Campbell Island workshop

Context, Purpose and Goals to be achieved today

27 May 2019

Department of Conservation
Te Papa Atawhai

New Zealand Government
Workshop Objectives

Desired outcomes

- What active management needs to occur at Campbell Island to mitigate the high pup mortality rates?
- How best to achieve this in the field?
- What would an ideal field work plan look like for 2019/20 incorporating active management?
- What are the priorities for outyears?
- How can we make use of the Operation Endurance expedition in Nov 2019?
Campbell Island

Focus 2019/20 field season

Priorities to carry forward
## Confirming Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Presenter(s)</th>
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</thead>
<tbody>
<tr>
<td>10:00 am</td>
<td>Welcome, Introductions, Apologies</td>
<td>Laura Boren</td>
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</table>
| 10:05 am | **What are we here to achieve? Clarifying scope, outcomes, and confirming agenda**<br>Purpose:<br>  
  - Identify what active management implementation needs to occur at Campbell Island to mitigate the high pup mortality rates, and Identify how best to achieve these in the field.<br>  
  - Develop a proposed field work plan for 2019/20, and management priorities for outyears, to be discussed in the Advisory Group. | Laura Boren                                      |
| 10:15 am | **Background and Context for factors surrounding pup mortality at Campbell Island:**<br>  
  - Background on the pup mortality observed and perceived causes<br>  
  - 2018/19 field season, and what was observed<br>  
  - Understanding of pup mortality more widely | Laura Boren, Wendi Roe                            |
| 11:00 am | **Discussion around action steps that can be taken for 2019/20:**<br>  
  - Consider the causes of mortality and factors which influence them and highlight which can be addressed within the next year and which can’t (and those of highest priority).<br>  
  - Propose active management steps that could be taken in 2019/20.<br>  
  - Discuss the potential option of if and how we want to make use of the Operation Endurance Expedition.<br>  
  - In the case of information gaps, discuss which gaps can be addressed in the next field season and how. | All                                              |
| 12:30 pm | Lunch Break (Lunch Provided)                                                                        |                                                  |
| 1:00 pm  | **Discussion on longer term 2020/21 and beyond management steps to implement.**<br>  
  - Propose a plan for the steps that can’t be addressed in 2019/20 but need to be addressed in the following years. | All                                              |
| 2:30 pm  | **Wrap up identify key outputs and recommendations to propose to the Advisory Group.**              | All                                              |
| 3:00 pm  | **Close of meeting**                                                                               |                                                  |
Campbell Island workshop

Introduction and background
Laura Boren and Wendi Roe

27 May 2019
Background Context – high mortality at Campbell Island
History of monitoring

Acknowledging earlier surveys

Focus on those similar timeframe Dec-Jan (some into Feb)
History of monitoring
Necropsies

- 2007/08 – 49 necropsies
- 2009/10 – 49 necropsies
- 2014/15 – 73 necropsies, 43 full
- 2017/18 – 42 full
- 2018/19 – 80 necropsies, 63 gross, 17 full
Mortality
Davis Point
2018/19
Cumulative and daily
Causes of mortality

• Infection – NOT *Klebsiella*
• Trauma – includes drowning
• Exposure
• Starvation / Malnutrition
• *contributing factors – ulceration/abrasion*
Results – factors contributing to early pup mortality at Davis Point

- Gross post mortem results from 76 pups at Davis Point
- Blubber depth
  - Average =3.9 mm ±3.1
  - Median =3 mm
  - 43% (n=33) had blubber depth of 2 mm or less
  - Majority of pups with substantial blubber depth had serous atrophy (recent sudden depletion of fat stores)
### Results – pup weights, another factor contributing to early pup mortality at Davis Point

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Female mass (kg)</th>
<th>n</th>
<th>Male mass (kg)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis Point</td>
<td>13 January 2015</td>
<td>9.9 ±0.2</td>
<td>50</td>
<td>11.7 ±0.3</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>13 – 14 January 2018</td>
<td>11.7 ±0.2</td>
<td>50</td>
<td>12.8 ±0.2</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>13 – 14 January 2019</td>
<td>9.7 ±1.7</td>
<td>50</td>
<td>10.9 ±1.8</td>
<td>50</td>
</tr>
<tr>
<td>Paradise/Shoal Point</td>
<td>15 – 20 January 2015</td>
<td>10.7 ±0.3</td>
<td>33</td>
<td>12 ±0.3</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>20 – 21 January 2018</td>
<td>13.1 ±0.3</td>
<td>50</td>
<td>14.7 ±0.3</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>13 January 2019</td>
<td>10.8 ±1.7</td>
<td>50</td>
<td>12.4 ±2.2</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>19 – 20 January 2019</td>
<td>11.0 ±2.4</td>
<td>50</td>
<td>12.8 ±2.5</td>
<td>50</td>
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</tbody>
</table>

Female pups and male pups at Davis were 1.1 kg and 1.6 kg lighter than at Shoal.

At both sites both male and female pups averaged ~2 kg lighter in 2019 than in 2018.

Pups at Davis were 2 – 3 kg lighter than those weighed at Sandy Bay, this year (Jan 15).
Results 2018/19

other factors contributing to early pup mortality at Davis Point

- From 100 live pups weighed and measured at Davis Point on Jan 13 and 14
- Bog colony 16% flipper ulcerations
- Bog colony 62% clinical signs of conjunctivitis / rhinitis
- Rock colony 76% flipper ulcerations
- Rock colony 26% clinical signs of conjunctivitis / rhinitis

Photos: K. Buckle
Discussion Points

Active management options

- Short-term tools (within season) for terrain
  Dig channels, Ramps and ladders, Coir logs, Sand bags and rocks. Fence off cliff edge*

- Short-term actions (within season) for exposure
  Supplementary feeding, Pup shelters, Coats

- Long-term actions for exposure and terrain at Davis
  Make it uninhabitable – fence it off, encourage elsewhere through vocal recordings.

- Actions to do with infections
  Ivermectin
Science / Monitoring elements

Trim back and focus on actions

- Counts via mark recapture (still need a year or two with comparable tagging to change over)
- Tagging restricted to specific days? Free up time for mitigation
- Pilot facilitating shift of the Davis colony (sound recordings, camera traps, fencing off access)? – Need to socialize the latter.
- Increase focus on tag resighting
- No chipping
- Post mortems – are gross PMs useful when mortality high?
- Agree a Campbell specific protocol for post mortems given the nature of working there
- Diet samples, search more of the island (maybe not every year)
Start time: Early arrival to get births and early colony set up

Earlier arrival with engineers etc to improve Davis terrain – prior to pupping starting (use of Operation Endurance?)

End time: is it worth the effort to stay on in Feb?

Suggestion might be a team in Nov for mitigation set up, followed by team mid Dec – to late Jan.

Improve camp site situation for researchers at Davis – amount of time spent there.

Good having team at both sites for comparison.