## Topic Info

|  |  |
| --- | --- |
| **info\_id** | bait\_lure |
| **question** | Do you plan to use bait or lure? If so, will you use the same type of bait or lure, or multiple types?  Will bait/lure be placed at all or a subset of Camera Locations?  Bait/lure  Bait/lure (All or subset of camera locations) |

## Note banner

<!--

:::{hint}

{{ baitlure\_bait\_tu }} is a food item (or other substance) that is placed to attract animals via the sense of taste and olfactory cues ({{ schlexer\_2008 }}). {{ baitlure\_lure\_tu }} is any substance that draws animals closer; [lures](#baitlure\_lure) include [scent (olfactory) lure](#baitlure\_scent\_lure), {{ baitlure\_visual\_lure\_tl }} and {{ baitlure\_audible\_lure\_tl }} ({{ schlexer\_2008 }}).

:::

-->

## Overview

```{include} include/00\_coming\_soon.md

```

## In-depth

```{include} include/00\_coming\_soon.md

```

Attractants (i.e., {{ baitlure\_bait\_tl }} or {{ baitlure\_lure\_tl }} can increase the {{ detection\_probability\_tl\_abrv }} by drawing animals into the camera’s {{ detection\_zone\_tl }}, thereby effectively increasing the sampled area.

{{ baitlure\_bait\_tl }}

{{ baitlure\_bait\_tl\_pl }}

{{ baitlure\_lure\_tl }}

{{ baitlure\_visual\_lure\_tl }}

{{ baitlure\_audible\_lure\_tl }}

{{ baitlure\_scent\_lure\_tl }}

{{ baitlure\_scent\_lure\_tl\_pl }}

{{ baitlure\_scent\_lure\_tu }}

{{ detection\_zone\_tl }}

There are many options of {{ baitlure\_bait\_tl }} and {{ baitlure\_lure\_tl }} available, and those used in camera studies have included commercial {{ baitlure\_scent\_lure\_tl\_pl }}, food {{ baitlure\_bait\_tl\_pl }}, carcasses and compact disks (see {{ rtxt\_wearn\_gloverkapfer\_2017 }} for details and examples). {{ baitlure\_scent\_lure\_tu }} is typically applied to objects in the {{ detection\_zone\_tl }} (e.g., trees or rocks), whereas a food {{ baitlure\_lure\_tl }} is generally hung up or placed behind wire mesh to limit tampering by animals. Food rewards ({{ baitlure\_bait\_tl\_pl }} or carcasses) are also used but are more likely to influence behaviour and inter- and intra-specific interactions (e.g., avoidance of an area or conflict between individuals or species) and may result in food conditioning, which in turn may lead to human-wildlife conflict.

Some options are costly and require frequent reapplication during the {{ survey\_tl }} {{ deployment\_tl }}. Users should consider the additional cost of supplies and labour required to revisit the field to reapply at the frequency necessary to maintain effectiveness. {{ baitlure\_scent\_lure\_tu }} dispensers, such as those developed by the Woodland Park Zoo, may help reduce the number of visits needed for reapplication and associated costs.

Few studies have compared the efficacy of different types of attractants, but both Espartosa et al. (2011) and Thorn et al. (2009) suggested that food {{ baitlure\_bait\_tl\_pl }} are more effective than {{ baitlure\_scent\_lure\_tl\_pl }} for many species (although these evaluations did not include wildlife species from Canada).

Since species may respond to {{ baitlure\_lure\_tl }} types and scents differently, the type of {{ baitlure\_lure\_tl }} chosen (if any) should be based on the biology of the {{ target\_species\_tu }} but also on the {{ survey\_objectives \_tu }} and the {{ survey\_tl }} environment. For example, liquid products may be less suitable in areas where precipitation is high. Some {{ baitlure\_lure\_tl }} types smell like the urine of a particular species, which could result in higher detections of certain species by activating an investigative response while resulting in avoidance by other species. Interestingly, a [study](https://www.biorxiv.org/content/10.1101/2020.01.30.926618v1.abstract) ({{ rtxt\_holinda\_et\_al\_2020 }}) by members of WildCAM found no evidence that {{ baitlure\_scent\_lure\_tl }} placed at camera stations repelled non-target (i.e., prey) animals (see also Mills et al., 2019); rather, both predators and prey showed varied responses to the {{ baitlure\_scent\_lure\_tl }}.

For many [modelling approaches](#mod\_approach), placing {{ baitlure\_bait\_tl }} or {{ baitlure\_lure\_tl }} may violate [model assumptions](#mod\_assumption) and increase the likelihood of biased results (e.g., {{ baitlure\_lure\_tl }} might amplify measures of occurrence, biasing estimates of space use [Stewart\_et\_al\_2019]). Attractants may also introduce variation in the response by species, individuals or {{ sex\_class\_tu\_pl }} (or over space or time) that would not naturally occur. It may be possible to address biased samples in the analysis stage, but this can require substantial amounts of data.

In contrast, placing {{ baitlure\_bait\_tl }} or {{ baitlure\_lure\_tl }} can also help to better satisfy the {{ mod\_assumption\_tl\_abrv\_pl }} of some [modelling approaches](#mod\_approach). For example, attractants might be deployed to help satisfy the {{ mod\_assumption\_tl\_abrv }} of constant {{ detection\_probability\_tl\_abrv }} of [occupancy](#mod\_occupancy) (when using a {{ sampledesign\_systematic\_random\_tl }}), [relative abundance](#mod\_relative\_abundance) and [capture-recapture (CR](#mod\_cr\_cmr); Karanth, 1995; Karanth & Nichols, 1998) models by increasing individuals’ {{ detection\_probability\_tl\_abrv }} (Wearn & Glover-Kapfer, 2017).

{{ baitlure\_bait\_tu }} or {{ baitlure\_lure\_tl }} may be a “necessity” for species (or areas) where detection is unlikely without a large number of remote cameras or lengthy {{ survey\_tl\_pl }}. Most studies that use attractants target carnivore species, which are often elusive, difficult to monitor and occur at low densities.

In general, we recommend against the use of {{ baitlure\_bait\_tl }} or {{ baitlure\_lure\_tl }} for {{ project\_tl\_pl }} focused on unbiased detection of as many species as possible. Overall, the use of attractants is not recommended unless the study is an [occupancy](#mod\_occupancy) or [capture-recapture](#mod\_cr\_cmr) study of a {{ target\_species\_tu }}with low {{ detection\_probability\_tl\_abrv }} (Wearn & Glover-Kapfer, 2017).

We advise against the use of {{ baitlure\_bait\_tl }} in or near urban areas due to the possible increase in human-wildlife conflict. To minimize this potential, {{ baitlure\_bait\_tl }} or {{ baitlure\_lure\_tl }} should not be placed within 200 m of residences, industrial or recreational facilities, campgrounds, 100 m of active human-use trails (e.g., hiking trails), or 50 m of roads.

Where attractants are used, users must follow provincial policy and legislation (e.g., <a href="https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/00\_96488\_01#section33" target="\_blank">BC Wildlife Act – Section 33.1</a>, <a href="https://open.alberta.ca/publications/w10#:~:text=The%20Act%20provides%20for%20the,controlled%20animals%20and%20endangered%20species." target="\_blank">Alberta Wildlife Act</a>, and <a href="https://open.alberta.ca/publications/1997\_143" target="\_blank">Wildlife Regulation</a>, as well as local bylaws. Before deploying any remote cameras in the field, users must also obtain the necessary permits from provincial and/or research institutions (e.g., animal care permits). In Alberta, a wildlife research and collection permit is required when using {{ baitlure\_bait\_tl }} or {{ baitlure\_lure\_tl }}. Special conditions or restrictions may also apply. Refer to <a href="https://www.alberta.ca/wildlife-research-and-collection.aspx" target="\_blank">https://www.alberta.ca/wildlife-research-and-collection.aspx</a> for further details. In British Columbia, a research permit is required when using {{ baitlure\_bait\_tl }}, but not {{ baitlure\_scent\_lure\_tl }}. Special conditions or restrictions may also apply in each province.

Consideration of placement locations should include proximity and potential impacts to First Nations Reserves and Metis Settlements. You can replace information on First Nations Reserves and Metis Settlements using the [Landscape Analysis Indigenous Relations Tool (<a href="https://www.alberta.ca/proponent-led-indigenous-consultations.aspx" target="\_blank">LAIRT</a>) (Government of Alberta, 2023a) located within the <a href="https://www.alberta.ca/lat-overview.aspx " target="\_blank">Landscape Analysis Tool (LAT)</a> (Government of Alberta, 2023b) (see “Non-Administered Areas”). The results produced by LAIRT do not provide an official list of First Nations and Metis settlements to consult if consultation is required since “LAIRT will report on where government ordinarily considers requiring consultation with a particular First Nation or Metis Settlement, which is subject to be revised at any time” (Government of Alberta, 2023a).

## Figures

|  |  |  |  |
| --- | --- | --- | --- |
| **Image** | **file\_name** | **Caption (if applicable)** | **ref\_id** |
|  | wearn\_gloverkapfer\_2019\_fig5.png | figure1\_caption | wearn\_gloverkapfer\_2019 |
|  | iannarilli\_et\_al\_2021\_fig3.png | figure2\_caption | iannarilli\_et\_al\_2021 |
|  | molloy\_2018\_fig8.png | Figure 8: Average time spent per visit per lure (non- reward) station. Sourced from Thomas & Cowan (2016) | figure3\_ref\_id |
|  | figure4\_filename.png | figure4\_caption | figure4\_ref\_id |
|  | figure5\_filename.png | figure5\_caption | figure5\_ref\_id |
|  | figure6\_filename.png | figure6\_caption | figure6\_ref\_id |

## Video

|  |  |  |
| --- | --- | --- |
| **caption** | **URL (no < / > before/after URL** | **ref\_id** |
| vid1\_caption | vid1\_url | vid1\_ref\_id |
| vid2\_caption | vid2\_url | vid2\_ref\_id |
| vid3\_caption | vid3\_url | vid3\_ref\_id |
| vid4\_caption | vid4\_url | vid4\_ref\_id |
| vid5\_caption | vid5\_url | vid5\_ref\_id |
| vid6\_caption | vid6\_url | vid6\_ref\_id |

## Shiny

Shiny name = shiny\_name

Shiny caption = shiny\_caption

Shiny URL = shiny\_url

## Analytical tools & resources

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type** | **Name** | **Note** | **URL** | **ref\_id** |
| resource1\_type | resource1\_name | resource1\_note | resource1\_url | resource1\_ref\_id |
| resource2\_type | resource2\_name | resource2\_note | resource2\_url | resource2\_ref\_id |
| resource3\_type | resource3\_name | resource3\_note | resource3\_url | resource3\_ref\_id |
| resource4\_type | resource4\_name | resource4\_note | resource4\_url | resource4\_ref\_id |
| resource5\_type | resource5\_name | resource5\_note | resource5\_url | resource5\_ref\_id |
| resource6\_type | resource6\_name | resource6\_note | resource6\_url | resource6\_ref\_id |
| resource7\_type | resource7\_name | resource7\_note | resource7\_url | resource7\_ref\_id |
| resource8\_type | resource8\_name | resource8\_note | resource8\_url | resource8\_ref\_id |
| resource9\_type | resource9\_name | resource9\_note | resource9\_url | resource9\_ref\_id |
| resource10\_type | resource10\_name | resource10\_note | resource10\_url | resource10\_ref\_id |
| resource11\_type | resource11\_name | resource11\_note | resource11\_url | resource11\_ref\_id |
| resource12\_type | resource12\_name | resource12\_note | resource12\_url | resource12\_ref\_id |
| resource13\_type | resource13\_name | resource13\_note | resource13\_url | resource13\_ref\_id |
| resource14\_type | resource14\_name | resource14\_note | resource14\_url | resource14\_ref\_id |
| resource15\_type | resource15\_name | resource15\_note | resource15\_url | resource15\_ref\_id |

## References / Glossary

|  |  |
| --- | --- |
| **ref\_id** | **glossary\_keys** |
| Refs | keys\_here |

## Notes

##### POPULATE – INFO

File from = 00\_tools\00\_00\_template-master.docx

**---**jupytext:  
 formats: md:myst  
 text\_representation:  
 extension: .md  
 format\_name: myst  
 format\_version: 0.17.2 <!--0.13-->  
 jupytext\_version: 1.16.4 <!-- 6.5.4-->  
kernelspec:  
 display\_name: Python 3  
 language: python  
 name: python3  
editor\_options:   
 markdown:   
 wrap: none  
---

**(i\_**bait\_lure)=  
# {{ title\_i\_bait\_lure }}

**<!--**

:::{hint}

{{ baitlure\_bait\_tu }} is a food item (or other substance) that is placed to attract animals via the sense of taste and olfactory cues ({{ schlexer\_2008 }}). {{ baitlure\_lure\_tu }} is any substance that draws animals closer; [lures](#baitlure\_lure) include [scent (olfactory) lure](#baitlure\_scent\_lure), {{ baitlure\_visual\_lure\_tl }} and {{ baitlure\_audible\_lure\_tl }} ({{ schlexer\_2008 }}).

:::

-->

**\*\*{{ term\_**bait\_lure }}\*\*: {{ term\_def\_bait\_lure }}

**:::::::{tab-set}**

**::::::{tab-item} Overview**  
```{include} include/00\_coming\_soon.md

```  
::::::

**::::::{tab-item} In-depth**  
```{include} include/00\_coming\_soon.md

```  
::::::

**::::::{tab-item} Visual** resources

:::::{grid} 3  
:gutter: 1  
:padding: 0  
:margin: 0

::::{grid-item-card} {{ rtxt\_wearn\_gloverkapfer\_2019 }}  
:::{figure} ../03\_images/03\_image\_files/wearn\_gloverkapfer\_2019\_fig5.png  
:class: img\_grid  
:::  
figure1\_caption  
::::

::::{grid-item-card} {{ rtxt\_iannarilli\_et\_al\_2021 }}  
:::{figure} ../03\_images/03\_image\_files/iannarilli\_et\_al\_2021\_fig3.png   
:class: img\_grid  
:::  
figure2\_caption  
::::

::::{grid-item-card} {{ rtxt\_figure3\_ref\_id }}  
:::{figure} ../03\_images/03\_image\_files/molloy\_2018\_fig8.png   
:class: img\_grid  
:::  
Figure 8: Average time spent per visit per lure (non- reward) station. Sourced from Thomas & Cowan (2016)  
::::  
:::::

**:::::{grid} 3**:gutter: 1  
:padding: 0  
:margin: 0

::::{grid-item-card} {{ rtxt\_figure4\_ref\_id }}  
:::{figure} ../03\_images/03\_image\_files/figure4\_filename.png   
:class: img\_grid  
:::  
figure4\_caption  
::::

::::{grid-item-card} {{ rtxt\_figure5\_ref\_id }}  
:::{figure} ../03\_images/03\_image\_files/figure5\_filename.png   
:class: img\_grid  
:::  
figure5\_caption  
::::

::::{grid-item-card} {{ rtxt\_figure6\_ref\_id }}  
:::{figure} ../03\_images/03\_image\_files/figure6\_filename.png  
:class: img\_grid  
:::  
figure6\_caption  
::::  
:::::

**:::::{grid} 3**:gutter: 1  
:padding: 0  
:margin: 0

::::{grid-item-card} {{ rtxt\_vid1\_ref\_id }}  
<div>  
 <div style=“position:relative;padding-top:56.25%;”>  
 <iframe src=“vid1\_url“ loading=“lazy” frameborder=“0” allowfullscreen  
 style=“position:absolute;top:0;left:0;width:100%;height:100%;”></iframe>  
 </div>  
</div>

vid1\_caption  
::::

::::{grid-item-card} {{ rtxt\_vid2\_ref\_id }}   
<div>  
 <div style=“position:relative;padding-top:56.25%;”>  
 <iframe src=“vid2\_url“ loading=“lazy” frameborder=“0” allowfullscreen  
 style=“position:absolute;top:0;left:0;width:100%;height:100%;”></iframe>  
 </div>  
</div>

vid2\_caption  
::::

::::{grid-item-card} {{ rtxt\_vid3\_ref\_id }}  
<div>  
 <div style=“position:relative;padding-top:56.25%;”>  
 <iframe src=“vid3\_url“ loading=“lazy” frameborder=“0” allowfullscreen  
 style=“position:absolute;top:0;left:0;width:100%;height:100%;”></iframe>  
 </div>  
</div>

vid3\_caption  
::::  
:::::

**::::::**

**::::::{tab-item} Shiny** apps/Widgets  
Check back in the future!  
::::::

**:::::{tab-item} Analytical** tools & Resources  
| Type | Name | Note | URL |Reference |  
|:----------------|:-------------------------------|:----------------------------------------------------------------|:----------------------|:----------------------------------------|   
| resource1\_type | resource1\_name | resource1\_note | resource1\_url | {{ rbib\_resource1\_ref\_id }} |  
| resource2\_type | resource2\_name | resource2\_note | resource2\_url | {{ rbib\_resource2\_ref\_id }} |  
| resource3\_type | resource3\_name | resource3\_note | resource3\_url | {{ rbib\_resource3\_ref\_id }} |  
| resource4\_type | resource4\_name | resource4\_note | resource4\_url | {{ rbib\_resource4\_ref\_id }} |  
| resource5\_type | resource5\_name | resource5\_note | resource5\_url | {{ rbib\_resource5\_ref\_id }} |  
| resource6\_type | resource6\_name | resource6\_note | resource6\_url | {{ rbib\_resource6\_ref\_id }} |  
| resource7\_type | resource7\_name | resource7\_note | resource7\_url | {{ rbib\_resource7\_ref\_id }} |  
| resource8\_type | resource8\_name | resource8\_note | resource8\_url | {{ rbib\_resource8\_ref\_id}} |  
| resource9\_type | resource9\_name | resource9\_note | resource9\_url | {{ rbib\_resource9\_ref\_id }} |  
| resource10\_type | resource10\_name | resource10\_note | resource10\_url | {{ rbib\_resource10\_ref\_id }} |  
| resource11\_type | resource11\_name | resource11\_note | resource11\_url | {{ rbib\_resource11\_ref\_id }} |  
| resource12\_type | resource12\_name | resource12\_note | resource12\_url | {{ rbib\_resource12\_ref\_id }} |  
| resource13\_type | resource13\_name | resource13\_note | resource13\_url | {{ rbib\_resource13\_ref\_id }} |  
| resource14\_type | resource14\_name | resource14\_note | resource14\_url | {{ rbib\_resource14\_ref\_id }} |  
| resource15\_type | resource15\_name | resource15\_note | resource15\_url | {{ rbib\_resource15\_ref\_id }} |  
| Error! Reference source not found. | **Error! Reference source not found. |** **Error! Reference source not found.** | Error! Reference source not found. | {{ **rbib\_Error! Reference source not found.** }**} |  
|** **Error! Reference source not found. |** Error! Reference source not found.| Error! Reference source not found. **| Error! Reference source not found.** | **{**{ rbib\_**Error! Reference source not found.** }**} |**| Error! Reference source not found. **| Error! Reference source not found.** | **Error! Reference source not found.** | **Error! Reference source not found.**| {{ rbib\_**Error! Reference source not found.**}} |  
| Error! Reference source not found. **|** Error! Reference source not found. **| Error! Reference source not found.** | **Error! Reference source not found. | {{ rbib\_Error! Reference source not found.** }} |  
| Error! Reference source not found. **| Error! Reference source not found. |** Error! Reference source not found. | Error! Reference source not found. **| {{ rbib\_**Error! Reference source not found.}} |  
::::::

**::::::{tab-item} References**  
 Refs

::::::

**:::::::**