



**AUSTRALIAN
BOWHUNTERS ASSOCIATION
LTD™**
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OUTDOOR RANGE SAFETY AND CONSTRUCTION

The following is a guide for Archery Ranges and not all points covered will be relevant to all Ranges due to differing terrains etc.

Safety is the overwhelming factor dictating range size. The actual shooting lane dimensions account for only a very small fraction of the total area requirement. Terrain is also quite important, especially in the layout of field ranges. Proper use of terrain can alleviate many safety concerns, particularly in providing natural backstops and buffers.

(a) The Field Archery Range

Developing a good field archery range always starts with a well thought out plan:

- (1) make a surveyor-type sketch of the property showing significant contours, creeks, etc. Better yet, use a large-scale topographical map.
- (ii) make a preliminary range layout on the topo sketch or map, considering all the safety criteria described below. [Be conservative!]
- (iii) Mark out the range with respect to:
 - (a) the target being staked.
 - (b) the previous target.
 - (c) the next target.
 - (d) have multiple members to set out range, some range safety concerns may not be evident unless members are standing at shooting markers and targets for next target etc.

This last step will provide some assurance that you can actually have a good and safe range before committing lots of labor and dollars.

The following guidelines should be used for laying out a field range:

1. If the target is not backstopped (either fabricated or earthen), one-half of the target distance could be cleared behind the butt if practical to do so.
2. A minimum clearance of 4.5 to 15 (safest) metres, depending on terrain and target distance, shall be provided between any path or shooting lane paralleling another shooting lane.
3. The distance on each side of the target butt shall be greater than the target

distance by the tangent of 15 degrees.

This means that no path, waiting area or shooting position should be closer than 4.5 metres to another shooting lane plus that lane's safety tangent.

4. The target lanes must be wide enough (where possible due to terrain) to support two archers shooting simultaneously side-by-side, and when setting the Lanes consideration must be made for different styles and Left and Righthand Archers. Refer to the National Rules, Page 15 rule 12 for more information on shooting position.
5. A safe waiting area must be provided behind the Shooting pegs.
6. Direction arrow signs and walk back signs will be used where required for safe direction.
7. Cub marker pegs to be on Level & Safe footing
8. For information on Target placement refer to the National rules page 14 Rule 11 for ABA and pages 29 on for the National 3d Rules.

The foregoing safety guidelines assume that an errant arrow will not cross the range boundary, unless a safety zone has been pre organized with the adjoining property owner.

As mentioned earlier, terrain has a significant influence on field archery range layout and size.

A reasonably shallow (and dry) gully or ravine can be a real asset to a field range. Shooting from bank-to-bank, back-and-forth, across the gully not only provides natural backstopping, but reduces area and shooting-time requirements.

Field ranges may often be laid out in 10/14 or 20/28 (dependent on round being used) target "loops," where all of the shots are outward, away from the center of the loop. This arrangement requires more land area because the center of the loop is not used, and because a large buffer area is needed around the perimeter. With judicious planning, however, the central core could contain a clubhouse and/or parking lot. In such a land plan, the range should be laid out such that Target 1 (and 15) entrance and Target 14 (and 28) exit are near the clubhouse or assembly area.

A Herringbone style range may also be used.

The Herringbone Range is shot off both sides of a central lane.

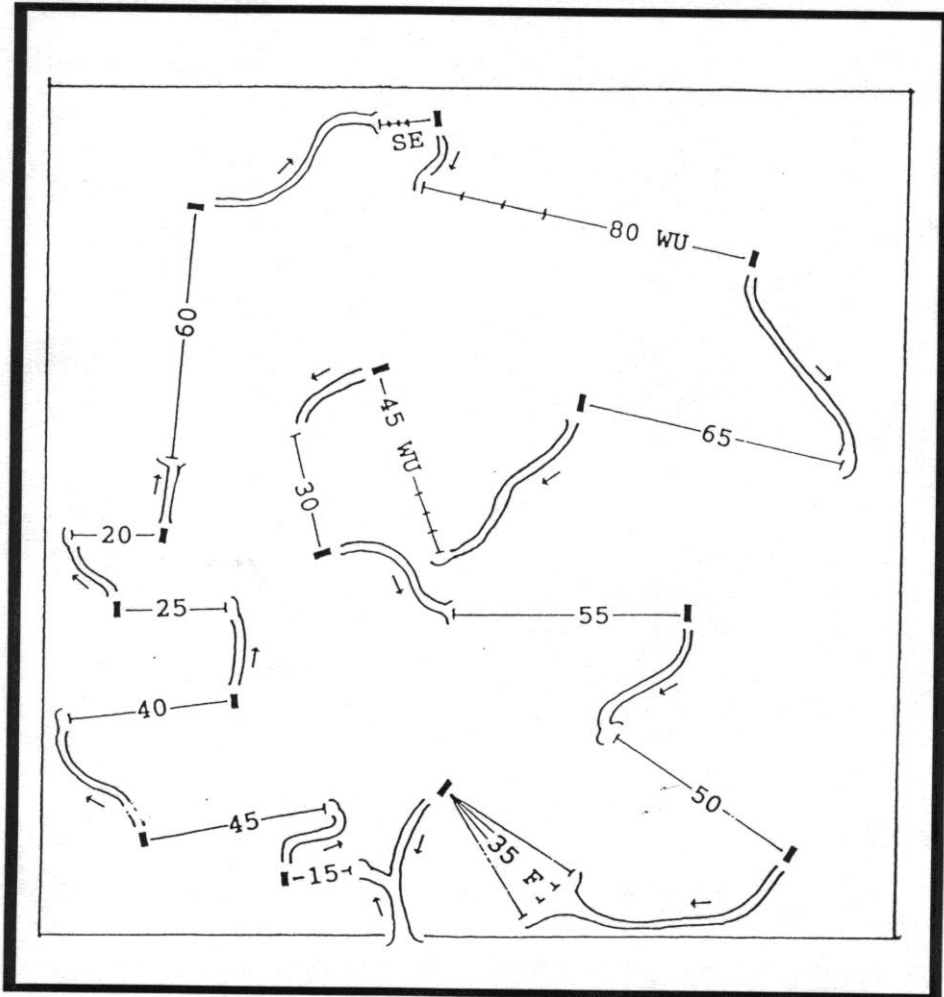
The Herringbone range uses less land as it is more compact.

Unlike Target or Indoor Archery, there are no stock blueprints for a Field Archery range. Each range is different. Much depends on the physical terrain which will dictate, to a large extent, the final outcome.

These guidelines wouldn't be complete, however, unless some sort of typical layouts are shown.

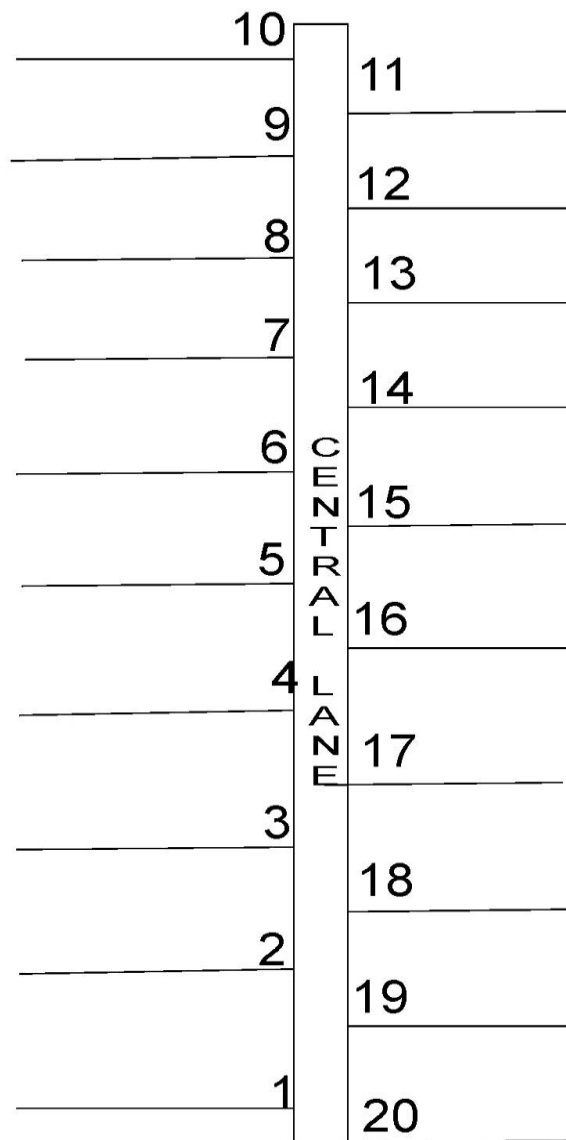
The following sketch shows such a layout for a 14 target unit, without clubhouse, parking lot or practice range, on nine acres, essentially flat and perfectly square (208 yards on each side)

A Typical 14 target Range layout, remembering that terrain is the major determinant factor of the end layout result



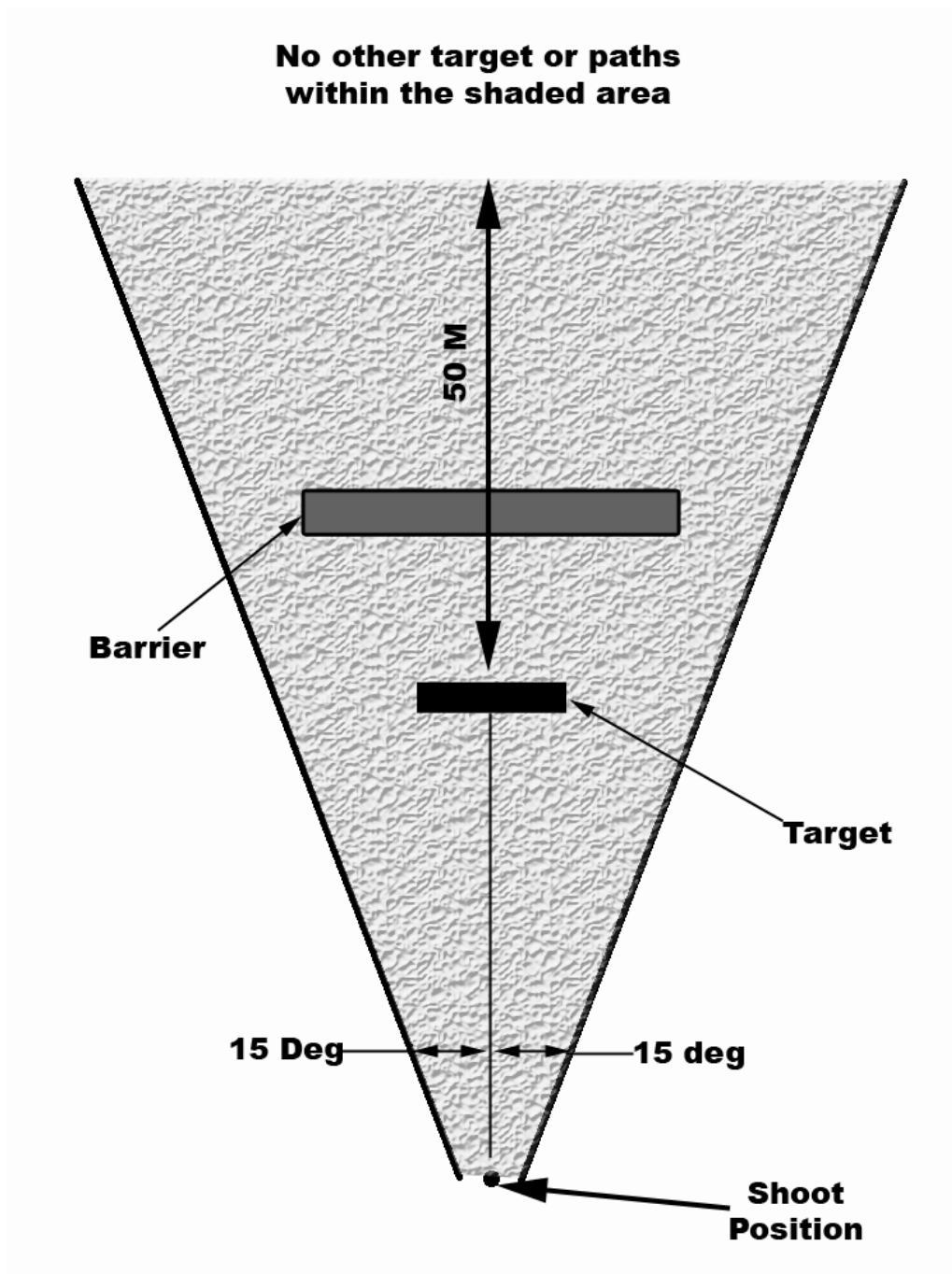
Continue the range lay-out concept shown here to provide for a 28 target range

A typical Herringbone style range diagram



Target Lane Parameters

In laying out the shooting range, neither targets, nor range paths shall be constructed in a direct line, plus 15 degrees left or right, of the arrow flight path of another target, or within 50 metres behind a target butt, including the extent of degree variance, except where the natural terrain, excluding flora, provides a natural barrier to other targets within those parameters. That layout may be exemplified by:



As an aid to the archer, where practical, the possible arrow flight path behind the target and to any barrier shall be chosen so as to be relatively free of thick or entangled shrubs etc., in order that overshot arrows may be more easily found. Range layout should also endeavor to reduce the incidence of damaged arrows through choice of terrain and extent of timber etc., behind the target.

Outdoor Target Butt and Backstop Construction

The minimum size requirements for field archery butts are based on the target faces being shot. Considering that the most common butt construction in use is the compressed bale of about 1.2m x 1.2m x 1m, most ABA targets can be adequately accommodated on the single bale, with 2 bales usually required for the larger target face series. Where double target faces are provided for a shooting position, double the number of bales will be required.

Although compressed "wool" cloth bales are becoming the most common target butt material, many other materials are available. For example, various kinds of wood-shaving bales are popular in some areas, and bales of compressed paper, cardboard, plastic, wool and cotton waste etc are also in use. Ordinary straw bales are not recommended because of poor durability, lack of density, and the mess they create.

Various sheet foam materials are also quite suitable for field archery butts. Foams have several advantages: (1) they're available in a variety of thicknesses and densities, (2) they can be cut to any size or shape, and (3) they're both weather-proof and vermin-proof. Unfortunately, some foams have great "grabbing power, making it difficult to extract the arrows, and costs will be an issue.

Back-stop Constructions

As mentioned earlier, in setting up your field range, targets should not be positioned so that an arrow, shot under normal conditions, can pass out of the Club grounds. Unless the Club has the required space, shooting lanes should not face towards a boundary or other activity area. Similarly, shooting lanes are not to be designed so that the target butt is placed on or near the crest of rising ground. The above specifications may be set aside where the terrain provides a natural barrier to arrow flight path, the club has an arrangement with the adjoining property owner, or where space limitations leave little alternative.

In such cases of land limitation, targets facing the boundary are to be the shortest shooting distance targets and as with all targets not having a natural backstop, the shooting lane is to be provided with a backstop.

The most common and cost effective constructed back-stop is the earth mound, where earth is pushed up to form a mound of at least 1.6m high, though the higher the better. The length of the mound should be made as long as possible. The distance between the target butt and earth mound, where practical, should be not less than 5m. Grass and other flora or vines should be encouraged to grow over the mound to camouflage the mound's presence and also to make the range more environmentally attractive.

A common back stop is carpet off-cuts, which can be hung in 2 layers. The first layer

when hit by the arrow will move with the impact with, in most cases, the arrow falling to the ground. In the occasional occurrence where the arrow passes through the first layer, the second layer, and reduced arrow velocity incurred through passing through the first layer, will stop the arrow. Carpet is also much more environmentally friendly than metal, though subject to weather conditions requiring regular monitoring and maintenance. The carpet is suspended over timber poles or wire, with layers set at 50cm apart. The height of the poles/wire should be at least 2.4 from the ground, with the carpet reaching the ground and loosely anchored to still allow the carpet to move under arrow impact. Again, the backstop should be camouflaged to blend in with terrain. Vines are again effective for that use.

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