ARTIFICIAL NEST EXPERIMENT

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PURPOSE

Artificial nest experiments will be used to estimate annual and spatial variation in predation pressure on ground nesting birds like shorebirds.

TIME PERIOD

Artificial nest experiments are conducted once during early shorebird incubation period (approximately June 20th on Bylot Island) and again during late incubation (approximately June 30th on Bylot Island). Exact dates will change depending on the breeding phenology each year.

PROCEDURE

Forty artificial nests are to be deployed in suitable shorebird nesting habitat, covering an area of approximately 4 km^2. Ideally 10 artificial nests will be positioned randomly in each of 4 - 1km^2 quadrats. Quadrats may be adjacent to each other or separated depending on the availability of suitable habitat within the study area. Each artificial nest consists of 4 fresh quail eggs placed in a small depression (nest cup) on the tundra. The depression (approximately 7cm in diameter) can be made using the sole of your boot. Place a coloured nail (or nail with flag tape wrapped around the tip) in the middle of the nest cup so that the top of the nail is flush with the bottom of the cup and place the 4 eggs in the nest cup, covering the nail. The nail is only used to find the nests once they have been depredated. To reduce human scents within the vicinity of the artificial nest, it is important to use gloves and rubber boots when handling the eggs and to not kneel down at the nest at any time. All the nests should be deployed within the same time period, preferably between 20 h and 22 h, just prior to the peak in activity of the expected main predator, the arctic fox. If the field site is not monitored via an automatic whether station, make some general notes on the weather (i.e. precipitation, wind speed, cloud cover).

Record geographical coordinates of each artificial nest using a GPS. Place a popsicle stick 5 metres from the nest. Note the bearing from the popsicle stick to the nest (or use always the same bearing for all nests). The use of another natural object (feather or rocks) placed approximately 2 metres from the popsicle stick in the same direction away from the nest will aid in finding the nest cups (especially when they are empty).

Once deployed, nests should be checked after 12 hours, 24 hours, 72 hours and then every 3 days afterwards until 90% of the nests have been depredated and/or a maximum of 12 days. At each nest the following information should be recorded:

- Predation
    - 0 – nest intact
    - 1 – partial predation
    - 2 – total predation
- Signs of predation (predator feces, egg shells) that could help identifying predators:
    - Fox: presence of feces
    - Avian predator: eggs are pierced but found within the vicinity of the nest
    - Unknown: all eggs gone, no predator specific signs

All eggs that were not depredated at the end of the first artificial nest experiment should be collected and new eggs should be placed in the nest cup at the start of the second experiment. Nails and nest markers may be left in place at then end of the first experiment in order to ensure that the same sites are used for the second experiment.

Potential confounding effects such as the presence of predators during egg deployment or egg checks and/or odour of eggs deployed should be noted in the notes section of the datasheet

PERSONNEL

After an initial set-up time of approximately 3 hours for 2 people (total 6 person hours), nest checks of 40 artificial nests usually requires a maximum of 2 people for 2 hours a day (total 4 person hours) for approximately 10 days (approximately 5 days of nest checks per experiment).

MATERIAL

- 300 fresh quail eggs (minimum 240; 4 per nest x 40 nests x 2 experiments but extras are recommended in case of breakage during transit)
- 40 nails
- Flagging tape or fluorescent paint
- Latex gloves
- 40 Popsicle sticks (the size of medical tongue depressors).

DATA MANAGEMENT

Data should be transcribed from field books onto hard copy data sheets (provided) at the end of each day. Data can then be entered into an excel file in the same format.