Fitting rings
extract from *Ringers' Manual* by C.P.F. Redfern & J.A. Clark (2001). BTO, Thetford.

8.4.3 Essential equipment for fitting and removing rings

The standard ring sizes can be closed with the use of special ringing pliers:

- Small ringing pliers for closing sizes AA-E, and SO (Fig 8.1a). The specified minimum dimensions of the holes from A to E are 3.0, 3.9, 4.8, 5.2 and 6.8 mm (different pairs of pliers may vary slightly).

- Large ringing pliers for closing sizes F-L (Fig 8.1b).

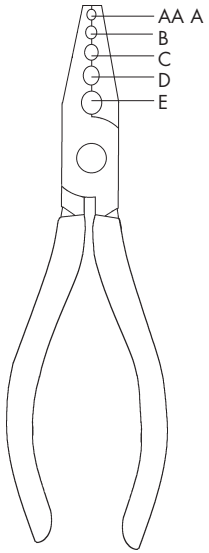

Fig 8.1a Small ringing pliers

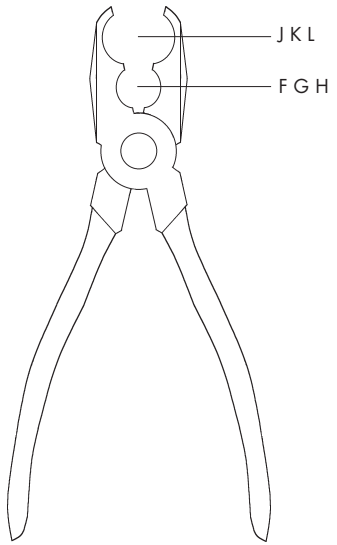

Fig 8.1b Large ringing pliers

In addition, snipe-nose/blunt-end pliers are useful for closing clip rings. There are many occasions where the small ringing pliers become very useful for the final closure of some larger rings (eg Ms) where they give a different leverage and finer adjustment. It is **essential** that ringers always carry a pair of circlip pliers for removing rings (Section 8.5). This is particularly true when working with the larger ring sizes (E-L) which are easy to overlap accidentally, even in the hands of experienced ringers.

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8.4.4 How to fit rings on birds correctly

Three practical principles govern the fitting of rings:

- Ensure that the ring and the hole in the ringing pliers containing the ring are parallel (or 'square') to the bird's tarsus (if not the ring may trap the skin when it is finally closed).

- Ensure that no part of the bird (such as a hind claw) is caught in ring or ringing pliers; to avoid this, turn the ring so that the long axis of the pliers approaches the leg from the side. Extra care must be taken for pulli and species with short tarsi.

- Always **remain in control** of the pliers, applying the right amount of pressure to close the ring to the desired extent: never suddenly apply brute force to close a ring in case the pliers slip out of control, or the ring overlaps disastrously.

Standard C- or V-shaped rings

There are two stages in closing a ring and the method used for each stage depends on ring size, shape and hardness of the metal.

Stage 1 Place the open ring on the bird's leg and partially close the ring by bringing the two ends of the ring towards each other, but without attempting to form a butt. The ring will end up with a slightly compressed or flattened cylindrical shape and should be closed enough so that the ring does not drop off the leg when the pliers are removed. For all C-shaped ring sizes, stage 1 can be achieved using the appropriate hole of the small or large ringing pliers. For those with strong fingers, the larger ring sizes from CC upwards can also be applied by squeezing the ring closed between the fingers; this is relatively easy for the soft aluminium-alloy rings but is harder to do with the incoloy rings (for some species with a short tarsus taking the smaller ring sizes, such as hirundines, it may also be easier to apply the ring with the fingers). If using pliers, place the ring in the appropriate hole as shown in Figs 8.2a and 8.4a. Make sure that the ring is sitting squarely in the pliers. In this first stage, it is not usually necessary for both edges of the ring to actually meet, but it is important that the ring remains 'square', ie that the top and bottom edges remain aligned or continuous across the gap with no step. If the ring is mis-aligned ('spiraled') once it has been closed, this is usually because either the ring was not aligned squarely in the ringing pliers, or because the ring was badly shaped to start with. Spiraling of badly shaped rings can be avoided before ringing the bird by:

- deliberately mis-aligning the ring slightly in the pliers, thus counteracting the defect in the ring (useful for counteracting a slightly spiraled ring).

- reshaping the ring before inserting it in the ringing pliers, use the ends of the small ringing pliers to squeeze the ring back to a cylindrical shape by positioning the jaws diagonally across the gap so that one side will be pushed down as the other is pushed up (Fig 8.3). Note that small aluminium-alloy rings can be damaged easily.

The latter technique can also be used to correct a spiraled ring once it has been fitted, but this requires greater skill and must not be done if it would be detrimental to the bird. As in all ringing, the welfare of the bird is paramount and while a perfectly shaped ring is the ideal, in many cases it may do more harm than good to attempt to correct a spiraled ring once it has been closed fully.

appropriate hole of the pliers at the 90° or stage 2 position and squeeze gently so that the inner edge curves round under the outer edge (Fig 8.9). The edge which is 'under-lapped' must be the end of the ring without the number stamped on it. Occasionally there will be a gap left between the overlapped surfaces which can be eliminated on larger rings by squeezing together (using some force) with small pliers or, for smaller rings, with the use of very fine circlip pliers to push the inner surface onto the outer.

Elliptical rings Some species of bird (divers, shearwaters, grebes, Little Auk) have flattened tarsi which will not allow the normal ring to be fitted. For these birds the ring has to be reshaped before it can be fitted. This is not a straightforward procedure and normally the rings should be prepared before the bird is caught, especially if working in a shearwater colony (ring size Fc).

Using two pairs of small pliers, preferably ordinary pliers (snipe nose if possible as this has a flatter surface), the following method should be used:

i Flatten the middle of the ring (Fig 8.10a).

ii Bend about one quarter of the ring through 180° so that it is parallel to the flattened section with the inscription. With the smaller sizes (F and G) make sure the ring does not kink at the weakness caused by the inscription (Fig 8.10b).

iii Flatten the other end of the ring and bend to an acute angle leaving enough space to slide onto the bird's leg (Fig 8.10c). If large numbers of birds requiring these rings are anticipated, it is best to prepare the rings in advance up to this stage.

iv Fit the ring onto the bird's leg and close the projecting side onto the parallel end so that it forms a small overlap (Fig 8.10d).

v Adjustments can be made by squeezing along the long axis (Fig 8.10e), and increasing the amount of overlap to suit the tarsus. Any gap in the overlap can be eliminated as normal.

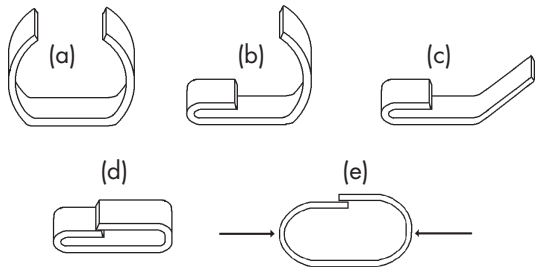

Fig 8.10 Reshaping and fitting an elliptical ring

The ring will be able to move freely up and down the leg but cannot rotate.

For larger rings (K and L) it maybe easier to completely flatten the ring for stage i and continue as normal. Note that it is essential to carry a pair of circlip pliers to adjust any rings that have not been fitted correctly.

Special auk rings Auks rest on the rear edge of their tarsi while on rocks, and as a result the ring number on conventional rings would wear rapidly and the ring would be weakened. Special auk rings are designed so that, when fitted correctly, a flat area of the ring with no inscription is at the back of the tarsus, and the inscription is at the side. The triangular shape of the ring and the bird's leg keeps the ring in position. To fit these rings correctly, first lay the bird across the lap in a comfortable (for the bird) and restrained position. Manually slide the ring onto the tarsus, orientated with the flat, unmarked side to the rear of the tarsus (which would be in contact with the substrate when the bird is sitting). Using small or large ringing pliers, bend one long, curved side in towards the leg so that it just fits under the lip of the base of the ring (Fig 8.8a). Then squeeze the ring by applying the pliers between the flat base and apex of the ring (Fig 8.8b); this butts the edge of the long, curved side against the flat part of the ring under the lip. Reposition the pliers to close the lip against the long curved side (Fig 8.8c). Finally, circlip pliers can be used, if necessary, to tighten the long curved side outwards against the lip. **When ringing pulli Guillemot and Razorbill, only ring those in which the tarsus has grown sufficiently to retain the ring in the correct position.**

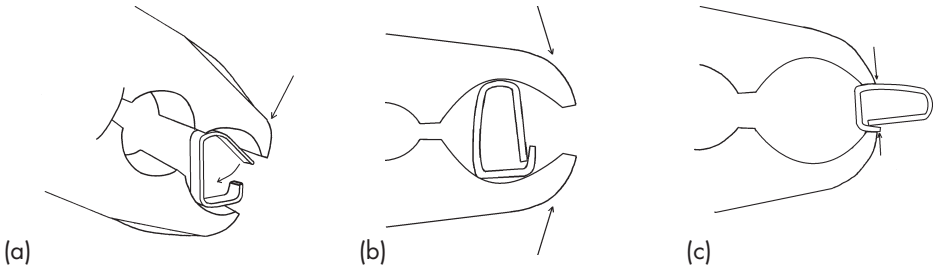

Fig 8.8 Closing a special auk ring

Overlapping

Standard rings In general, rings should **not** be overlapped unless this is specified in the ring size list (but note the special case of L rings above, where the degree of overlap is so small that it should not be regarded as a conventional overlap). However, some species of birds have legs that vary so much in diameter that occasionally an overlap is required to produce a safer fit. Fit the ring initially in the usual way (Section 8.4.4, stages 1 and 2); to start the overlap, dip one edge of the ring beneath the other sufficiently to prevent it from springing back (Fig 8.9). Then place the ring in the

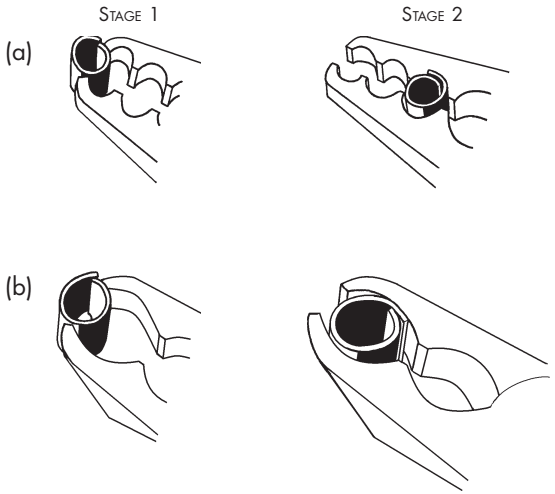

Fig 8.9 Overlapping a ring using (a) small pliers and (b) large pliers

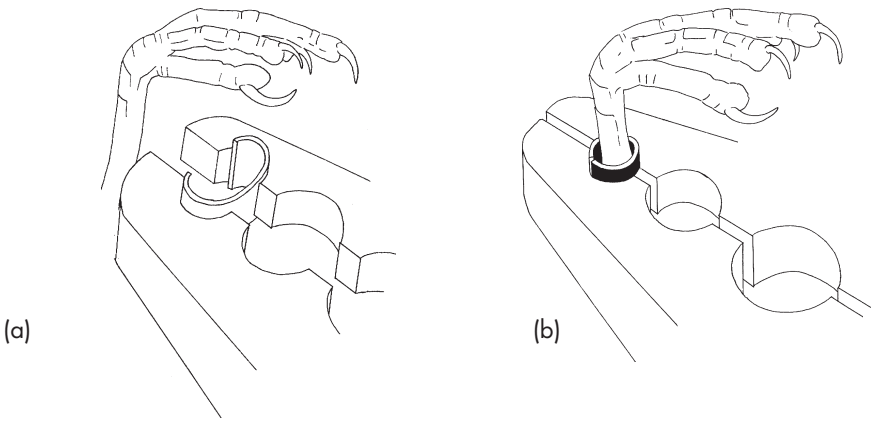

Fig 8.2 Using small pliers to (a) apply and (b) close a ring

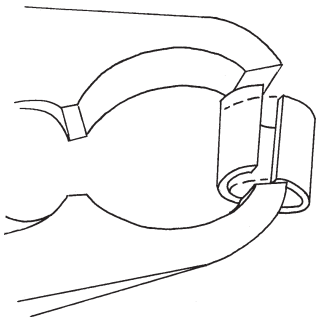

Fig 8.3 Correcting a slightly spiralled ring

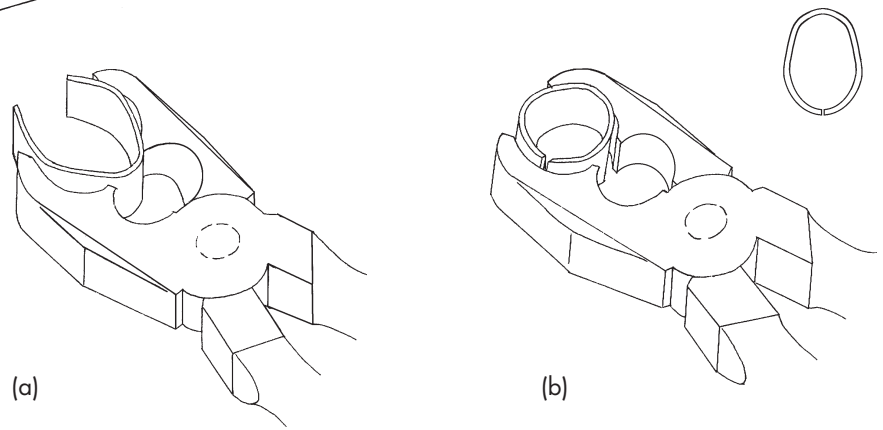

Fig 8.4 Using large pliers to (a) apply and (b) close a ring. Leg omitted for clarity.

Stage 2 The principle of this stage is common to most ring sizes. Place the ring in the correct hole in the pliers at 90° to the position used in stage 1 (Figs 8.2b & 8.4b). Turn the ring before closing to make sure that the hind claw is not caught in the joint. Squeeze the pliers to close the ring by forcing it back into a cylindrical shape, thus completing the butt joint. The degree of pressure on the pliers at this stage depends on the size and hardness of the ring. Rarely is brute force required to close a large ring; closure is straightforward provided that the correct leverage and fine adjustment are used. However, rings made of incoloy or stainless steel can be difficult to close successfully as the metal springs back to leave a gap between the two edges. Rings left with small gaps have an increased likelihood of becoming caught in man-made materials (especially at the nest site) and can become particularly entangled in a mist net if retrapped: this can lead to leg strain if the bird is only caught by the leg. Entanglement due to poorly-fitted rings can be a particular problem with species such as gulls which frequent landfill sites (rubbish tips). **All butt-fitting rings must be closed properly so that there is no gap**.

- In order to close the small gap, place the appropriate hole of the ringing pliers round the ring at 45° to the ring position used for stage 1 or 2 and squeeze the pliers carefully. This technique takes advantage of the fact that the holes in the closed ringing pliers are oval and not cylindrical, and by re-closing the ring at 45° to the stage 1 or stage 2 angle, the gap is closed as a result of adjusting the shape of the ring. However, great care is required as there is an increased chance of an unintentional overlap. With larger rings this may still be insufficient to close the ring properly. One or both of two techniques is recommended:

  – The 'flattening' method requires the nose of the pliers to be placed across the butt with the other end on the back of the ring (Fig 8.5a). Squeeze the pliers and as the ring flattens slightly, reducing the 'pointed' and irregular shape of the ring (Fig 8.5b) which is common in large and 'V' shaped rings, the small gap should close up (Fig 8.5c).

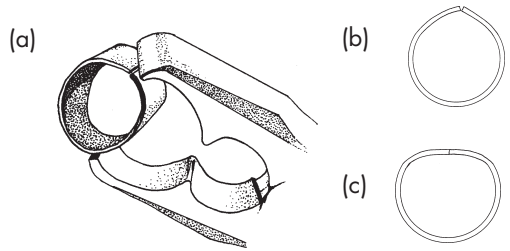

Fig 8.5 The flattening method of closing a ring

  – If a gap still persists, one edge of the ring can be 'dipped' slightly beneath the other using the tip of the pliers (Fig 8.6). Alternatively, place the ring in a ring hole at 45° to the stage 1 or stage 2 position as this helps push one end of the ring under the other in a more controlled manner as a result of the elliptical shape of the ring hole. After dipping one end of the ring under the other, allow the metal to spring back into place sufficiently to eliminate the small gap. It may be necessary to do the same with the other side of the ring until the ring is butted properly. This method is frequently used on F and G size rings which can be butted well with this technique. Because this method increases the risk of overlap, particularly with the larger H rings a pair of circlip pliers **must** be a standard part of equipment.

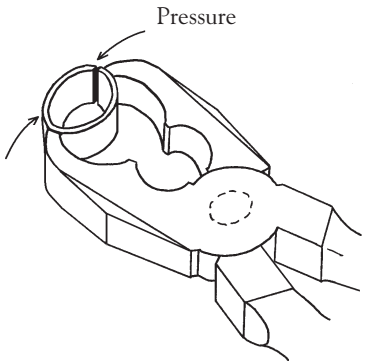

Fig 8.6 The dipping method of closing a ring

- L rings are particularly prone to springing back gradually once the bird has been released. To counteract this problem, the rings should be fitted with a **very small** 'overlap' (ca 0.5 mm).

Note: Fc rings are difficult to butt as they are made of rather thin metal. Fv rings were therefore introduced to replace them; these are made of thicker metal and are easier to butt. The Fc ring is retained for Little Grebe, Slavonian Grebe, Black-necked Grebe and Manx Shearwater as it is necessary to shape the ring elliptically for these species.

Ring sizes requiring special treatment

SO (Small Overlap) This ring has been specifically designed to be fitted as an overlap. The amount of overlap can be varied and is easily done due to the soft nature of the ring, but take care not to overtighten the ring. The ring is rolled on between finger and thumb and then closed further with the use of the 'C' hole of small pliers (and if necessary the 'A' or 'B' hole) so that the ring can rotate but cannot fall off or work over the joint. Any gaps occurring between the overlapping surfaces should be closed by either using the tips of the pliers to close the gaps together or using circlips to open the inside out. In Kingfishers, the difference in diameter between the tarsus and the 'ankle' joint is small, so great care must be taken to ensure that the ring cannot pass down over the foot.

Clip Rings All three types of pliers (Section 8.4.3) can be used to fit these rings. The first stage of closing is done with the fingers. The two flat surfaces of the clip are brought together and held in place. In the second stage, the large pliers are used to bend the clip (see Fig 8.7). The difficult part is holding the two ends of the 'springy' ring (and the bird) in place while the clip is bent round. Because of this there is a tendency for the clip not to bend sufficiently to meet the stud; readjustment after this can be very difficult, partly because the ring has lost its shape and will not lock into place over the stud (it is important to get it right first time). It may sometimes be easier to start to bend the clip round before the ring is actually fitted on the bird. Once the ring has been closed over the stud the final pressure must be applied on all sides of the stud for proper closure and to prevent the ring from opening. Finally make sure the ring is shaped correctly and can rotate freely on the leg.

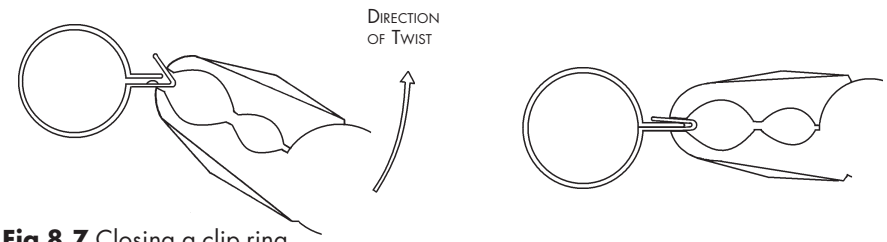

Fig 8.7 Closing a clip ring