



Trap Build Manual

February 2023
Version 1



PREDATOR FREE
HAURAKI COROMANDEL
COMMUNITY TRUST

Acknowledgements

This trap build manual was made possible with funding from Save the Kiwi for the PFHCCT Kiwi it te Kāinga project. The manual was compiled by Lou McNutt (Project Manager - Contract). Thanks to Sara Smerdon and Norm Simms (Mahakirau Forest Estate Society) for sharing their trap build templates and to Dave Fitzgerald (Project Kiwi Trust) for his input regarding materials and construction.

Trap Build Notes

Mesh

13mm x 1.25mm gauge galvanized is used as it provides the right stiffness. It is important you always make a baffle template from your mesh to determine the required depths of the saw cuts. In doing so you are ensuring that the baffle mesh can be removed easily (slid in and out of the saw cuts). Mesh from different suppliers will have slightly different dimensions therefore it is necessary to match the saw cut to the mesh and alter it if two different rolls of mesh are used.

Entry Hole

On external and baffle mesh entry holes must be the following dimensions: DOC200 traps (60mm x 60mm) and DOC250 traps (80mm x 80mm). The external mesh entry holes should be placed offset from the internal baffle entry. Offset entry holes should be two-three squares from the edge of the mesh, as shown in the diagram on page 10. The front external mesh should be fixed flush with the wooden floor, avoiding any wire instep into the trap. It is absolutely essential that the mesh edges of entry holes are filled smooth, to prevent deterring any predators from entering the trap. You should be able to run your finger around the inside of the entry hole and not feel any sharp edges nor scratch yourself. Mesh edges of baffles should be cut flush at the vertical wires to enable easy removal for the trapper (i.e. there should be no external protrusions).

Baffle Mesh

For ease of removing baffles from traps it is recommended to flatten out the baffle mesh prior to installing.

Plastic Tubing Instep

3 mm thickness. The tube should be split lengthways down one side and clip over the bottom edge of the baffle entry hole. Note: If the plastic tube is stored in a roll it will convex one way. Ensure you cut the tube so the curve sits down on the wire and not up. If possible, leave out in the sun for a few hours to soften up. Using a plastic tube will help slow the baffle mesh from corroding (as a result of the stomach acid from trapped predators) and preserve the condition and life of the baffle.

Baffle Grooves

The required depth of the baffle groove will depend on the mesh purchased. However it has been found that a 10mm deep and 4mm wide baffle groove functions well, allowing for easy removal of the internal baffles.



Trap Box Dimensions

It is important that you allow for some timber warping (wood will swell when wet) when building trap boxes. Therefore, the internal width of the trap box must be a minimum of 220mm for DOC200 trap boxes and a minimum of 260mm for DOC250 boxes to ensure there is sufficient clearance for the trap to function. Failure to accommodate for this will result in the pan or the swing of the Waddington trigger snagging on the timber wall and preventing it from firing. Ideally, the pan of the trap mechanism should be placed 10mm off the interior walls of the box and the back of the trap mechanism, 30mm from the box wall.

The internal width of the boxes to some degree is determined by the mesh used, as this can vary slightly from brand to brand. The grooves for the baffle mesh should not be more than 12mm deep bearing in mind that there should be approximately a 4mm gap between the end of the mesh and the bottom of the groove. It is recommended that these grooves are sanded to help the baffle slide in and out easily.

For DOC250s if the sides of the boxes are machined to 20mm then the 300x25 timber will be wide enough for the base and the lid also.

Trap Mechanisms

Always use full stainless steel trap mechanisms to ensure longevity in the field and avoid rusting. CMI Springs are the recommended trap mechanism suppliers.

When ordering trap mechanisms ask for the traps to be supplied without hazard stickers attached to the trap plate. Trap mechanisms must be properly calibrated for trigger weight prior to deployment in the field.

Screws and Nails

Where possible always use stainless steel nails or screws in trap builds. Galvanised nails or screws are an acceptable alternate option, however, they will not last as long as stainless steel. All screws need to be #2 square-head screws.

Spacers

Should be a minimum of 40mm depth.

Timber

All timber used in trap builds should be H4 treated Radiata to ensure longevity in the field. Use pre-dried timber and where possible handpick planks to avoid knots and warps. Rough sawn timber will vary in width as much as 10mm depending on the mill it was sourced from, so all timber should be planned on one edge prior to ripping to ensure consistent dimensions. Ideally the sides should be machined to ensure the internal width of the boxes remains the same. This also makes cleaning of the box easier. Machined inner surfaces will ensure that the baffle can be reliably cut without any projections and will fit all boxes. We cannot stress enough the importance of machining the timber and ensuring all dimensions are correct and uniform across traps.

Note 1: Wet timber will shrink 4-5mm (hence the importance of using dried timber). If using very green timber ensure you account for this shrinkage allowance when measuring out your dimensions.

Note 2: If you are home building traps and do not have access to a thickener to machine the timber to uniform dimensions, it is suggested you purchase 350mm timber instead and cut it down to size. The off cuts can be used for the spacers.

Pivot Screw Placement

The pivot screw (at the bait end of the trap box) and also the fixing screw should be 80mm in from the end. This allows a larger opening when accessing, for service. Do not screw in the lid pivot screws too tight during construction – the lid needs to be able to open smoothly. Take care to ensure the pivot screws go in straight and do not twist on an angle and protrude through the side of the timber. If desired the pivot screw can be marked with a dot on the timber, to identify which screw is used to open the lid.

Trap ID Labels (Plastic Triangle Markers)

Trap ID labels should be installed on the back side of the trap (the same side that the trapper positions themselves to set the trap). This allows the trap ID to be visible from the trail during checks and will make data recoding more efficient. Do not bang the nail tack-heads in all the way when securing the trap ID labels to the boxes – if traps need to be relocated in the field, trappers will need to be able to swap out trap ID labels with a hammer (so leave a portion of the nail head exposed).



Photo credit: Ian Preece

Build Tips

1. Use the trap box spacer (matching the spacer width) when attaching the base of the trap box rather than relying on the base width. This will ensure the top and base of the box is parallel and enable the internal baffle to be removed and replaced easily.
2. Attach the bait nails and the trap mechanism before the construction of the box is complete ensuring all location dimensions are adhered to.
3. Drill the bolt holes and install the DOC250 trap mechanism before the box sides are added.
4. Ensure the trap mechanism position within all boxes is uniform by making up a 'spacer template' to use as a guide to determine the exact distance the trap mechanism should be positioned from the internal box wall.

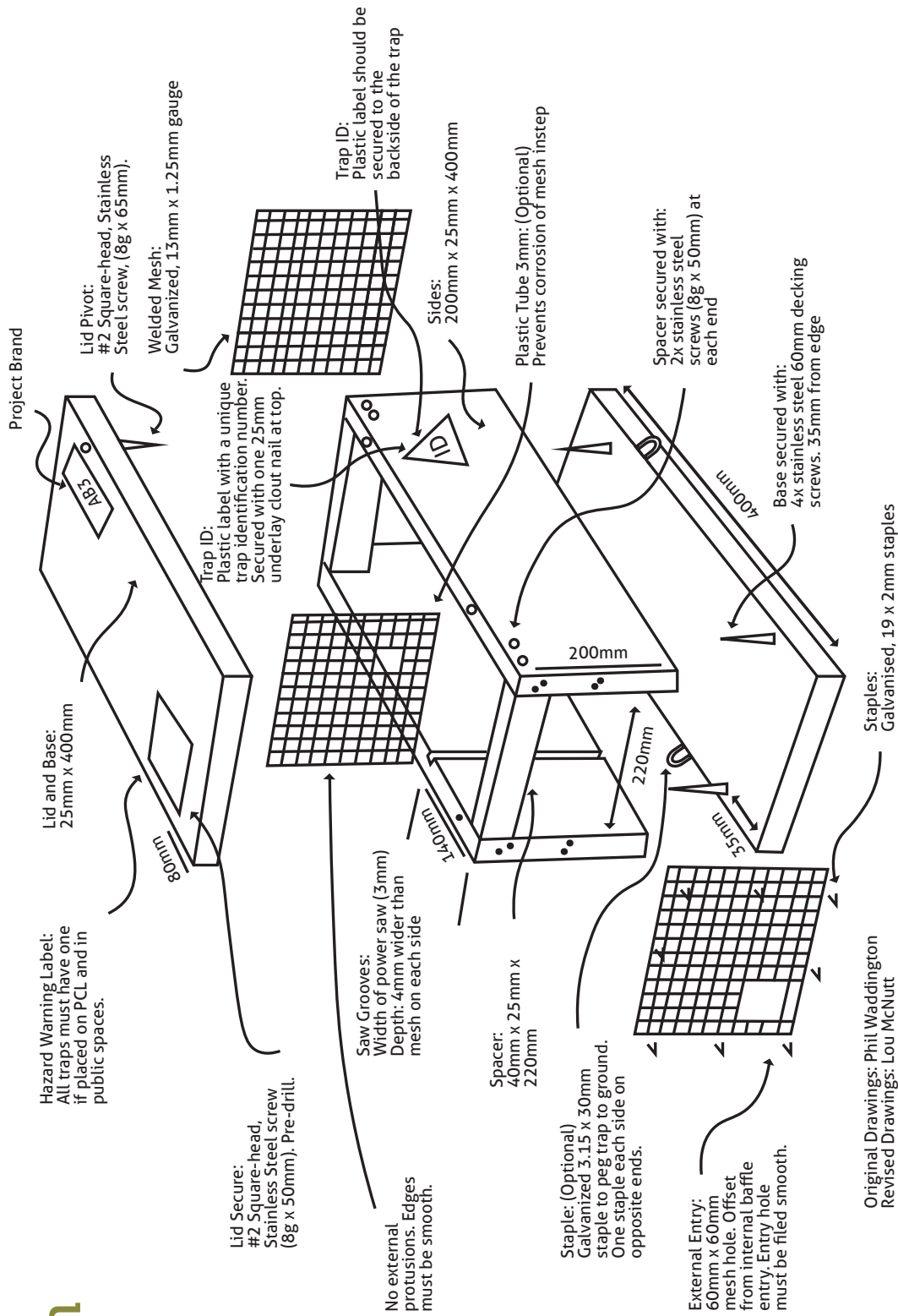
Quality Assurance

It is a good idea to audit your traps before leaving the workshop. The PFCCT Trap Audit Manual details the auditing process.



Photo credit: Peter Drury

DOC200 Single Set Trap Design



Original Drawings: Phil Waddington
Revised Drawings: Lou McNutt

Materials List

Timber - Radiata H4 treated, rough sawn

Sides: 200 x 25 x 400mm

Quantity: 2

Base & Lid: 300 x 25 x 400mm

NOTE: Base width is cut down to 220 mm plus the thickness of the two sides

Quantity: 2

Spaces: 40 x 25 x 220 mm

Quantity: 2

Nails

Bait Holder: 75 x 3.15mm jolt head stainless steel nail. Quantity: 3

ID Tag Holder: 25 x 2.5mm galvanized Underlay Clout nail. Quantity: 1

Staples

Securing External Mesh: 19 x 2mm standard galvanized staple OR 16mm stainless steel industrial staple if using a staple gun.

Quantity: 14+ per end

Ensure one staple is placed in each corner, 1 on either side of the entrance hole and at least 2 along the sides, top and extra on the bottom (see external entry diagram).

Screws (all #2 square drive heads)

Secure Base to Side: 60mm stainless steel decking screw. Quantity: 4

Secure Lid: 8g x 50mm stainless steel screw. Quantity: 1

Lid Pivot: 8g x 65mm stainless steel screw. Quantity: 1

Note: do not screw in too tightly. The lid needs to be able to open smoothly.

Secure Spacers to Sides: 8g x 50mm stainless steel screw. Quantity: 8

Secure Trap Mechanism to Base: 8g x 25mm stainless steel screw. Quantity: 4

Note: ensure the tip of the screw does not penetrate through the timber base. If so, grind off for safety.

Welded Mesh – 13mm square, 1.25mm gauge galvanized 900mm wide roll

External End (Front): with 60mm x 60mm entry hole. Quantity: 1

External End (Rear): no entry hole. Quantity: 1

Internal Baffle: with 60mm x 60mm entry hole. Quantity: 1

Plastic Tube - Clear Vinyl Tube 3mm thick

Internal Baffle Instep: 3mm thick x 60mm long. Quantity: 1

ID Tag – placed on the side of the box

Plastic Triangle (Pink)

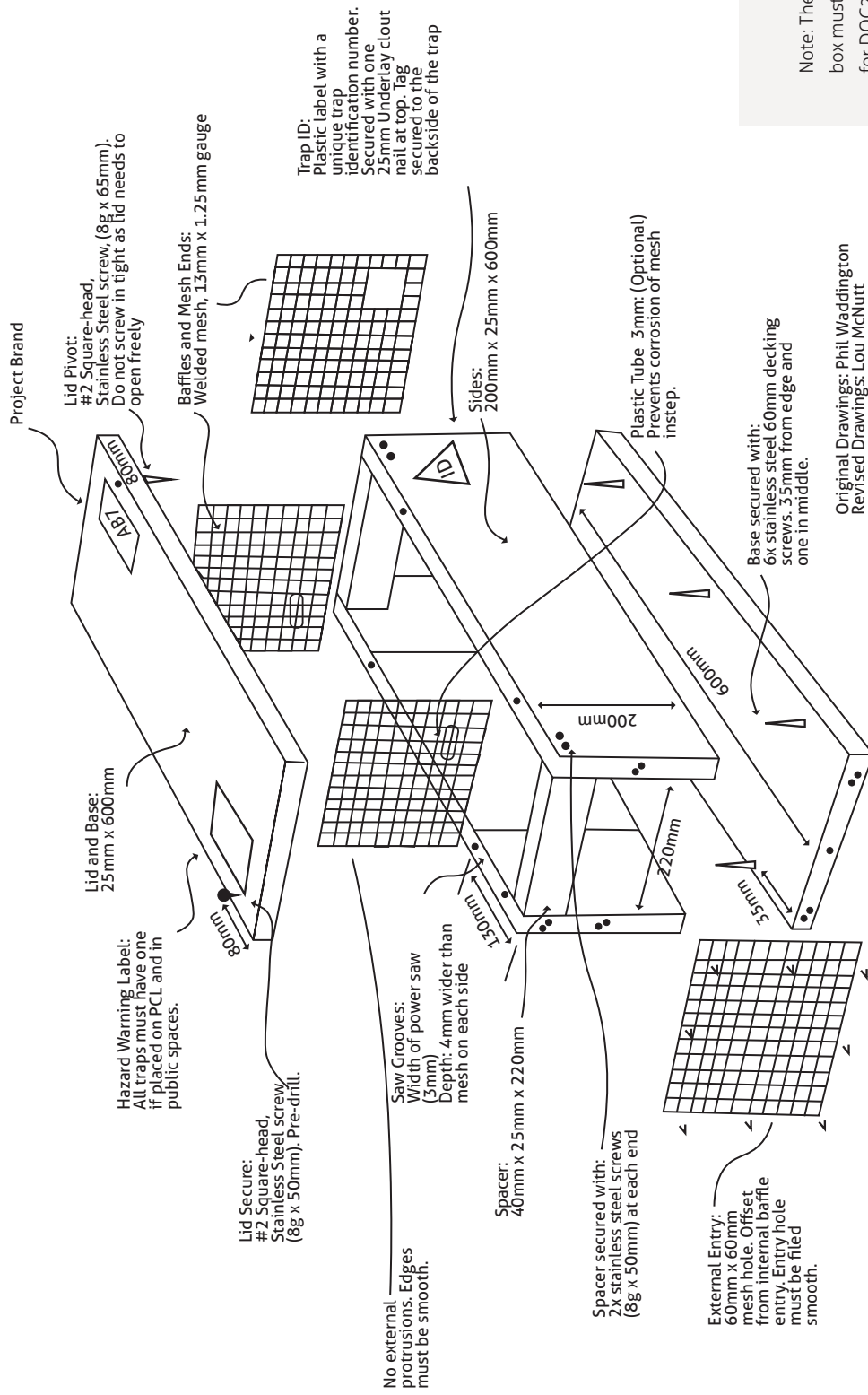
The ID tag should be placed on the backside of the trap (the side where the trapper works when resetting a trap). Do not hammer the tag nail in all the way; the head needs to protrude a bit so that the tag ID can be removed if needed, in the field. Quantity: 1

Trap Mechanisms

DOC200 trap mechanism

Trap mechanisms must be stainless steel to prevent rusting and ensure longevity. CMI Springs is the recommended brand for trap mechanisms. Quantity: 1

DOC200 Double Set Trap Design



Note: The internal width of the trap box must be a minimum of 220mm for DOC200 trap boxes.

Original Drawings: Phil Waddington
Revised Drawings: Lou McNutt

Materials List

Timber - Radiata H4 treated, rough sawn

Sides: 200 x 25 x 600mm

Quantity: 2

Base & Lid: 300 x 25 x 600mm

NOTE: NOTE: base width is cut down to 220 mm plus the thickness of the two sides

Quantity: 2

Spaces: 40 x 25 x 220 mm

Quantity: 2

Nails

75 x 3.15mm jolt head stainless steel nail.

Quantity: 3

ID Tag Holder: 25 x 2.5mm galvanized Underlay Clout nail. Quantity: 1

Staples

Securing External Mesh: 19 x 2mm standard galvanized staple OR 16mm stainless steel industrial staple if using a staple gun.

Quantity: 14+ per end

Ensure one staple is placed in each corner, 1 on either side of the entrance hole and at least 2 along the sides, top and extra on the bottom (see external entry diagram).

Screws (all #2 square drive heads)

Secure Base to Side: 60mm stainless steel decking screw. Quantity: 6

Secure Lid: 8g x 50mm stainless steel screw. Quantity: 1

Lid Pivot: 8g x 65mm stainless steel screw. Quantity: 1

Note: do not screw in too tightly. The lid needs to be able to open smoothly.

Secure Spacers to Sides: 8g x 50mm stainless steel screw. Quantity: 8

Secure Trap Mechanism to Base: 8g x 25mm stainless steel screw. Quantity: 4

Note: ensure the tip of the screw does not penetrate through the timber base. If so, grind off for safety.

Welded Mesh – 13mm square, 1.25mm gauge galvanized 900mm wide roll

External Ends: with 60mm x 60mm entry hole.

Quantity: 2

Internal Baffle: with 60mm x 60mm entry hole.

Quantity: 2

Plastic Tube - Clear Vinyl Tube 3mm thick

Internal Baffle Instep: 3mm thick x 60mm long.

Quantity: 2

ID Tag – placed on the side of the box

Plastic Triangle (Pink)

The ID tag should be placed on the backside of the trap (the side where the trapper works when resetting a trap). Do not hammer the tag nail in all the way; the head needs to protrude a bit so that the tag ID can be removed if needed, in the field. Quantity: 1

Trap Mechanisms

DOC200 trap mechanism

Trap mechanisms must be stainless steel to prevent rusting and ensure longevity. CMI Springs is the recommended brand for trap mechanisms. Quantity: 2

Materials List

Timber - Radiata H4 treated, rough sawn

Sides: 250 x 25 x 400mm (Note: 25mm timber is machined to 20mm)

Quantity: 2

Base & Lid: 300 x 25 x 400mm

Quantity: 2

Spaces: 40 x 25 x 260 mm

Quantity: 2

Nails

Bait Holder: 75 x 3.15mm jolt head stainless steel nail. Quantity: 3

ID Tag Holder: 25 x 2.5mm galvanized Underlay Clout nail. Quantity: 1

Staples

Securing External Mesh: 19 x 2mm standard galvanized staple OR 16mm stainless steel industrial staple if using a staple gun.

Quantity: 14+ per end

Ensure one staple is placed in each corner, 1 on either side of the entrance hole and at least 2 along the sides, top and extra on the bottom.

Screws (all #2 square drive heads)

Secure Base to Side: 60mm stainless steel decking screw. Quantity: 4

Secure Lid: 8g x 50mm stainless steel screw. Quantity: 1

Lid Pivot: 8g x 65mm stainless steel screw. Quantity: 1

Note: do not screw in too tightly. The lid needs to be able to open smoothly.

Secure Spacers to Sides: 8g x 50mm stainless steel screw. Quantity: 8

Nuts and Bolts

Secure Trap Mechanism to Base: Coach Bolt Stainless Steel M6 X 40. Quantity: 2

Note: place the Coach bolt head under the base of the trap box, so the thread/nut is on top of the trap mechanism.

Welded Mesh – 13mm square galvanized 900mm wide roll

External End (Front): with 80mm x 80mm entry hole. Quantity: 1

External End (Rear): no entry hole. Quantity: 1

Internal Baffle: with 80mm x 80mm entry hole. Quantity: 1

Plastic Tube - Clear Vinyl Tube 3mm thick

Internal Baffle Instep: 3mm thick x 80mm long. Quantity: 1

ID Tag – placed on the side of the box

Plastic Triangle (Pink)

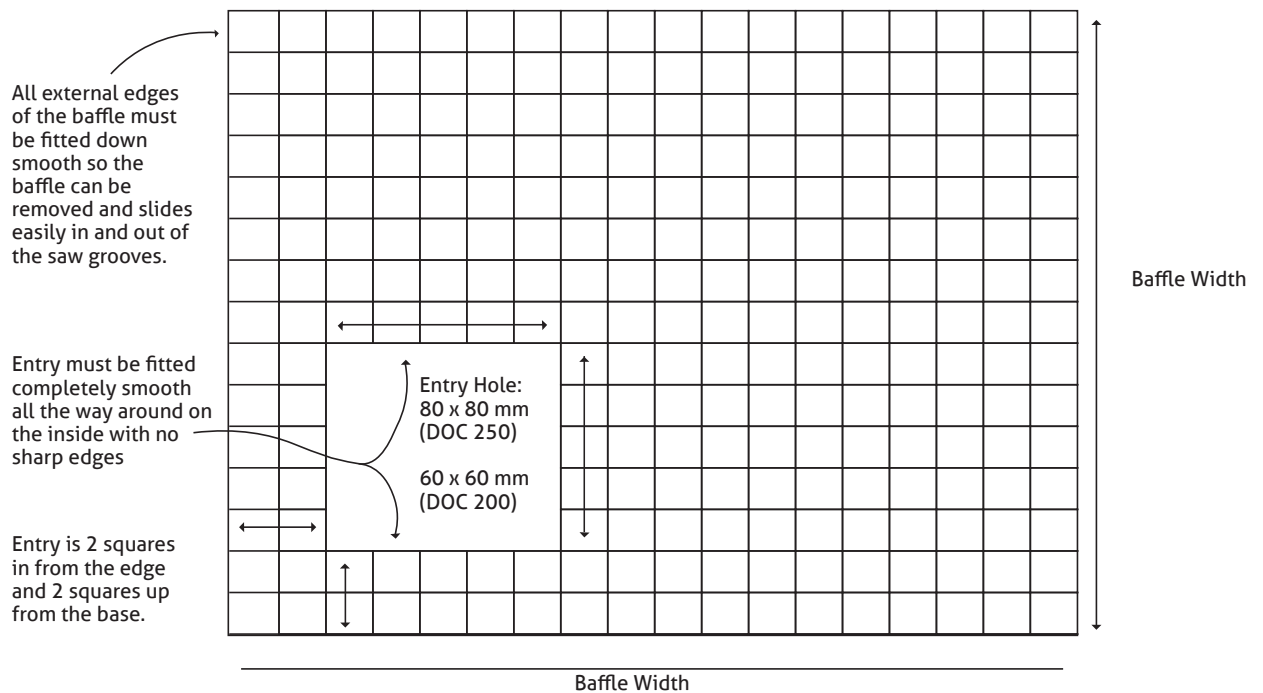
The ID tag should be placed on the backside of the trap (the side where the trapper works when resetting a trap). Do not hammer the tag nail in all the way; the head needs to protrude a bit so that the tag ID can be removed if needed, in the field. Quantity: 1

Trap Mechanisms

DOC250 trap mechanism

Trap mechanisms must be stainless steel to prevent rusting and ensure longevity. CMI Springs is the recommended brand for trap mechanisms. Quantity: 1

Internal Baffles



Note: Entry holes on external screens and internal baffles are offset (as shown in these diagrams). Mesh size is 13mm and 1.25mm gauge (it is important you try to get this thickness mesh so the baffle is not too flimsy). It is equally important that there are no protrusions on the external edges of the mesh, to ensure the baffle will slide in and out of the trapbox easily during servicing.



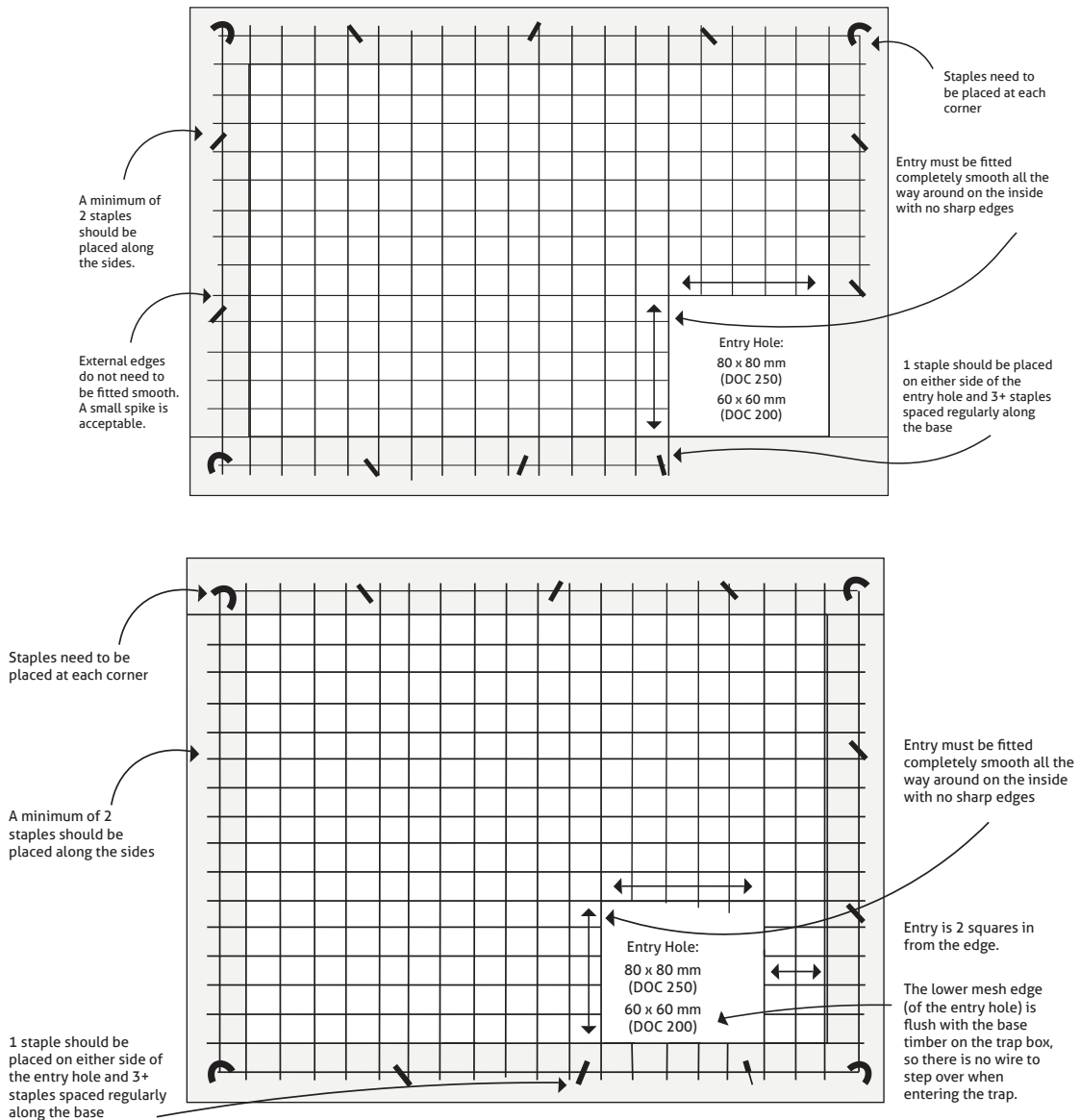
Photo credit: Tim Hooson



External Entry

External Entry Designs

There are two acceptable designs for the external entry, as shown below.



Note: Entry holes on external screens and internal baffles are offset. Mesh size is 13mm and 1.25mm gauge (it is important you select this gauge). The entry hole must be filed completely smooth on all side to avoid deterring predators.

Trap Mechanism Placement

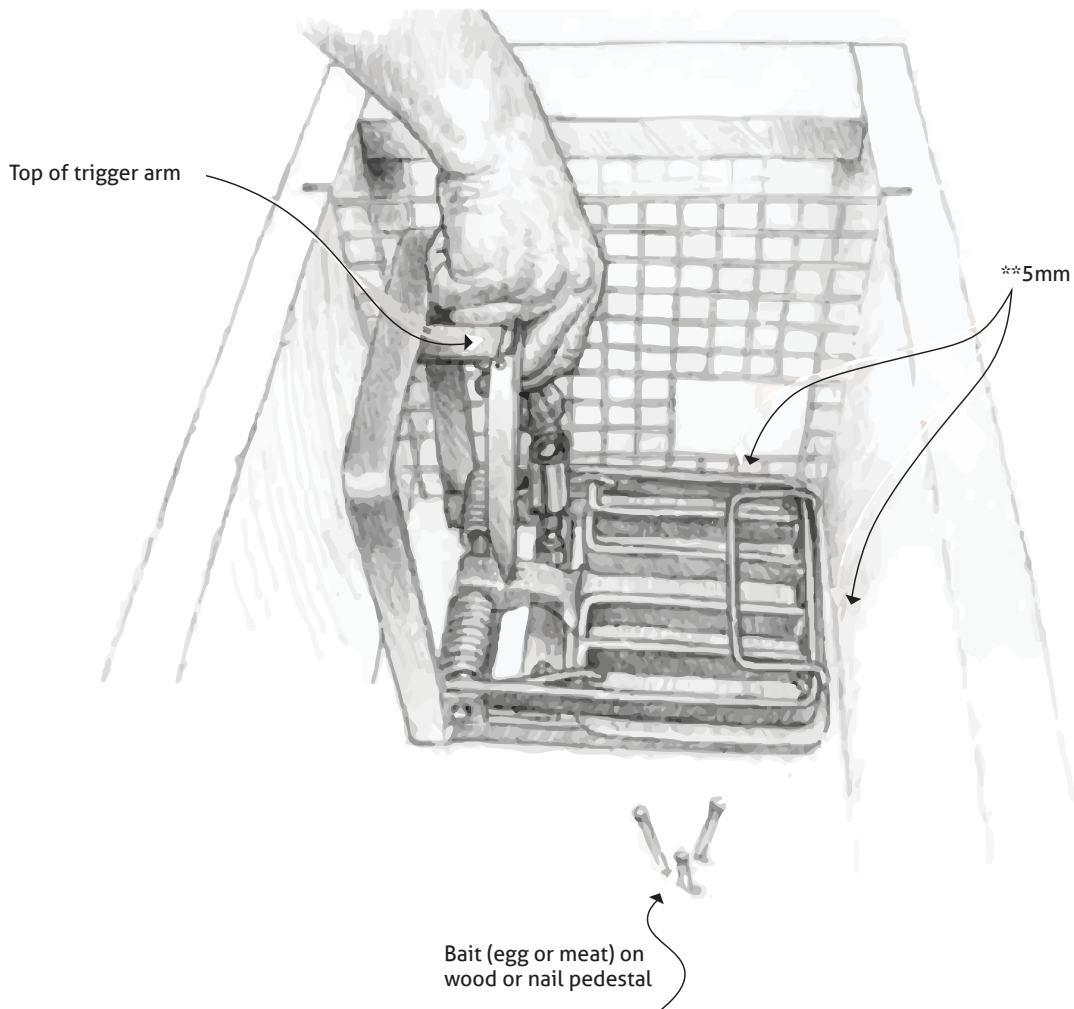


Illustration credit: Department of Conservation

Note: It is important to position the trap mechanism correctly inside the trap box to ensure optimal functioning. Care should be taken to install trap mechanisms straight in the boxes (and ensure they are not positioned on a slight angle).

A minimum of a 10mm gap is required between the front of the trap and the interior box wall to allow sufficient clearance when the pan springs and to allow for the swelling of timber in wet conditions. It is recommended that a spacer is made up and used as guide, to ensure the distance from the trap plate to front wall is kept to a uniform standard, allowing the trap mechanism is positioned optimally within the trap box.

A minimum 10mm gap is also required between the trap and the internal wire baffle to enable optimal functioning of the trap when triggered. This gap needs to provide enough space so the kill bar and pan can lower without snagging on the internal baffle wire.

Note 1: If plastic tubing is being placed over the lower rung of the baffle entry hole, then you may need to extend this gap to 15mm from the baffle wire to the side of the trap, as the plastic tubing will extend out towards the trap mechanism.

Note 2: It is equally important that this gap is not so great that the predator can climb through the baffle entry hole and place paws on the box base before stepping on the pan.

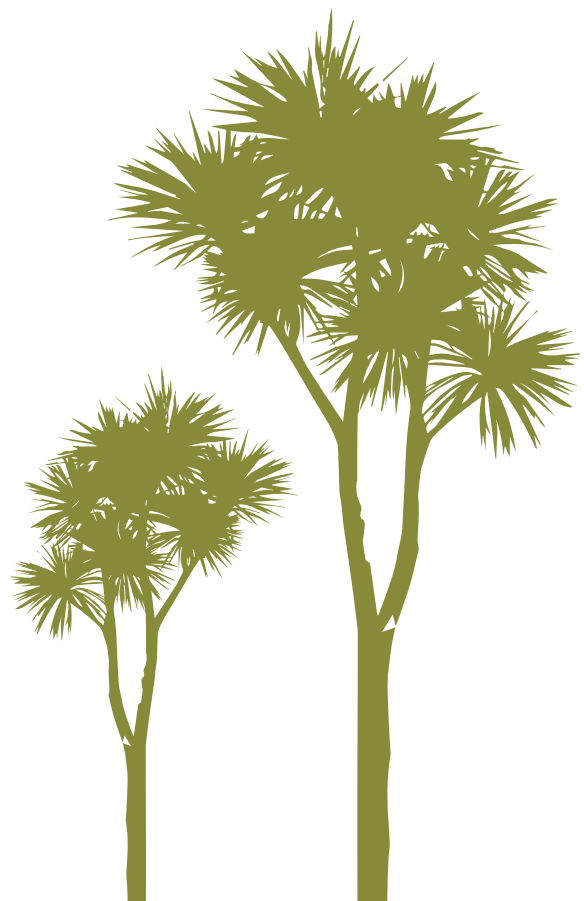
There must to be a minimum 30mm space between the back of the trap mechanism and the interior wall so that a safety clip or setting tool can easily be inserted over the trap bar for safe handling. Allowing adequate space between the interior box wall and the back of the trap will ensure the Waddington trigger arm can swing back freely without lodging on the box side.

Before securing the DOC250 trap mechanism into the trap box a marker should be used to determine the correct position of the bolt holes. These holes can then be drilled and a bolt placed in position to secure the trap mechanism to the box. Failure to mark the hole positions before drilling, can result in the trap mechanism position shifting slightly and becoming misaligned or too close to the baffle.

Bait Holder Placement

Three nails should be positioned in a triangle) and driven into the box base on a slight slant (so that the base of the nails are closer together than the heads). The base of the nails should be approximately 10mm apart. These nails will hold the bait. They need to be positioned a minimum of 30mm from the side of the trap mechanism, but also need to be an adequate distance from the external box mesh, such that a predator cannot reach the bait from outside the trap. You can test the spacing by placing a hen egg on the nails ensuring the egg is held and is stable.

Note: Care needs to be taken to ensure the position and distance between the base of these 3 nails remains consistent across trap builds.



Materials: Examples

Timber - Radiata H4 treated

Sides: 200 x 25 mm

Base & Lid: 300 x 25 mm

Spaces: 40 x 25 mm

Note: 40mm is the minimum (50mm is ideal)

Nails

Bait Holder: 75 x 3.15mm jolt head stainless steel nail

ID Tag Fixing: 25 x 2.5mm galvanized Underlay Clout nail

Staples

Securing External Mesh: 19 x 2mm galvanized staple

Mitre 10: Galvanised staples 19 x 2.00mm

Screws (all #2 square drive heads) buy good quality MSL stainless steel screws

Secure Base to Side: 10g x 65mm stainless steel decking screw Lid Pivot: 8g x 65mm stainless steel screw

Secure Lid: 8g x 50mm stainless steel screw

Secure Spacers to Sides: 8g x 50mm stainless steel screw

Secure Trap Mechanism to Base: 8g x 25mm stainless steel screw

Fortress: Square head 25mm stainless steel screw

Welded Mesh

13mm x 1.25mm gauge galvanized square welded mesh:

NZ Wire: Square Welded Mesh 900mm x 13mm x 1.25mm 5m

Nuts and Bolts

Secure Trap Mechanism to Base (DOC250):

Fortress Coach: Bolt, Stainless Steel (M6 x 40mm)

Plastic Tube

Internal Baffle Instep (3mm)

Bunnings: Pope clear vinyl tubing 3mm x 5m

ID Tag

Plastic Triangles

Pest Control Solutions: Plastic triangles

Trap Mechanisms

CMI full stainless steel predator trap mechanisms (DOC200 or DOC250)

Whenever possible, when ordering bulk mechanisms [from CMI] ask for traps to be sent without the warning sticker on the trap plate.

CMI Springs: Trap mechanisms

