1:** Number of recess events/day relative to number of days monitored by nest fate. Summary statistics (mean, SD, and n[days monitored]) by fate: all (2.62, 0.96, 270), successful (2.58, 0.91, 93), and failed (2.64, 1.00, 177). Range (all nests) = 1 – 5 recesses.



**Figure 2:** Recess occurrence proportionate to total number of recesses by nest fate. Sample size (number of recesses by nest type): all = 270, successful = 93, and failed = 177.

## Discussion and Management Implications

- ❖ Almost all depredations caused by badgers, although a diverse predator community exists in central ND.
- ❖ Apparent nest success was slightly higher on camera monitored nest.
- ❖ Attendance patterns were similar between successful and failed nests.
- ❖ Timing of recess events validated protocols for best times to nest search.
  - Most recesses occurred at sunrise and sunset.
- ❖ Cameras provided ability to accurately identify nest predators and determine how BWTE allocate their time on the nest.
  - Attendance patterns can indicate hen condition and associated habitat quality.
  - Type and frequency of predators at nests provide insights into habitat modifications that may increase nest survival.

## Future Directions

- ❖ Continue to review video for attendance patterns.
- ❖ Videos are streamed on Wildlife@Home website (<http://csggrid.org/csg/wildlife/>) and can be used to enhance education to the public.
- ❖ Formalize statistics to account for individual bird variation (i.e., dependency in multiple days of observations by an individual bird)
- ❖ Correlate vegetation characteristics with nesting behaviors.

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