Assessing Wood Duck (*Aix sponsa*) Health Parameters in Central Wisconsin

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Introduction

- Wood ducks (*Aix sponsa,* WODU) are an important game bird species
- Health parameters contribute to recruitment efforts each year
- Study objective to determine body condition, white blood cell counts, and parasite loads in WODU in central Wisconsin
- This data can identify health factors of concern for WODU and other wetland species

Figure 1. A juvenile male WODU

Methods

Field Methods

Figure 2. The state of Wisconsin showing the location of capture sites (Lake Mills Wildlife Area, Necedah National Wildlife Refuge, Sandhill State Wildlife Area, Navarino State Wildlife Area)

- WODU processing included:
  - Taking morphometric measurements
  - Sexing, aging, and weighing birds
  - Affixing birds with aluminum leg band
  - Taking small blood samples and creating smears in the field

Figure 3. Utilizing a baited swim-in trap to capture WODU

Laboratory Methods

- Blood smears were viewed under a microscope using 400x magnification
- Within 10 visual fields, haemospoidian parasite load and total white blood cell counts were determined for each bird sampled
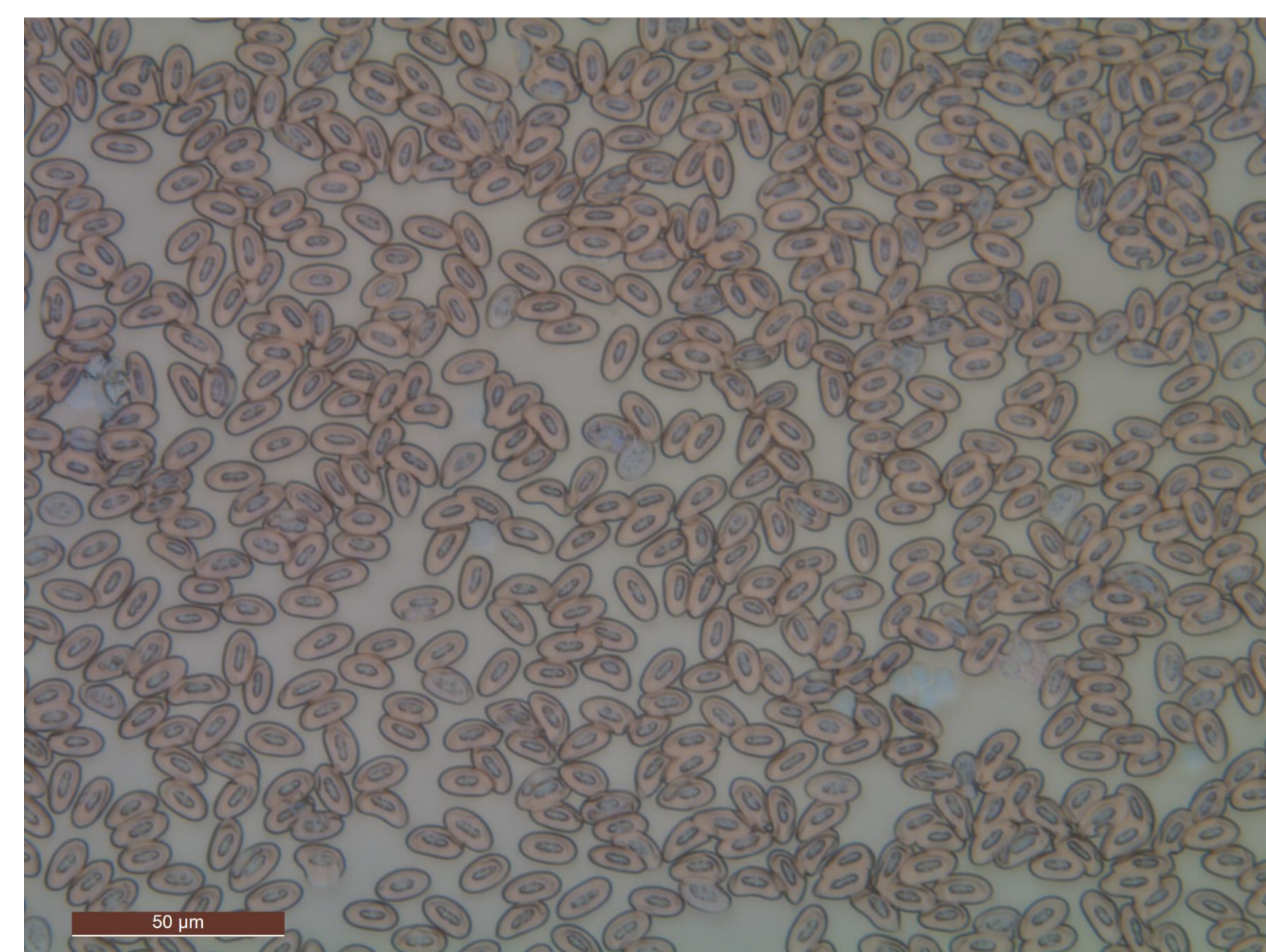

Figure 4. A WODU blood smear as viewed through a microscope

Preliminary Results

Table 1. Number of haemosporidian infected ducks, average parasite load, and average total white blood cell count per 10,000 red blood cells

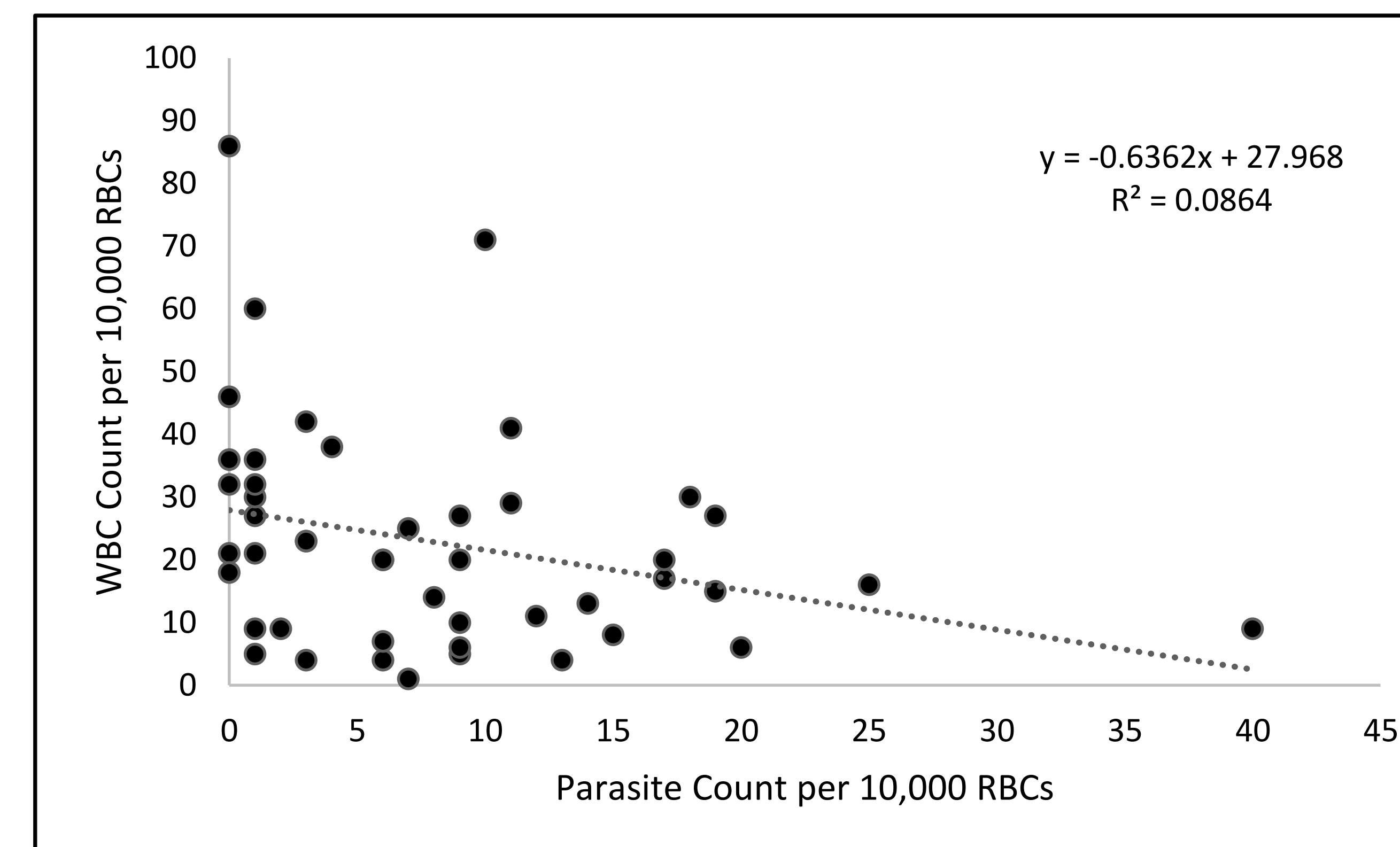|	Number Infected	Parasite Count	White Blood Cell Count
Male (n = 33)	29	7.85	19.47
Female (n = 15)	13	8.50	27.41

$y = -0.6362x + 27.968$
$R^2 = 0.0864$

Figure 5. Relationship between parasite load and total white blood cell count per 10,000 RBCs

- T-tests comparing parameters between male and female wood ducks:
  - Parasite count: p-value = 0.78
  - White blood cell count: p-value = 0.08

Discussion

- Preliminary data suggests negative correlation between haemosporidian parasite load and white blood cell count
- Based on t-tests sex has no effect on parasite load or white blood cell count
- As lower white blood cell counts can coincide with increased susceptibility to infections, birds with high parasite loads are likely at higher risk
- An additional field season will provide more data to allow for more accurate correlations between parameters and significance between study sites

Acknowledgements
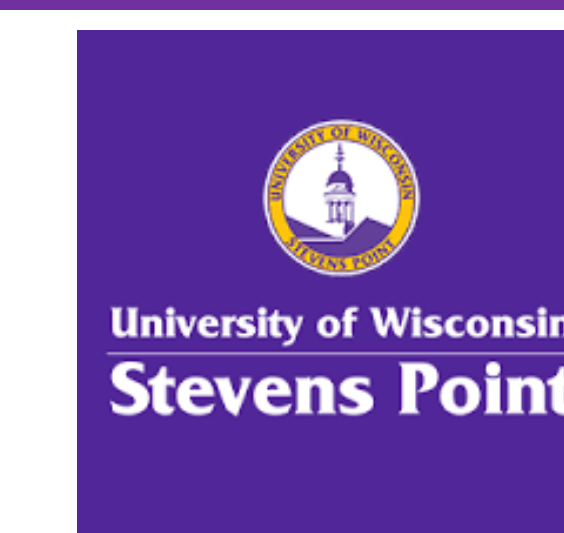
Using Geolocator Data to Evaluate Wood Duck (*Aix sponsa*) Breeding Propensity and Nest Success

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Introduction

- Wood ducks (*Aix sponsa,* WODU) are an important game bird species
- Monitoring breeding success helps ensure the continued abundance of the species
- Geolocators allow for expanded monitoring possibilities
- Objective to determine WODU breeding propensity and phenology, clutch size, and nest success during 2020-2022 breeding seasons

Methods

- WODU trapped using nest boxes and walk-in traps on private and public land throughout Wisconsin
- Geolocators attached with zip ties to plastic leg bands
- Data obtained upon recapture or harvest of female WODU
- Geolocator light data viewed using R and IntiProc© Geolocation Processing Software
- Visually determined when nesting activity began, clutch size, and nest success

Figure 1. An adult female WODU (left) and using feathers to age a WODU (right)
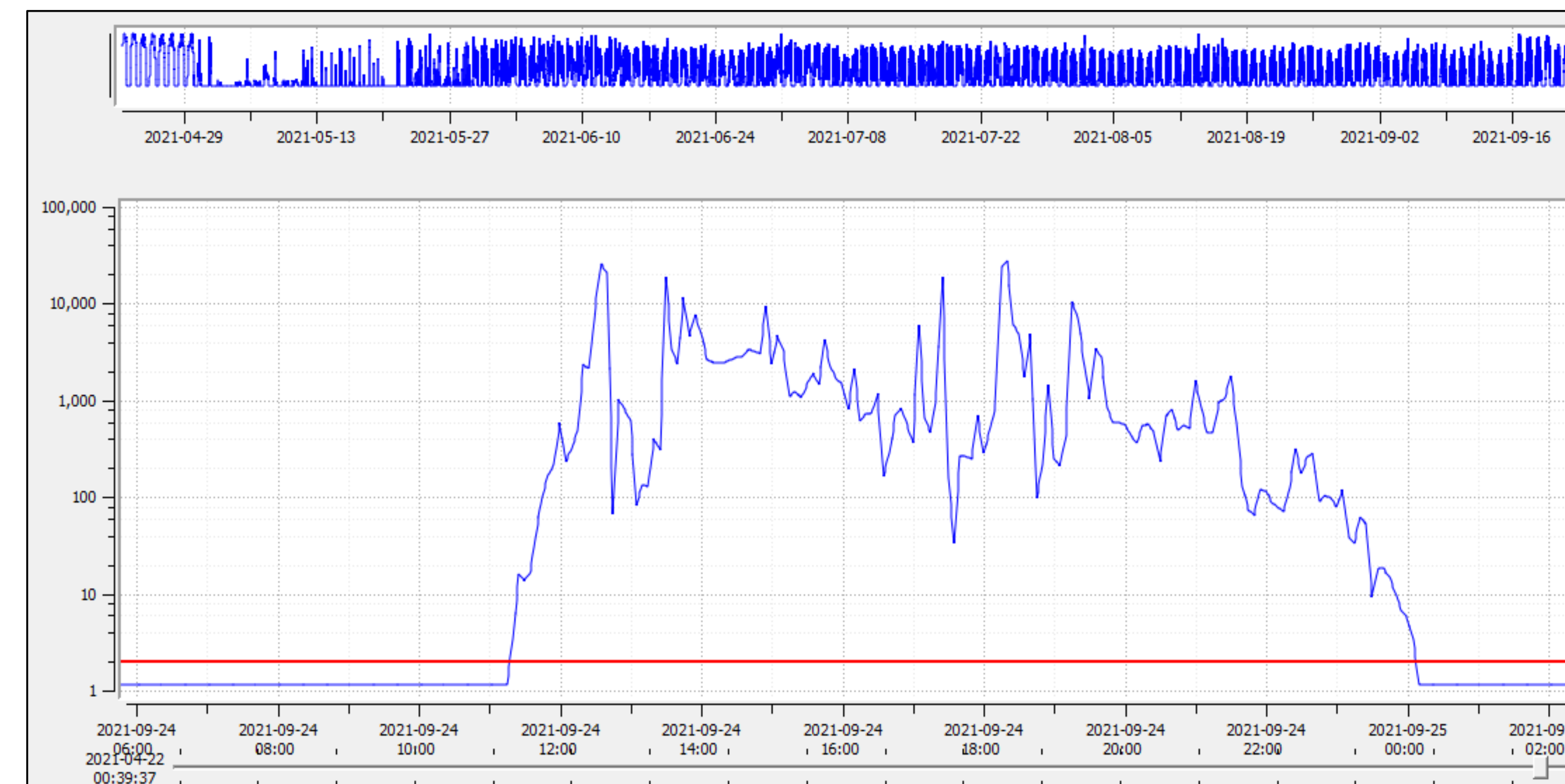
Methods Illustrated

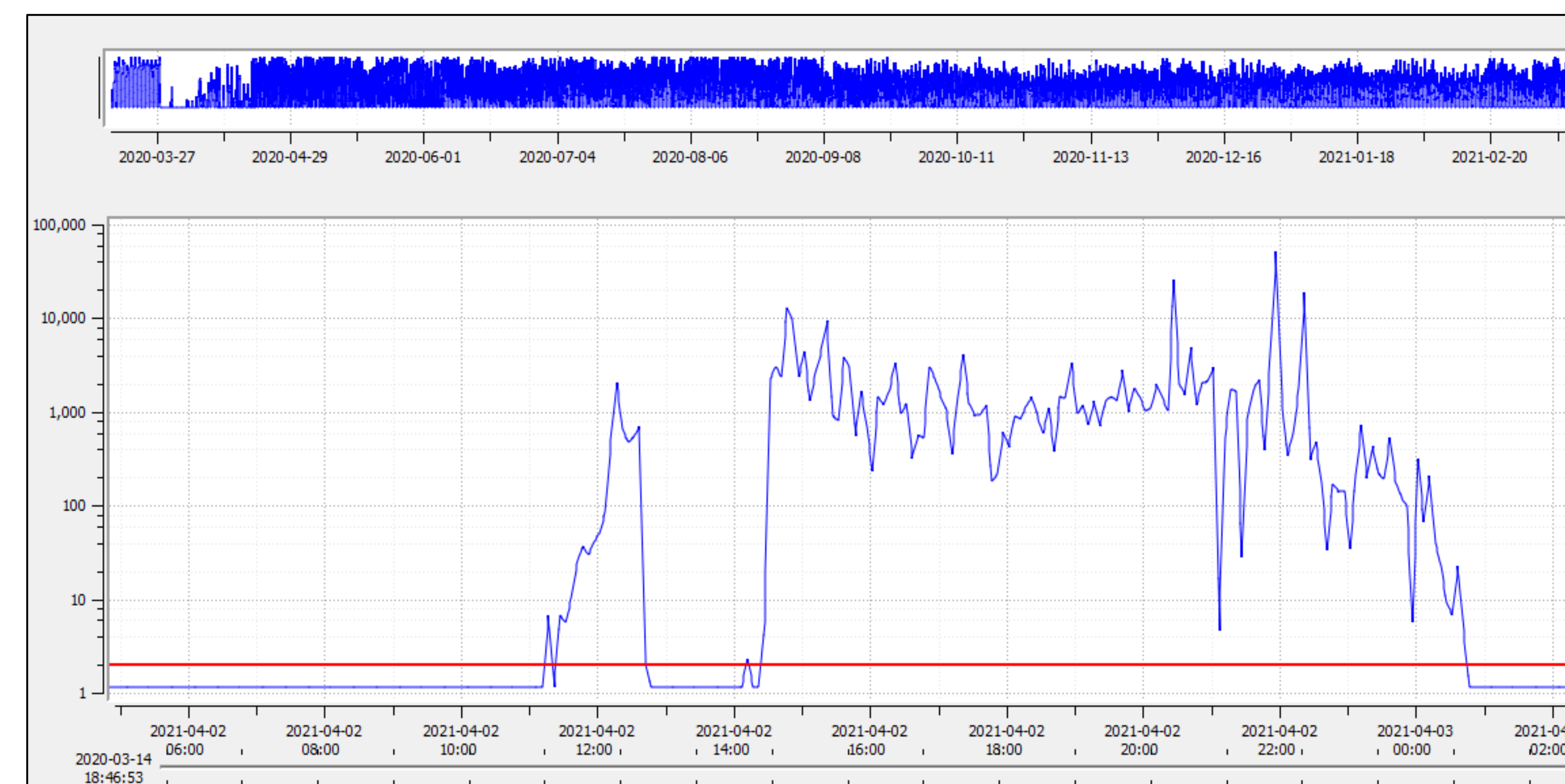Figure 2. Geolocator light levels during normal pre- and post- nesting behavior

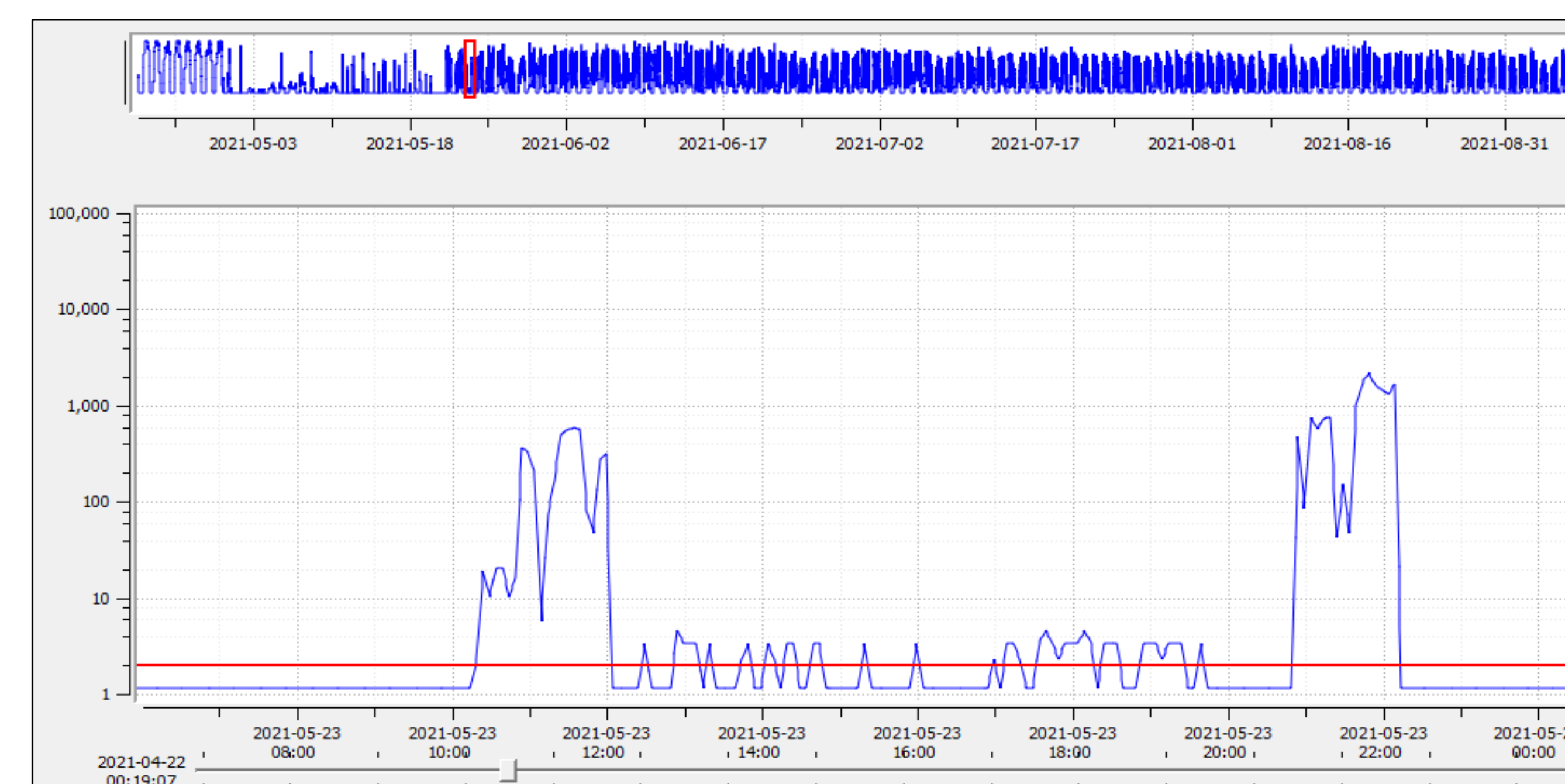Figure 3. Geolocator light levels when egg laying (in complete darkness ≥30 minutes)

Figure 4. Geolocator light levels during incubation, usually with two nest breaks per day
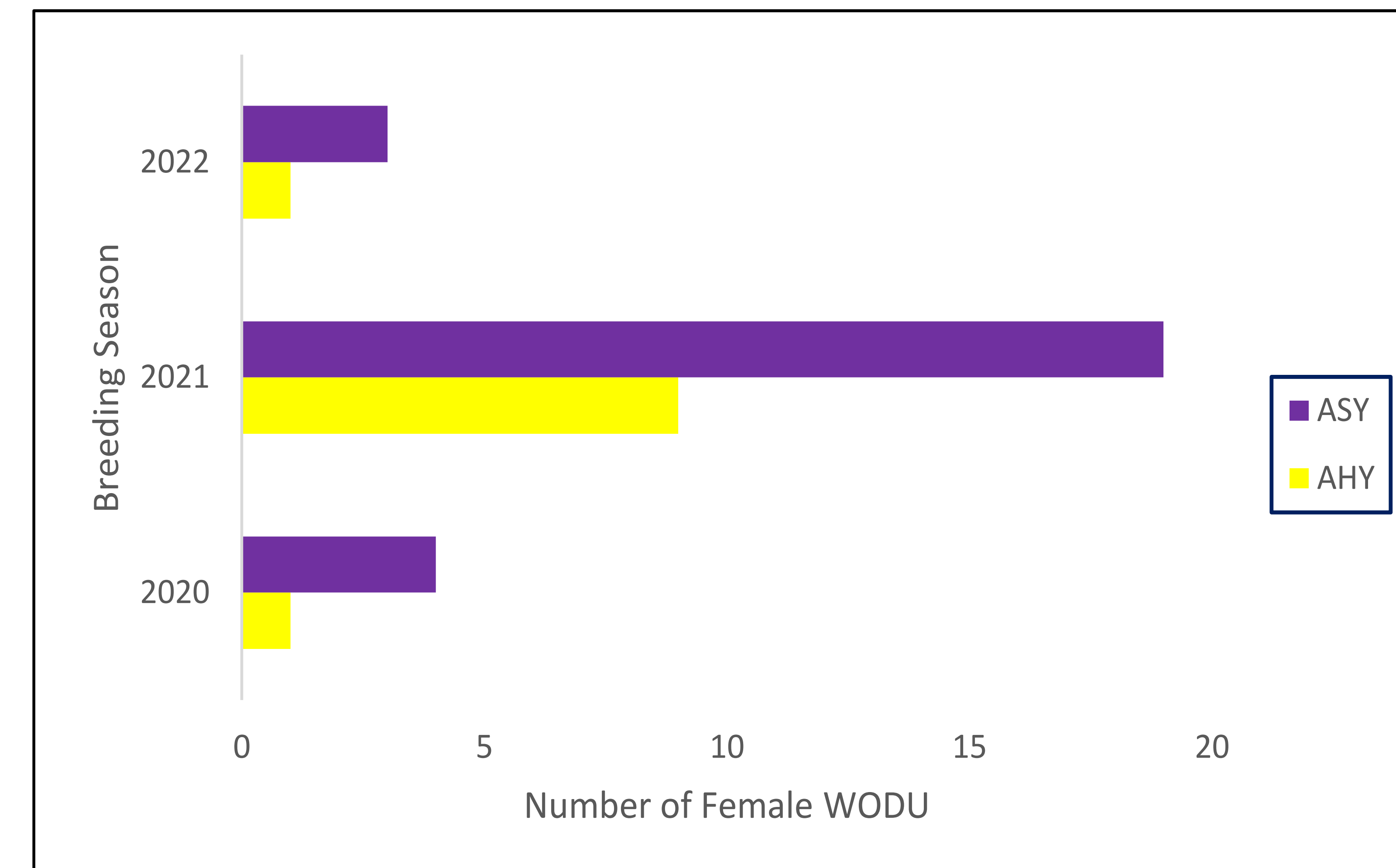
Preliminary Results

Figure 5. Age and number of female WODU with recovered geolocator data each breeding season. AHY = after hatch year; ASY = after second year

Discussion

- Geolocator light levels to be analyzed to determine breeding propensity, clutch size, and nest success
- Sample size will potentially increase as hunters turn in geolocators from harvested WODU
- Data will inform land managers of WODU recruitment each year
- Nest success data can assist with identifying wetlands with most suitable nesting habitat as well as possible areas to manage further

Acknowledgements