

Appendix 3: Common trap malfunctions and monitoring schema

The following trap malfunctions have been identified through extensive data collection by the Kaua'i Forest Bird Recovery Program (KFRBP).

Malfunction	Description
Leaks CO ₂	CO ₂ leaks from faceplate when trap triggered and/or when new CO ₂ put in
Trap not triggering with new CO ₂	When new CO ₂ is attached, traps may trigger once and then fail on subsequent tests. Or, trap may not trigger at all with new CO ₂
Striker retraction fail	When testing, striker is slow to retract OR does not retract at all
Power unit issue	When unscrewing CO ₂ , power unit comes out attached to the old CO ₂ canister. Spring may fall out after as well
Missing or broken leaf trigger	Leaf trigger not present upon purchase, or becomes broken/missing in the field
Cracked/broken trap body	Main trap body is cracked and/or broken in places
Trigger seal issue	Over time, CO ₂ slowly/quietly leaks out of power unit. Does not hold pressure. First test fire after 4 months will be a weak strike or not at all. Any immediate test fires after this one will be strong. Leaving trap means CO ₂ slowly leaks out again before rat comes along

Table 5: Common trap malfunctions and their description

The following data fields were defined by KFRBP in order to track the functioning of 1,000s of traps across their multiple grids in the Alaka'i Plateau, Kaua'i. They are shared here to support the implementation of this level of trap function monitoring.

General

Station ID – tap on field and search for station ID in the dropdown

Date and Time – autofill

Checked by – autofill based on user. Double check that this is accurate

Type of Check (multiselect)

Official (triennial) – big rat trip that happens in the spring, summer, and winter.

Will be the default selection

Camera – if you are also doing a camera check/install on the trap. Can be selected in conjunction with the other options

Unofficial – rare trips to check/maintain traps

Arrival

Arrival Pictures – A side angle photo of trap that shows the entire trap and distance from ground. Additional photos of any carcasses/bones near trap.

Trap Arrival Status

Open – trap is open and armed, both bait container and CO₂ container are present (though either may be empty)

Closed – Mounting bracket is present, but trap is missing (trap was removed on previous check and not replaced) OR trap is in an inactive position (on the ground, tree fell, etc) OR trap is present, but CO₂/bait pouch are not present.

New (not present) – You are deploying a trap in a NEW location

Not Found – You cannot find the trap location

Arrival Counter Status

Working – counter is present and functional

Low Battery – counter present but with low battery warning

Broken – counter present, but not functional/turning on

Not Present – no counter on trap

NA – other misc. cases. e.g., counter reads over 50+

Arrival Counter Number: if counter is present, record number. If not present, enter '999'

Arrival Trap On Tree

Trap on tree, with blocker – trap is set on tree with blocker attached correctly

Trap on tree, separated from blocker – trap is set on tree, but blocker is separated

Trap on tree with blocker, knocked from backplate but still attached – trap is still attached to trap thanks to zip ties, but is sitting sideways and no longer on the backplate. This is a common case at MOH when pigs hit the trap

Trap on ground, with blocker – trap has fallen from tree, but blocker still attached

Trap on ground, separated from blocker – trap on the ground and blocker is no longer attached

NA – trap is not present

Other – other misc. case

Arrival Bait Type

ALP Chocolate – foil lure. Will have red/orange/brown label ring

A24 RMP 2025 Document—Appendix 3

ALP Citric – foil lure. Will have white label ring that says slug repellent

ALP Unknown – foil lure. Choose this option if the label ring is not present

Static Chocolate – plastic tub lure

Static Citric – plastic tub slug repellent lure

Static Unknown – plastic tub – choose this option on arrival since the statics are difficult to distinguish

Other – see notes – other misc. baits

Arrival Bait Condition (multiselect)

ALP – Bait Remaining – a good amount of bait is still left in the ALP.

ALP – Bait Plug Only – the ALP has mostly air in it, there is only a small plug of bait left

ALP – Bait Completely Empty – the ALP is completely empty – you can see metal from inside the cap

ALP – Gas Not Full – ALP mostly deflated and not puffed up

ALP – Gas Full – ALP is full of gas

ALP – Coin On – coin still left on ALP

Static – Old – bait left in static lure

Static – Container Empty – completely empty lure container

Other (see notes) – other misc. cases

ALP Bait Serial Number – record the serial number of the ALP on the label tag (if present)

Arrival Test Fire

Pass – strong test fire right away: Good, functional trap.

Fail – trap does not fire at all, is extremely weak, or you only hear CO₂ hiss: Replace trap if this is the case, and you have plenty of replacements for the rest of the trip.

Weak Fire then Pass – first test fire is weak, and the following test fire is a pass. DO NOT replace traps in this case.

No Test – No trap present, or didn't test fire.

Captures

Arrival Total Bodies Found – total number of distinct bodies found AND fur in blocker. ID using skull or scapula or distinct separate clumps of fur/bones. This should be a sum of the next 6 fields. NOTE: The next 6 field are mutually exclusive.

Arrival *Rattus spp* – Total unknown rat spp found near trap. Most crews will use this unless they are 100% confident of exact rat species IDs

Arrival *Rattus rattus* – Total *Rattus rattus* bodies found. Not used unless confident

Arrival *Rattus exulans* – Total *Rattus exulans* bodies found. Not used unless confident

Arrival *Mus domesticus* – Total mouse bodies found

Arrival Rodent spp/New Fur in Blocker – Total unknown rodent bodies, including new fur in blocker. Brand new fur that is clearly not from an old trip will go in this field. New fur may be sticking out of the blocker edges, not matted.

Arrival Old Fur in blocker – Enter “1” if there is old/matted fur in the blocker. This will count towards total captures, even though it is likely from a previous trip. If there is fur caked in the blocker and a body under the trap, this would be 2 total bodies found.

Maintenance

Trap Replaced

Installed – New trap installed at either a new station or a station without a trap

Replaced – Replaced old faulty trap with new one depending on test fire result.

NOTE: If replacing a trap, use orange flagging on the old one and write the Station ID, date, and the problem with the trap. E.g. Test fire failed, Leaks CO₂, cracked trap, etc. Also note the issue with the trap in the notes section.

Removed – Removed old trap and didn't have a replacement

No – Old trap left in place

Arrival Trap ID (If Present) – Enter the Trap ID or Serial number and select it in the dropdown list if the trap is present at the station

Departure Trap ID (If Replaced/Installed) – If a new trap was installed/replaced, enter the trap id or serial number and select it in the dropdown list. Conditional based on the “Trap Replaced” field answer.

Maintenance Performed – Y/N. If Yes, then additional fields will appear below

Maintenance Type

Trap Lowered or Raised (See Maintenance Notes) – Trap moved on the same tree. Make a note in the notes section. Trap blocker MUST be touching the ground or be very close to the ground (1mm) to prevent Puiaohi from entering

Trap Moved to Another Location (See Maintenance Notes) – Moved trap to another location nearby to get it set better. Make a note in the notes section

Adjusted or Replaced Zip Ties – Zips adjusted or fixed

Adjusted Blocker – Fixed blocker to line up with trap

Adjusted/Replaced Screws – replaced or fixed old screws

Other (See Maintenance Notes) – other misc. maintenance

Maintenance Notes – explanatory notes for maintenance tasks

Departure

Departure Status

Open – trap is open and armed with CO₂ and bait

Closed – trap is present, but not armed with CO₂ and bait

Temporarily Removed – trap temporarily removed until we get a replacement

Permanently Removed – trap/station permanently removed

A24 RMP 2025 Document—Appendix 3

Departure Test Fire

Pass – strong test fire right away. Good, functional trap

Fail – trap does not fire at all or extremely weak, or you only hear CO₂ hiss

No Test – No trap, or didn't test fire

Departure CO₂ Status

New – New CO₂ installed

Old – Old CO₂ left in place

None – No CO₂. Not arming trap—make sure to mark trap as Closed or Removed

Departure Counter Status

Working – counter is present and functional

New – new counter added to trap

Low Battery – counter present but with low battery warning

Broken – counter present, but not functional/turning on

Not Present – no counter on trap

NA – other misc. cases. e.g. : counter reads over 50+

Departure Counter Number: if counter is present, ALWAYS leave on 1. This is the default. If no counter, then enter 999.

Departure Bait Type

ALP Chocolate – foil lure. Will have red/orange label ring

ALP Citric – foil lure. Will have white label ring that says slug repellent

ALP Unknown – foil lure. Choose this option if the label ring is not present

Static Chocolate – plastic tub lure

Static Citric – plastic tub slug repellent lure

Static Unknown – plastic tub – choose this option on arrival since the statics are difficult to distinguish

Other – see notes – other misc. baits

Departure Bait Condition (multiselect)

ALP – Fresh – Brand new ALP lure with coin off

ALP – Bait Remaining – a good amount of bait is still left in the ALP.

ALP – Bait Plug Only – the ALP has mostly air in it, only a small plug of bait left

ALP – Bait Completely Empty – the ALP is completely empty – you can see metal from inside the cap

ALP – Gas Not Full – ALP mostly deflated and not puffed up

ALP – Gas Full – ALP is full of gas

ALP – Coin On – coin still left on ALP

Static – Fresh – brand new static lure

Static – Old – bait left in static lure

A24 RMP 2025 Document—Appendix 3

Static – Container Empty – completely empty lure container

Other (see notes) – other misc. cases

Repair Needs at Station

No – Station is all set

Failed trap still at station – A trap with a failed or very weak fire is still at station, due to trap shortage, etc.

Needs counter – trap needs counter next trip

Needs blocker – Trap needs blocker next trip

Needs zips – Trap needs new zips next trip

Needs to be moved – needs screwdriver and needs to be moved to better spot

Needs trap – New trap needed at station

Screws stripped – Screws stripped and need replacements

Other – Other misc. needs. Add in notes

Carcass Fate

Removed – Cleared carcass away from trap leaving absolutely no bones behind. This will be done during Official trips.

Left in Place – Didn't move carcass. This will be done on Unofficial trips.

Removed/Fur Still Present – Removed carcass, but fur is difficult to remove from trap/blocker.

NA – No carcass

Departure Photos – Photo of trap at a side angle, to show full trap and set on the tree.