

Appendix 2

1 Eider responses to natural polar bear predation for “Heightened heart rate but similar
2 flight responses to evolved versus recent predators in an Arctic seabird”

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4 We opportunistically estimated focal eider heart rate to actual approaching polar bears on
5 East Bay Island where possible to confirm responses to our simulated predator were
6 similar to those to actual predators. To find instances where eiders flushed in response to
7 polar bears, we reviewed a combination of the following synchronized remote-
8 monitoring equipment used for another set of projects: 1) footage from Browning trail
9 cameras (model: BTC-5HDPX) dispersed across the island to identify periods when
10 polar bears were present on East Bay Island (Geldart et al. In Review); 2) temperature
11 probe data (Tinytag® Plus 2, Smith et al. in prep) to determine instances when an eider
12 was off her nest; and 3) heart-rate recordings during these times to identify acoustic signs
13 that an eider had indeed vacated their nest (e.g., halt in the sound of incubating eider
14 heartbeats) and a polar bear visited their nest (e.g., sounds of bear eating eggs from focal
15 nest or breathing nearby). We confirmed three instances where focally-recorded eiders
16 flushed in response to a polar bear and had sufficient audio quality to count heartbeats
17 before flush. Two of these hens had bears predate their nests soon after she flushed and
18 we can confirm that bears were within spatial viewing distance to two eiders when they
19 flushed (i.e., were within her estimated viewshed; Geldart et al. In Review). Additionally,
20 bears arrived at the nest quickly after eiders flushed in all three instances (average \pm SD:
21 9.33 ± 3.25 sec), suggesting eiders flushed in response to bears. We estimated heart rate
22 30-s, 20-s, and 10-s to flush consistent with the sampling of heart rate to simulated-
23 predator approaches (see **Heart-rate quantification** section).

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25 Eider heart rate in response to actual polar bears on East Bay Island (n=3) averaged 12
26 beats/10s and generally decreased as eiders got closer to flushing: two eiders’ heart rate
27 became continuously slower with reduced time until flush (i.e., across 30-10s sample
28 intervals: 12 to 10 to 8 and 11 to 9 to 5 beats/10s), whereas one initially increased their
29 heart rate followed by a decrease right before flush (i.e., 9 to 28 to 12 beats/10s). These
30 heart-rate results help to confirm that eider responses to a simulated polar-bear approach
31 is indicative of a natural response as eiders exhibited a similar pattern of decrease in
32 heart rate and the same magnitude of response.