

**PROCEEDINGS OF THE AUSTRALIAN RANGELAND SOCIETY  
BIENNIAL CONFERENCE**

**Official publication of The Australian Rangeland Society**

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The reference for this article should be in this general form;  
Author family name, initials (year). Title. *In*: Proceedings of the nth Australian Rangeland Society Biennial Conference. Pages. (Australian Rangeland Society: Australia).

For example:

Anderson, L., van Klinken, R. D., and Shepherd, D. (2008). Aerially surveying Mesquite (*Prosopis* spp.) in the Pilbara. *In*: 'A Climate of Change in the Rangelands. Proceedings of the 15<sup>th</sup> Australian Rangeland Society Biennial Conference'. (Ed. D. Orr) 4 pages. (Australian Rangeland Society: Australia).

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## SELF MUSTERING OF SHEEP

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### ABSTRACT

Self mustering of sheep by trapping on water is a management alternative which producers can use to reduce mustering costs, sheep stress and the amount of skilled labour required and to improve mustering efficiency. Self mustering requires control of stock waters, two-way spear trap gates and well planned and constructed facilities. The Bettini, Spring Hill and Charleville spear trap gates can be used in an effective sheep self mustering system.

### INTRODUCTION

Clean musters are a prerequisite for successful sheep husbandry. Mustering sheep from large or timbered paddocks by traditional means is inefficient, time consuming and expensive, requires skilled labour and stresses the sheep. Self mustering is an efficient, low cost alternative.

Self mustering by trapping on water has been used for many years. While the practice has not been widely adopted, recent developments for self mustering provide opportunities for producers to plan strategies applicable to their individual property. These developments make self mustering of sheep relevant to many producers in the semi-arid and arid rangelands of Australia.

### METHODS

Observations were made of self mustering of sheep by trapping on water at Croxdale Research Station and on commercial properties in the Charleville district of south-west Queensland. The paddocks were heavily timbered with mulga (*Acacia aneura*), cypress pine (*Callitris columellaris*), ironbark (*Eucalyptus melanophloia*) or poplar box (*Eucalyptus populnea*).

The paddocks were watered by a single point water, either a trough or a dam. Other watering points, if available, were either fenced to exclude livestock or if troughs, turned off and drained. Each water was securely fenced and trap gates installed. Another gate for ease of access to the water yard was also normally available. In most situations a holding paddock was adjacent to the water yard.

A mixture of sheep but mainly wethers or mixed sex weaners were used in the observations. To avoid losses, it was essential for the sheep to be trained to use the traps. The training period was normally of one to two weeks duration.

Three trap gates were evaluated. These were the Bettini (1), Charleville (2) and Spring Hill (3) designs. All are of the double swinging side spear gate type (4).

RESULTS

**Table 1.** Bettini sheep trap gate - trapping efficiency

Sheep class	Training (days)	Days after trap set and sheep trapped				Sheep into paddock	Comments
		2	3	4	6		
wethers	trained	191				188	3 strangers
weaners	12	127	127	196		200	4 killed by dogs
wethers	trained	nil	nil	40	187	192	heavy rain on day prior to trap set
wethers	trained	196				192	4 strangers, light rain day 1
wethers	not recorded	nil	nil	nil	nil	462	sheep not watering - abundant forbs
wethers	not recorded			462		462	

**Table 2.** Spring Hill spear trap - trapping efficiency

Sheep class	Training (days)	Days after trap set and sheep trapped				Sheep into paddock	Comments
		2	3	4	6		
wethers	not recorded		520			528	
wethers	not recorded			468		472	

**Table 3.** Charleville sheep trap gate - trapping efficiency

Sheep class	Training (days)	Days after trap set and sheep trapped					Sheep into paddock	Comments
		2	3	4	6	8		
weaners	16	12	99	193			196	rain day 1, 3 outside trap day 4
wethers	trained		413		420	448	454	trap set to day 16 and 4 mustered
wethers	trained	174	183				191	9 escaped day 2

## DISCUSSION

Early this month I gave a local grazer a hand to muster some wethers for crutching.

Two of the paddocks had traps on the waters. An easy ride out to the trap, let the sheep out and quietly move them to the yards - no worries, a pleasant few hours.

The other paddocks were mustered conventionally. Hours spent looking for the sheep, mad dashes to turn them, sticks flying, the bike doing its best to offload me and the occasional curse. I know what I prefer. How about you?

This excerpt from the editorial of the September 1988 edition of the 'Mulga Line', a QDPI newsletter for producers in south-west Queensland, highlights many of the benefits of self mustering.

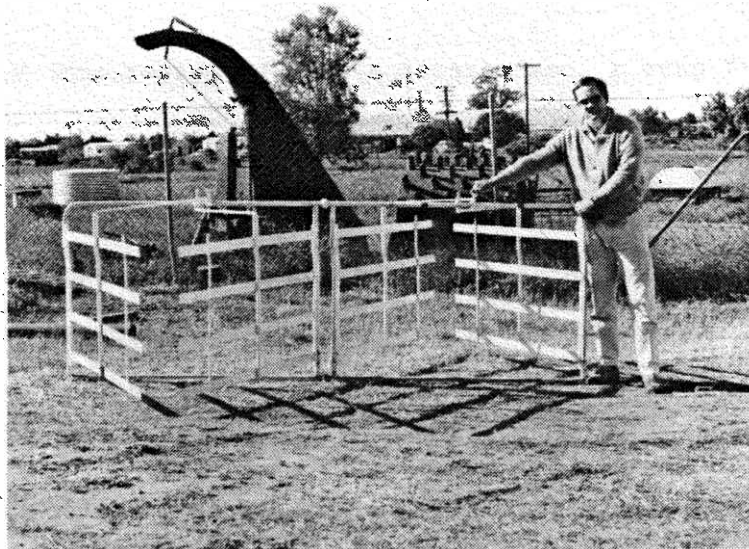
The high cost of traditional mustering and the lack of skilled labour has been identified as affecting the viability and profitability of the wool industry (5). The industry has responded by the adoption of new technologies (6) including the use of helicopters, aeroplanes and ultralights for spotting; motorbikes for improved ground mobility; radios for improved communication and portable yards and laneways for ease of handling. Self mustering of sheep by trapping on water is an alternative that producers can use to improve the efficiency and to reduce the cost of mustering. Sheep traps have been available for many years (7) but self mustering has not previously been widely adopted.

Effective self mustering requires control of stock waters, two-way permanently set spear trap gates and well made facilities (8) (9). Stock water control is the key. All waters including small, nuisance waters should be controlled by fencing. Following rainfall, temporary surface waters can reduce the efficiency of the system. However, the provision of additional lures such as supplements or salt licks at the permanent water can assist in overcoming this problem (8).

Access to the water by sheep is only gained through the spears. To muster the sheep, the exit spear trap gate is closed. However, some producers prefer to have another gate, in close association with the spear trap gates, through which the sheep enter and leave the water yard for most of the year (10). Before mustering this gate is closed and the sheep are required to use the spear trap gates which initially are opened wide. When the sheep are to be mustered the entry spear trap gate is narrowed and the exit spear trap gate closed.

Many different types of spear trap gates are available (4). The characteristics of a desirable spear trap gate have been defined as a simple design and construction, strength, ease of adjustment, walk in - walk out and the option of portability (9). Our observations would suggest that durability, ability to use with sheep, goats and cattle and safety are also desirable characteristics.

While the Bettini spear trap gate is too low and not strong enough to use with cattle, it has been readily used by both sheep and goats. Mustering efficiencies of 100% in two days have been reported from Western Australia between November and April (9). In our observations mustering efficiencies varied from 0 to 100% (Table 1). When alternative surface waters or abundant forbs with a high moisture content were available, mustering efficiency was lowered. However, in most observations all sheep were mustered within four days of the commencement of trapping with the majority of these in the first two days. Maximum flow rates through the Bettini of 65 to 70 sheep per minute have been recorded (11).



Photograph 1. Bettini sheep trap gate - current model demonstrated by senior author.

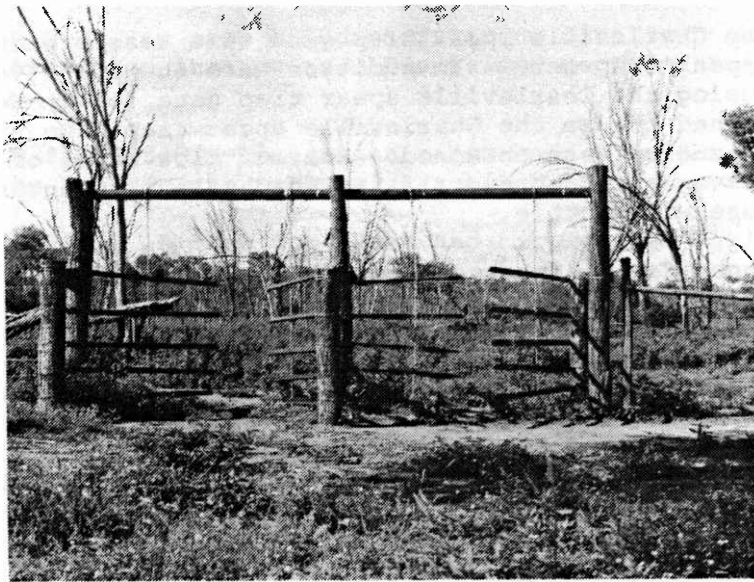
The Bettini Mark 2 as described in (1) has been modified as a result of our observations. A recent model of the Bettini sheep trap gate is illustrated (Photograph 1). These modifications were required to make the spear trap gate lighter, more durable and portable and to improve the ease of adjustment of the spears. The end pivot has been replaced with two 5 cm collars (25 mm galvanised pipe) to which an 80 cm length of angle iron (25 mm x 3 mm) is welded. The spears are mounted on this angle iron. The two central spears have been strengthened with a 25 cm length of mild steel rod, at the terminal end of the spear, to prevent bending. The slide adjustment has been replaced with a 4 cm section of galvanised pipe (25 mm), to which a 12 mm nut has been welded over a hole cut in the pipe section. A 12 mm bolt, 50 mm in length, is threaded through this nut and when tightened by hand, the spears are locked in position. To the top of the bolt a 6 cm length of light rod (we used a piece of weldmesh) is welded.

The outside galvanised pipe frame, originally 25 mm, has been reduced in gauge to 19 mm to further reduce the weight. To improve portability, the two halves of the Bettini sheep trap gate have been split and joined using a 19 mm barrel union. Spacings between spears of 18 cm have been used, with the bottom spear 10 cm from the outside frame.

The Spring Hill spear trap is illustrated (Photograph 2). This design was developed by Mr Andrew Drysdale 'Spring Hill' Charleville. In 1985, despite careful mustering by two men on motorbikes approximately 500 of 6,000 sheep were missed. Similar mustering efficiencies are common in large paddocks heavily timbered with mulga, if aerial spotting is not undertaken (12).

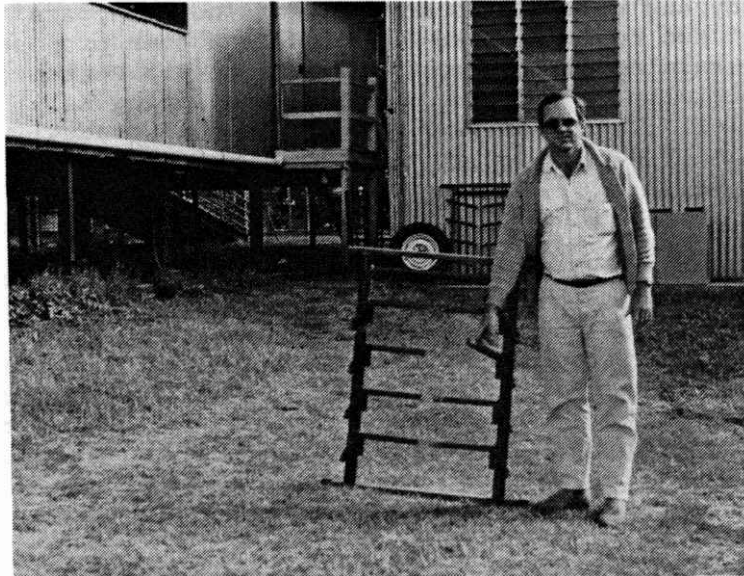
As a result, Spring Hill spear traps were constructed in three paddocks. At a subsequent muster, in October of the same year, all sheep in these paddocks were mustered either inside or at the entrance to the traps. Since that time, similar mustering efficiencies have been obtained (10).

The Spring Hill spear trap is not portable but is suitable for use with sheep (Table 2), goats and cattle. Horses have also successfully used this spear trap (13). The Spring Hill design as described in (3) has been modified as a result of our observations. These modifications were required to decrease the material and labour required in assembly and to improve the safety.



Photograph 2. Spring Hill sheep trap - Croxdale Research Station.

The original spears consisted of two steel fencing pickets welded lengthwise to form a three metre spear have been replaced with a single steel fence picket, 2.4 m in length. The overhead rail assembly from which the spears are suspended has been simplified to eliminate the corners behind the spears in which sheep may get caught. Five spears are used either side of each spear assembly with 14 cm from the ground to the bottom spear then 14, 17, 21 and 31 cm between subsequent spears. At ground level in each gateway a 2 m rail is laid to prevent the erosion of deep pads through the spear trap.



Photograph 3. Charleville sheep trap gate - current model demonstrated by senior author.

The Charleville spear trap gate is illustrated (Photograph 3). This trap gate, based on an original design (2) developed by Mr Don Ziesemer 'Dungowan' Morven (14), has been extensively modified as a consequence of our observations. The modified design is wider than the original, the spear mounts are more durable and the spear trap gate more readily accepted by sheep. The width of the spear trap gate has been extended to 58 cm which required the spears to be lengthened to 30 cm. The spear mounts have been changed to be similar to the Hirst short arm spear gate for cattle (8).

Early models of the Charleville spear trap gate were less preferred by sheep than the Bettini spear trap gate. In addition more sheep (8% vs 3%) hesitated before using the Charleville spear trap gate (11). However, once the sheep were trained to use the Charleville spear trap gate similar (Table 3) mustering efficiencies were obtained. Maximum flow rates of 30 to 35 sheep per minute have been recorded (11). The Charleville spear trap gate is not suitable for use with cattle.

Well made and planned facilities are required to successfully use a system of self mustering. Each trap should consist of a small water yard with an associated fenced off holding paddock. When mustering, the gate from the water yard into the holding paddock is opened. The sheep thus have access to feed, water and shade and as a consequence the stress of mustering is minimal. The size of the holding paddock is determined by the number of sheep watering, the number of times the sheep are to be mustered each year and the normal length of time between the commencement of trapping and the removal of the sheep.

Good fencing is required. Fences with six plain wires and post spacings of 10 m with three droppers have been reported as adequate in most situations (9). However, light gauge weldmesh may be required if considerable numbers of goats are to be trapped (9). In our observations, ringlock fences were successfully used with both sheep and goats. The trap gate should be placed so that sheep have a clear view of the water (11). Thus, the direction that the sheep normally come in from the paddock should be considered.

To further increase efficiency, strategically located laneways and portable yards are of immense value to a self mustering system (9).

With any of the spear trap gate designs, training is required to maximise mustering efficiency and to minimise any risk of 'non-trappers' perishing. Training periods of two to four weeks duration have been proposed (9). In our observations, training periods were only one to two weeks. The spear trap gates were initially opened wide (Bettini and Spring Hill) or the spears removed (Charleville). The spear trap gates were then gradually narrowed or the spears sequentially attached.

#### ACKNOWLEDGMENTS

The assistance provided by Mr Darryl Horrocks, Mr Ken Rundle, Mr Des Mallet and Mr Terry Maiden in the construction and modification of the spear trap gates and in the conduct of these observations is acknowledged. The producers who have freely provided of their experiences, observations and opinions are also gratefully acknowledged and, in particular, Mr Andrew Drysdale and Mr Don Ziesemer. Financial assistance for this work was provided by the Australian Wool Corporation under the direction of the Wool Research and Development Council.

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- (12) Adcock, D. (pers comm)
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- (14) Ziesemer, D. (pers comm).