GAP
Grazing Animals Project

Gathering, Handling and Transporting Stock

Gathering, handling and transporting livestock safely and efficiently are all important aspects of good animal management.

The objective is to complete these tasks in a calm, quiet, stress-free manner with minimal risk to both people and animals.

Careful planning and preparation are crucial in order to minimise potential problems.

Conservation graziers often face additional difficulties compared to those who work in a more typical farm setting e.g.

- The animals may only be infrequently handled and/or are unused to being held in confined spaces.
- The site terrain/vegetation can be challenging.
- There may be significant issues that restrict the handling system design.
- Site access can be difficult.
- Site managers and volunteers may be inexperienced working with stock and lack 'stock-sense'.
- The general public wandering by.

This leaflet provides some general principles and suggestions, Its contents are

- Safety awareness and risk assessments.
- Advance Preparations.
  - » Train your staff.
  - » Prepare the site.
  - » Fences and Gates.
  - » Choosing stock.
  - » Training stock.
- Understanding animal behaviour.
- Using body language to move stock.
  - » Low stress handling techniques.
- Preparations on the day.
- Gathering Stock.
- Handling facilities.
  - » General principles when designing facilities.
  - » Checking your design layout.
  - » Working stock in handling systems.
- Working with sheep
- At the end of the handling session.
- Transporting stock.
- Handling system designs.
  - » Cattle handling systems.
  - » Sheep handling systems.
  - » Equine handling systems.

The GAP webpages have a number of additional resources to help with other aspects of conservation grazing including grazing on public sites and animal health and welfare.

Figure 1. Highland cow calmly leaving a trailer. Note how the handler stands back slightly and looks away so as not to exert undue pressure on her.

Pen Rashbass

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Written, Designed and Illustrated by Pen Rashbass

Box 1. Ameliorating Risk

Risk	Comments
General	Make sure that staff and the general public are not put at risk–older people may be less nimble and children less able to appreciate the risks • Anyone working with stock must be well briefed, appropriately trained and experienced both in handling and safety issues • Have first aid equipment close at hand and make sure everyone knows the emergency plan in case of an accident • Know your site • Ensure that you have the right equipment to do the job efficiently and safely • Wear appropriate protective clothing • Understand animal behaviour • Stay calm and try to keep your livestock calm • Know your animals–both individual temperaments and your herd/flock dynamics • Make sure there are at least 2 people present if you have to separate one animal from the herd • Provide facilities for cleaning hands and equipment following any animal contact to reduce the risk of zoonotic disease transmission • Consider culling any animal that is regularly aggressive or difficult to handle.
Gathering	Prepare your route in advance–consider your pinch points and which gates should be opened/closed in advance • Work out where stock are likely to break away (e.g. open gateways, drawn to other stock along your route, if spooked by public, dogs or vehicles) • You must do all you can to prevent injury to others, especially when livestock are being driven on public access land.
Working in confined spaces	Plan an escape route for stock handlers • Design stock pens to include these • Keep handling pens tidy and well maintained • Be very careful when handling large stock (cattle, ponies etc.) in confined spaces • Make sure all hurdles and gates are well secured and will not fall if a person needs to climb up/over one • Do not get arms, legs or head trapped between an animal and solid structures.
Working through a race/crush	Never get in the race with large cattle or semi-feral equines • Don't put your arms, head or legs through the race walls • Work with at least one other person if you can • Pack the race firmly to stop cattle or equines moving back and forth.
Giving veterinary treatments	Anyone doing any veterinary procedure (including administrating medication) must be properly trained • Maintain all equipment and ensure it is working properly before you start • Everyone must wear suitable protective equipment–remember that aerosols from sprays and pour-on treatments can spread in the wind and could contaminate helpers standing downwind • Make sure the animal is properly restrained.
Loading/ Unloading a trailer	Make sure you don't get trapped inside a trailer with large stock • Ensure there is a suitable loading ramp with a non-slip surface • Take due care closing the ramp gates–most accidents occur as the gates are being closed and large livestock kick-back or push-back on top of the handler • Ramp side panels will deter escapes • Stand to the side when lifting the ramp and seek assistance where ever possible to avoid back injury • Stock may want to exit a trailer quickly once they become aware that release is imminent–when the ramp is lowered to unload, step well to the side in case a stampede occurs • Be patient and don't rush the stock to leave the trailer.
Cows with calves	Always make sure there are at least 2 people present if you need to work with a young calf (e.g. to eartag it) • The 2nd person should dissuade other animals or the dam from approaching too close to the task • S/he should focus on the other stock and give a warning when to take avoiding action, e.g. entering the vehicle • Do not get between a calf and its mother without a barrier or other protection, especially when treating the navel or ear-tagging a newborn • If you have to catch a calf, keep it between you and the mother. Alternatively work in a place where you can position a fence or vehicle between you and the cow • Avoid lifting calves if possible. If you have to lift a calf, use your legs and keep your back as straight as possible. Once a youngster is lifted off the ground, the mother may panic because she thinks her offspring has vanished (she can no longer compute that the youngster is hers when it is in this unusual position)–putting the youngster down may instantly calm the mother.
Moving Bulls	Bulls are more likely to be amenable if they have learnt from an early age to associate people with pleasant things e.g. feeding and exercise • Don't try to move a dangerous bull on foot or on its own–get someone to help and or use a vehicle. Alternatively bring the bull along with a group of steers or cows to help keep it calm.
Semi-feral equines	When pressurised and especially when in confined spaces, semi-feral equines may kick, bite, rear or buck • Enlist the help of experienced handlers and/or use handled ponies or head-collar trained animals to gain experience.

Safety awareness and risk assessments

Livestock can be dangerous. It is impossible to make horse or cattle handling completely safe. There is always a risk of injury from crushing, kicking or butting – even the tamest animal can be unexpectedly spooked.

It is important that everyone working with stock is aware of the hazards and that precautions are put in place to ameliorate the risks involved (see Box 1).

Proper handling systems, trained and competent staff plus a rigorous culling policy (to remove 'difficult' animals) can help ensure that stock handling can be carried out in relative safety. However, even when all precautions are taken, accidents may still happen.

A full risk assessment of working with stock on each site should be completed. Consider all potential hazards to

The staff.

- The general public.
- The livestock.
- Check the HSE and GAP websites for additional advice.

The risks can be greater if

- The animals are only infrequently handled.
- Females have newborns at foot.
- An animal (e.g. bull/stallion) is on its own.
- It is the mating season.
- Particular tasks are being performed e.g. veterinary procedures.
- The livestock are agitated.
- The handlers are inexperienced and lack stock-sense.
- There is inadequate equipment e.g. unsecured gates when loading stock onto a trailer or a poorly-maintained yoke on a crush that subsequently gives way.

» Attempting to carry out stock tasks on unrestrained large animals e.g. cattle and equines with makeshift equipment is particularly hazardous.

» You should never underestimate the risk from cattle and semi-feral equines, even with good precautions in place.

Semi-feral equines behave differently from other livestock – as well as kicking and biting when confined they may rear or buck. If you are not experienced in handling semi-feral ponies you should enlist the help of someone who is.

» You may wish to use handled ponies or head-collar trained animals to gain experience before considering semi-feral equines.

Smaller livestock (e.g. sheep, goats and pigs) can also produce significant injuries e.g. knee injuries from being butted or back injuries from lifting.

Familiarity with individual animals can lead to complacency, especially when handling bulls. A number of accidents, some fatal, happen every year because stock people fail to treat stock with respect.

Hand-reared orphaned bulls and rams can be dangerous because they have no fear of humans and also may not realise that they are cattle/sheep. Remember, a playful bull can kill you just as easily as an angry one. Similarly a normally placid cow can become very aggressive if she believes that her newborn calf is being threatened.

It is not illegal for a single person to work alone with stock. However, although individuals may work carefully around animals most of the time, they can still be injured because of haste, impatience, anger or just because their mind is pre-occupied with something else. It is during these moments that a handler really needs to understand animal behaviour and learn ways to reduce risk by using some simple livestock handling techniques.

Emergency Plans

An emergency plan is vital. It should include

- Easy access to a suitable and well-stocked first-aid kit.
- At least one person on the holding being trained in first-aid.
- Emergency numbers and correct addresses. These must be easy to find.
- A planned route to the nearest hospital with an emergency department.
- Everyone knowing what the plan is.
- Regular reviews, especially after an incident.

Advance preparations

Train your staff

Some work with larger stock will need two or more people – always assess the need for help before beginning the task.

Everyone handling stock should be

- Aware of the dangers when handling stock and be supervised until they are competent.
- Able to work calmly and quietly with stock with a minimum of shouting, impatience or unnecessary force (Figure 2).
- In good health, nimble and properly trained in safe working methods.
- Able to use the equipment provided in a safe manner.

Invest in some training to improve your staff's skills. Examples could include

- GAP run 2-day Conservation Grazing in Practice courses that include some practical exercises.
- Contact your nearest agricultural college to see if they run stock husbandry courses.
- Arrange to visit other experienced conservation graziers.
- If possible spend time working alongside an experienced stock-person or shepherd.
- Renowned livestock behavioural experts e.g. Temple Grandin, Bud Williams and Curt Pate have websites, videos and books – all which are strongly recommended for anyone involved with stock.
- Viewing on-line videos. However, make sure that these are by reputable and experienced handlers/organisations e.g. New South Wales Dept. of Education.
- Consider employing an experienced contract shepherd or stock-person to help gather stock and/or carry out stock husbandry. Their skills can be invaluable in gathering animals calmly and preventing accidents to both stock or people. They can be especially useful if they are familiar with the challenges and/or have a trained dog who is used to working with 'flighty' animals on a variety of different terrains (Figure 3 and Box 6).

Figure 2. A relaxed experienced stockman checking inquisitive, yet calm Highland cattle.

Pen Rashbass

Figure 3. A well-trained, experienced sheepdog stopping some flighty Soays from breaking away from a flock.

Pen Rashbass

Prepare the site

Initial planning should happen well in advance of introducing stock to the site

Undertake a site assessment before animals arrive on the site. This should be done by the registered stock keeper, reserves manager and/or any other competent member of staff.

The grazing system and its infrastructure (fences, gates and handling systems) should be planed with animal health, welfare and management in mind – it should not be based solely on the ecological requirements of the site.

If you don't have appropriate knowledge, seek advice from an experienced stockperson, another conservation grazier, an organisation with experience in managing stock in a similar situation or the Nibblers discussion forum. Advice can also be found in the GAP leaflet on Grazing Stock on Sites with Public Access.

Consider

- What ground/vegetation management is required prior to animals being brought on site e.g. bracken control.
- Access – especially, whether it possible to tow a trailer onto the site in adverse weather conditions such as snow, flooding or if the ground becomes too boggy etc.
  - » If access may become an issue, monitor the weather forecast and consider removing the stock from the site before bad weather sets in.
- The terrain including any water features (streams, rivers and ditches).
  - » How the stock may use the site to meet their needs i.e. how they forage, find water, shelter, resting areas etc.
    - > If stock are already on site, monitor their daily, seasonal and yearly ranging behaviour – on large sites, GPS tracking collars can be useful for this (Figure 13).
    - > For advice on shelter see GAP leaflet on Animal Health and Welfare
- The water supply to meet the stock's requirements. (see GAP leaflet on Water requirements for livestock).
- Vegetation – its type and spatial cover.
  - » In general, stock are more 'biddable' when they are visible and on open landscapes. In contrast, when animals are in dense vegetation, they can quickly become quite 'wild'.
  - » Stock may use dense vegetation to hide and escape during a gather.
    - > As you get to know how stock behave during a gather, you can place people or use temporary fencing to block any escape routes.

Plan how you can diminish the potential risk to and from the general public. For example

- Avoid siting access gates/handling systems in locations which may interfere with public use.
- Avoid pinch points/dead ends where stock can come in to contact with members of the public.
- Consider how you will manage dog walkers, site security plus deter nuisance activities.

Ideally, every site that has large livestock (cattle and pones) grazing should have proper handling facilities. These should be well-maintained and in good working order.

- Tips on designing handling systems are covered later in this leaflet.

If appropriate, sensibly subdivide larger sites into smaller 'paddocks'.

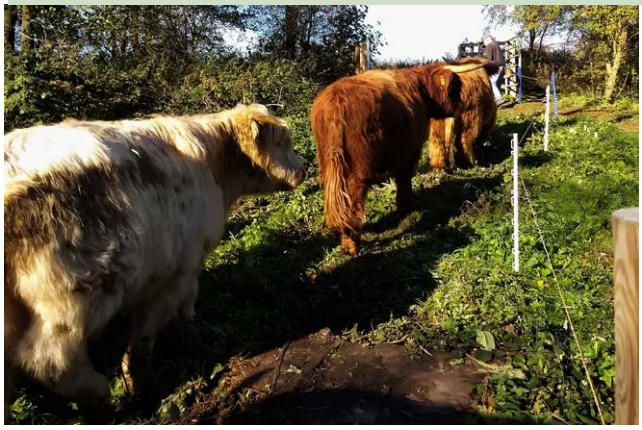
- Zoning your grazing areas can help
  - » Optimise your grazing management across the site.
  - » Integrate livestock with other public uses e.g. dog-walkers, horse riding, picnicking, children play areas and sensitive conservation areas.
- Plan your grazing, so that once stock have finished grazing a paddock, they are moved into an adjacent one.
  - » The final paddock grazed before stock are removed from the site should be the one closest to the handling system.
  - » Ensure that each paddock has shelter and sufficient water to meet the animals' needs.
- Design the grazing system so that if animals escape they will still be contained within another fenced area.

Fences and gates

Plan your fences and gates carefully.

- They often require a sizeable financial investment. Ensure that all fences are
  - » Fit for purpose.
  - » Appropriate for the stock.
  - » In good condition to keep the animals contained without risk of injury.
- Their arrangement and location can significantly effect your ability to work efficiently with your stock.
  - » Poorly placed or badly maintained fences/gates can completely wreck a gather, especially when working with semi-feral animals.
  - » Position fences and gates in relation to the topography and vegetation cover so that they can help guide animals and funnel them towards gates and handling areas.
  - » If you have paddocks on opposite sides of a road or path, place gates opposite each other so that livestock can walk directly across.
  - » Gates should be sited so that the stock can easily see the entrance as they approach. Alternatively, the stock can be trained so that they know the gates are there or a temporary fenceline can be used as a guide during a gather (Figure 4).
  - » Carefully consider which direction the gates will open i.e. where you will place the hinges.
- You need to consider what impact the fences/gates may have on wildlife and on the public.

Figure 4. Using a temporary fenceline as a funnel with trained stock makes it easier to guide stock towards a handling pen.



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Most traditional fences act by providing both a visual and physical barrier. More recent 'invisible' fences uses animal psychology where the stock learns to associate a particular sound/ location with the presence of the fenceline (see Box 2).

Fences can be permanent or temporary.

- Permanent fences should be well constructed and made from good materials so that they last for many years with minimal repairs.
- Temporary fences need not be so sturdy and can be made from less expensive materials.

Electric fencelines can be incorporated into a permanent fencing system or else used as temporary fencing.

- It helps to train stock to respect an electric fence (Figure 7).
  - » A single line of 3-braid polywire is usually sufficient to hold adult cattle, sheep may require 3 lines of 9-braid polywire.
  - » See page 16 for how to use a temporary electric fenceline during a gather.
- The battery can be trickle-charged with a solar panel plus charge controller (to prevent the battery from over-charging)
- If theft may be an issue, then a robust metal housing box can be electrified to act as a deterrent (however these cannot always be used if the battery is being solar charged).
- Long vegetation can be a problem and it may be necessary to strim regularly under the line.

Box 2. Invisible and virtual fencing

- **Invisible fence systems.** Similar to those used for pets. A transmitter cable is either buried or laid on the ground. The livestock wear a collar which picks up the signal. It then produces an audible warning as the animal approaches. If the animal continues to approach the cable, it receives a mild electric shock. The animals quickly learn the layout of their enclosure and rarely enter the 'live' zone.
- **Virtual fence systems** are currently being trialled by a few companies. The animal wears a GPS collar and the pasture boundaries are set using a phone app. See GAP resources webpage for links.

Choosing stock

There are several different considerations that you need to make when choosing stock. For further information see Box 3 and the GAP leaflet on Purchasing stock/Finding a grazier.

The individual animal's temperament should be an important part of this decision e.g.

- Individuals with high innate levels of fear will often stand watchfully at the back of the herd/flock when you feed or approach them.
- Highly-strung animals often are highly sensitive.

Both these types can be the first to flee. This reaction will usually provoke the others in the herd/flock to run with her. Animals with these traits can be difficult to handle and may be difficult to train. If an animal proves to be a repeated problem, then s/he should be removed from the herd/flock.

Figure 5. Trained, confident, greedy stock will readily come to a feed bucket while more cautious animals hang back. The confident animal will encourage others to follow the handler, but the timid animals are more likely to flee if spooked.

Ruth Dalton

Box 3. Choosing stock

When determining the best 'type' of animal, for your site, you should consider

- Species. Different species have
  - »Different grazing characteristics (see The Breed Profiles Handbook for more information).
  - »Varying levels of ability to cope with hazards (e.g. cattle are less likely to be worried by dogs).
- Breed. Different breeds have different levels of hardiness.
  - »Native breeds often cope better
    - >On unimproved habitats (have natural adaptations and thrive on rougher, lower nutrient forage).
    - >In poor weather conditions.
- Age and sex.
  - »Young, pregnant or lactating animals have more demanding nutritional and husbandry requirements than older or non-breeding animals.
  - »Young heifers or steers may be more boisterous and inquisitive than older animals.
  - »Old animals can loose their teeth and may not cope in some habitats.
- Previous experience. This can also affect how willing an animal is to browse diverse vegetation. Factors include
  - »If raised on pasture or high concentrate diet.
  - »If reared on improved or unimproved land.
  - »What they have learnt from their mother, social groups and general experience.
  - »Whether they have previously grazed the site at a similar time of year.
- Conformation.
  - »Animals with structural deformities (e.g. undershot or overshot jaw) may not cope with tough or woody vegetation.
  - »Animals with poor foot conformation may be prone to lameness.
  - »Fast-growing hooves are an inherited trait in some cattle and ponies–try to avoid purchasing these
- Health status.
  - »Animals with a chronic underlying illness (e.g. Johnes Disease, Maedi-Visna, BVD) or high parasite burden or recurrent lameness etc. will struggle to maintain condition especially when grazing on poor forage.
- Temperament (see main text).
- Infrastructure requirements. For example different species require
  - »Different handling systems and amount of handling e.g. Cattle may require regular Tb testing.
  - »Different fencing to keep them secure e.g. adult cattle may be held by a single wire (e.g. barbed or electric) while sheep need 3 or more wires or stock fencing.
  - »Different water requirements

It is possible to carry out 'temperament assessments' on your animals and give them a score depending on how they behave. The criteria you use will probably vary depending on the species and type of site your stock graze, but could include.

- How they behave with people, dogs, bicycles and other vehicles.
- How agitated they become as they approach/are in a corral, crush or trailer.
- How willing they are to approach a handler to eat food.
- It is advisable to repeat the evaluation on several occasions as this will give you a more accurate assessment of each individual's temperament. For example, it is possible that a usually placid animal becomes agitated on a single episode because of the animal next to it. It can be useful to keep video records of these evaluations.

If an individual animal is a problem, it should be removed from the site

Training your stock

Every animal will respond differently to a new situation depending on their underlying individual temperament plus their previous experience/inexperience with a similar setup.

Stock have good memories. Research has shown that they can remember individual humans, other animals and different locations for several years. Furthermore, they retain specific 'fear memories' when something bad happens to them. Careless handling, abuse or a serious accident can have a negative consequence for the rest of an animal's life. Therefore, make every effort to ensure that the first few experiences are stress-free.

Animals learn from every experience and interaction. This includes

- How their mother responds to a situation.
- How other members of the flock/herd behave.
- You, your staff and volunteers.
- Members of the general public and their dogs.
- Specific locations or events.

Spend time training your stock. In the long term, it will save you considerable time and effort. It will also decrease the risk of injury to animals, staff and the public

The daily stock check is an ideal time to do some 'informal' training. Just stand quietly near your stock without actually doing anything. This will let them get comfortable being in your presence.

Use these times to observe your animals' behaviour and learn individual temperaments as well as the herd dynamics. Observing livestock and attention to details are essential skills for a stockperson.

- Repeated, quiet handling can, over time, reduce an animal's fear of humans and reduce the alarm response.
- In general, if older members of the herd/flock are calm in your presence, then their offspring will also be.
- If youngstock come up to investigate, let them, as long as their dam does not get too anxious.
- In general, livestock are inquisitive– if stock are given their own time and space to investigate plus do not feel pressurised, they will be more willing to explore and accept something e.g. humans, entering a trailer or handling pen.

You may find it sufficient to train just a single calm leader animal to follow food and/or come to your call. The other animals will follow the leader at a walk and this will decrease excited running. As you work with your stock, it usually becomes apparent who the lead animal is.

More 'formal' training can be done at weaning to reinforce what you started while the youngstock were still with their dams.

If you make a youngster's initial experiences with people calm and quiet, then it will feel safe around humans and this will make it easier to handle as it grows up.

It can also help to keep your recently weaned animals with a well-behaved, calm older adult – she will act as a reassuring 'mentor' for them.

Using food to train stock

Stock will start to loiter around a supplementary feeding point especially if grazing is in short supply and/or they are fed every day at the same time and place.

Feeding animals in the handling area for a week before gathering will usually ease capture. This often works with both trained and untrained animals (in arid places or drought conditions, watering points can be used in a similar fashion).

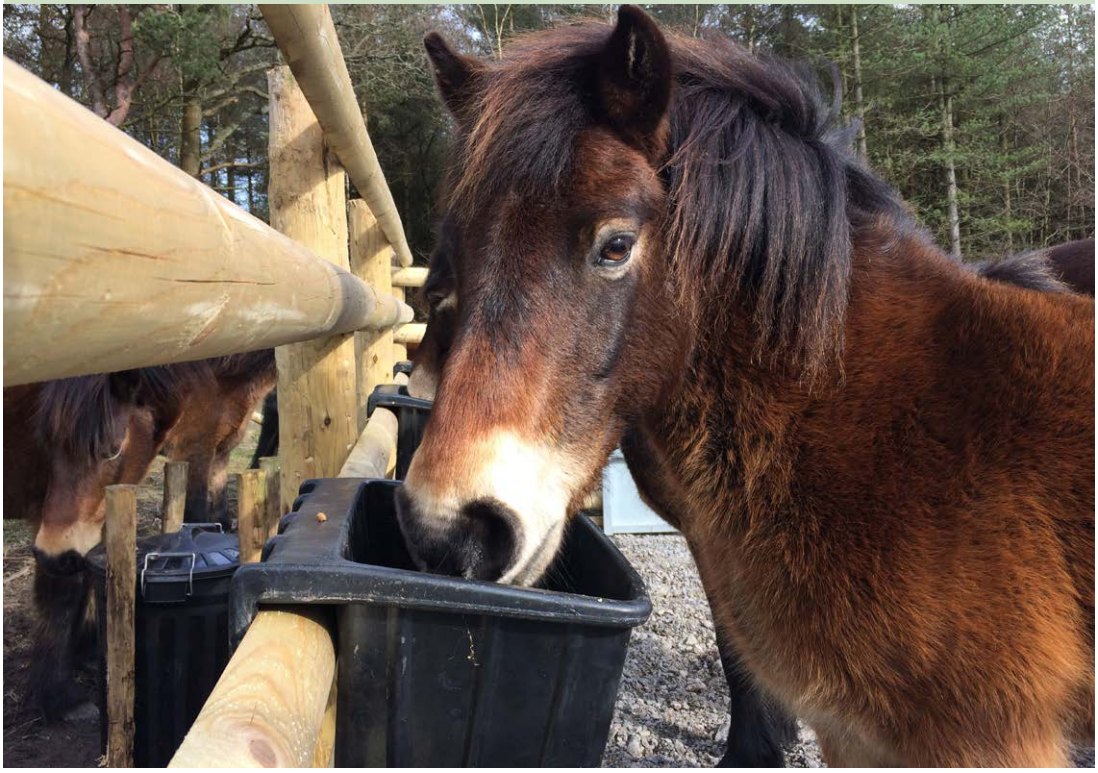
Animals learn to come quickly when food is offered. However, in their excitement, they may run at the person with the feed. This can be very disconcerting and potentially dangerous. If they are too 'pushy', send them back and only feed them when they are calm.

You can also use food to teach the stock to

- Come when called.
- Calmly follow the stockperson.
- Go through handling systems (Figure 6) and onto trailers.

» Stock will be more accepting if nothing unpleasant happens to them the first few times and they are not rushed. Conversely, if the first experience is highly stressful or painful, an animal will remember the experience and may subsequently be reluctant to enter a pens/trailer for the rest of his/her life.

Figure 6. Feeding Exmoor ponies in a handling pen trains them to accept it.



Kevin Caster

Other training

This could include learning to

- Respect an electric fence (Figure 7).
- Respond to 'pressure on, pressure off' techniques (see page 15).
- Become used to things they are likely to meet e.g. dogs and bicycles.
- Being lead by a head-collar/halter (useful for ponies and bulls)–the lead rope should never be wrapped around the handler's hand nor tied in any way to a person.
- Being given oral medication or have a foot inspection (useful for ponies).

Animals become more resilient if their routine is varied e.g. different people feeding them and handling them.

Pen Rashbass

Figure 7. Training Hebridean ewes and lambs to respect an electric fence. Initial training only takes ~48hrs. The fence should be as 'hot' as possible i.e. using a well-earthed, sufficiently powerful energizer with a fully charged battery and surrounding vegetation should not touch the wire. The stock should be held in a small area so that others in the herd/flock respond when one touches the fence. They need sufficient grazing, water and shelter available to ensure they do not break out because of need.

Case Study. Working With Cattle. Bekka Corrie-Close. Director Horned Beef Company Lid

The Horned Beef Company Ltd provides a conservation grazing service to individuals and organisations. Land has often been available on annual grazing licences and it's common for the landowner to have no idea about the infrastructure required to use cattle as a management tool. This means having to cope with the bare minimum when it comes to handling for treatment or removing stock from site at the end of the grazing period. The absolute bare minimum, for a simple catch and load of a small group, might only need to be three or four 10ft field gates. If you are keen as mustard to get your new farming business going, you might accept a licence on these less favourable terms. However, once more established, if the landlord is looking for long term management, I'd get them to put their hand in their pocket for some simple fixed handling infrastructure.

Our advice would include:

- Buy animals from people you trust. What is the history of the herd/farm/individual animal? Are they selling older cows because they have poor temperament? Are they selling young stock because they're mad?
- Find time to spend with the livestock. Lead them around with a bribe (sugar beet, nuts etc.)–even from one side of the field to another.
- Pen the animals to get them used to it even if you don't plan to do anything with them at that time.
- Learn how the herd dynamics work and plan accordingly–which animal is matriarch, which animal is lowest in pecking order? This can affect how the catching/handling/loading goes. You might have one animal that always makes it difficult. Can you sell it or eat it?
- Don't get complacent with quiet, well-behaved livestock–even your favourite cow can jump a field gate if she's cornered by a dominant animal.
- In our experience, very basic infrastructure for catching and loading is fine. However, when handling for any kind of treatment more invasive than pour-ons, use proper equipment that is robust and fit for purpose.
- Electric netting in 50m rolls can be a handy way to create a funnel where no natural features exist. However, make sure the animals understand what this is–always use a fencing unit! (especially with Dexters!).
- Make a plan with all involved before you start the gather. Be prepared to walk away and try again if it fails the first time. If it fails 3 or 4 times, rethink the approach and your staff. If it fails again, get some different animals.
- Bribery is a powerful tool. Repeated feeding in troughs within a pen (permanent or temporary) every day for a week before your move can be a great way to succeed.

Understanding animal behaviour (Box 4)

Knowing how animals are likely to respond in any given circumstance is a vital part of stock management and animal husbandry.

Animals continually communicate with us – the general stance, height the head is held at, amount of salivation, pupil diameter, position of the ears, a swish of the tail and even defecation are all saying something. Although diagrams, books and videos can help teach these different signs, ideally you need to spend time actually working with stock to appreciate fully the subtleties and complexities of this language.

An animal's body language will also provide advance warning of its intent. A good stockperson is adept at reading these cues. Such people seem to develop a sixth sense and are able to pre-empt an animal's response, calm the situation and thereby stop an incident before it even starts!

There are a wide range of things that can raise an animal's stress levels and alter their behaviour. These include

- Their innate temperament.
- How tame they are.
- Previous experience e.g. previous mishandling or abuse, being chased by a dog, being hurt by an over-tightened head yoke etc.
- Whether they feel excessive pressure
  - » During a gather.
  - » Being trapped e.g. within a handling system.
  - » If they feel they are about to be trapped.
- The proximity to other flock/herd members – for more on working with lone animals see Box 5 (next page)
- If the social dynamic of their herd/flock is altered e.g. by adding or removing stock.
  - » Within any group there will be a social order. Handling invariably leads to animals being put closer together. This can intensify bullying and aggression.
  - » Creating groups and keeping animals in those groups reduces stress levels and makes for easier management.
  - » Being moved to an unfamiliar site.
- Whether it is the breeding season.
- Whether they are protecting young.
- Whether they are injured or ill.
- Hunger or thirst.
- The weather e.g. high winds or high/low temperature.

Box 4. Understanding Livestock

- Animals used for conservation grazing are social animals that instinctively seek comfort and protection by being with each other.
- They are not stupid, but if an animal is panicking, she is not thinking – she just needs to escape.
- They are prey animals driven by their instinct to survive – also know as the 'flight or fight response'.
  - »If one animal in the herd/flock is spooked, she will flee and others will join her.
  - »However, if an animal is cornered and feels it cannot escape, then it may lash out.
- They are very sensitive to reading our body language, our intent and our emotions.
  - »Handlers and dogs are instinctively viewed as 'predators' – This response can be overcome if time is taken to tame the stock.
- Livestock hide their pain as a survival mechanism against predators. An injured animal may lie moaning when nobody is around, but jump up and appear normal when she sees a person.
- They have excellent senses including
  - »Mobile, sensitive ears.
  - »A wide visual field – the majority of this is monocular vision that enables them to detect movement. They also have a narrow binocular visual field to the front which lets them perceive depth.
- They have a good memory.
  - »Their memories can be very specific and can be associated with (i.e. attached to) a particular object, event, place or person.
  - »Stock retain specific 'fear memories' especially when a bad experience happens.
- The lead animal is not the same as the dominant one. The dominant animal will often be in the middle of the group where she is safest from predators – however, she still will strongly influence the herd's behaviour and group movement.
- Milling and circling within a bunched herd is a defensive action against predators. Stock show this behaviour (e.g. in pens) are showing signs of stress.

Box 5. The lone animal.

- Be extremely careful not to isolate individual animals especially cattle and ponies from the rest of the herd.
- A lone animal will often become extremely agitated and fearful when separated from its group.
  »It is more likely to injure itself or others.
- A lone animal will calm down and/or be willing to move when its allowed to rejoin its herd-mates.
  »An animal left alone in a pen may attempt to jump the fence to rejoin its herd-mates.
  »Never get into a small confined area with an agitated animal–it should either be released or more animals should be put in with it.
- If you have to attend to a 'downer' cattle or pony or to an animal in a loose box/isolation pen, and it is not possible to secure it, then make sure you have an adequate escape route and will not be crushed if the animal rolls or stands suddenly.

An animal that is panicking may lash out at people or other stock. It may also try to jump or crash through fences. Its fear can be 'contagious' and the frenzy can spread to others in the group causing a stampede which significantly increases the risk of injury to both humans and animals.

Animals in this panicked state of mind can cause significant problems during a gather or within a handling system. When working with livestock, it is important to avoid raising stress-levels to a point where the animal behaves in a self-protective way.

It is also important to realise that animals trained with low-stress handling methods may not show their true reactivity when they are in familiar territory and handled by people that they know–even primitive breeds of sheep (e.g. Soays) that have a reputation for being difficult to handle can become very tame if trained. However, when placed in a stressful situation, their innate primitive behaviour may surface.

For more information, see Temple Grandin's and Bud William's websites.

Case Study 2, Using Bagot Goats for Conservation Grazing. Nick Bohemia. Secretary Bagot Goat Society

The Bagot is believed to be Britain's oldest breed of goat. They are highly effective browsers as well as grazers. They thrive in structurally diverse habitats that have a wide range of plant species.

- The best method of gathering Bagot goats is to lead them using a bucket of food carried by a person with whom they are familiar. As a breed, they are suspicious of strangers and so less likely to follow someone that they don't know. They can also be wary of passing through an unfamiliar gateway into a new handling area, therefore it is important to feed them in this area from time to time in preparation for when they need to be gathered. Once their trust is gained, the whole herd will usually follow their stock person.
- Individual Bagot goats differ in their ability to jump and so knowledge of the herd is useful when planning the height of the fencing around a handling area. Only a few individuals will readily jump over standard height stock fencing and so it helps to know if you have any 'athletes' in the herd.
- I've found that Bagot goats do not respond well to dogs. Their first instinct is to gather and confront a dog *en masse* and if this fails to intimidate, then they will often scatter, seeking higher ground or something to climb onto.
- When handled, Bagot goats can be very vocal, their bleats becoming increasingly like screams which can be disconcerting for their handlers. This reaction appears to be based on a fear of what might happen, rather than a reaction to the handling task undertaken. Interestingly, once released the dramatic response is promptly forgotten and within minutes they are again checking your pockets for food.
- It is not advisable to leave a gathered herd unattended for any period of time as within a confined area the dominant individuals may become aggressive in their bullying behaviour towards lower ranking goats, increasing the risk of injury. This should also be a consideration when transporting for extended periods and where possible it is advisable to separate goats into groups of similarly sized/aged individuals.

Using body language to move stock

It is important to remain calm and confident

Your behaviour and body language when working with stock has a significant impact on how stock behave and react. Frequently, it is the handler(s) demeanour that will ultimately determine whether the job gets done. There is a stockman's proverb that goes *'If you want to work fast, go slow; but if you want to work slow, then go fast'* i.e. if you rush and push your animals, you will get into problems. However, if you give your stock time and appropriate space, they will work with you to get the job done.

Livestock are very sensitive to a potential predator's intent and they are experts at 'reading' body language. You can effect their behaviour by altering your posture

- Turning sideways, relaxing your stance, looking down and slightly away is less threatening – still keep a watch on the stock out of the corner of your eye.
- Standing straight, tall and rigid while looking straight at an animal is more intimidating.

They will also be very aware of whether you are angry, frustrated or stressed. Once animals and people are agitated, it takes time for everyone to calm down. A good handler often remains completely silent when working with stock, instead s/he uses her position and body language to influence the stock.

Do **NOT** wave your hands about, shout, run or hit animals. Similarly, if you do use a handling aid (see Box 6), then this should be used to help guide the animal by pointing at a part of its body or else calmly wafted in front of you (if driving stock forward). It should not be thrashed rapidly about in the air nor should it ever be used to strike an animal.

Box 6 Handling aids

There are several different types of aid that can assist you in moving livestock.

- While some aids may make a noise (e.g. working Huntaway dogs), the primary effect of most should be visual.
- Inanimate objects include paddles, flappers, flags, sticks – these are variously referred to as goads, implements or tools. They should be considered as an extension of the handler's body.
  - »Careful use of a stick will increase your 'presence' and reach. This can help you guide stock.
  - »Slow side-to-side movements of a flag/paddle can also help direct animals, but you should not rapidly flap these implements around.
  - »These tools should never be used to strike an animal – this may breach welfare legislation as well as agitating the animal.
- Well-trained sheep- and cattle-dogs used by a skilled handler are a major bonus for managing livestock. Good working dogs have a natural instinctive ability to work livestock effectively. Different sheep breeds have differing herding characteristics – a good sheep dog will adapt its working methods to suit the breed e.g. working at a long distance off the stock on 'light' sheep such as Soays, but closer and more assertively on 'heavy' commercial breeds. Dogs influence stock in a couple of ways.
  - »They are perceived as a predator. This means their mere presence can influence the behaviour of prey animals.
  - »An effective dog uses movement and their eye (body language) to apply and release pressure appropriately to gather and move stock to where they are wanted.
  - »However, the handler must always remain in control of the dog.
  - »A poorly trained dog or one that does not listen to its handler can cause more trouble than it is worth.
- Horses, ponies and vehicles including motorbikes, ATVs and trucks.
  - »On larger and more challenging sites using a vehicle, pony or horse can save time and labour, if used with the livestock's welfare in mind.
  - »Make sure that the stock are used to being worked with these before using them on a difficult site or during a challenging gather.

Low stress handling techniques

Note. Very tame animals may have learnt to ignore the principles described in this section. However they are still useful to know because if stressed, even a tame animal will act on instinct.

Grazing animals have innate defence strategies to avoid predators. Skilled handlers take advantage of these traits to gather and move livestock with minimum stress. In effect, you want the animal to choose to move in a calm manner to where you want her to go, you are definitely not forcing her.

The pressure zone (Figure 8, 9)–the distance where livestock first perceive a potential threat. When a handler enters the pressure zone, the animal turns to face him/her. The animal can then use her binocular vision to determine the distance and whether it's safe to stay put or whether she should move.

The flight zone (Figure 8, 10)–the point where animals start to move away from the handler. You want the animal to move in a calm, steady manner. The distance to achieve this

- Varies from close by (~1m) to far away (several 100 metres).
- Depends on the animal's temperament and previous experience.
- Is altered by your demeanour:
  - » Being quiet and still reduces it.
  - » Noise, movement (running, waving hands) or more people encroaching into the zone will increase it.

The direction that the animal moves when the handler is in the flight zone will depend on where the handler is in relation to either **point of balance**–located at the shoulder or along the mid-line (Figure 8,10).

- If the handler is behind the point of balance, the animal will move forward.
- If the handler is in front of the point of balance, the animal will turn to move in the opposite direction.

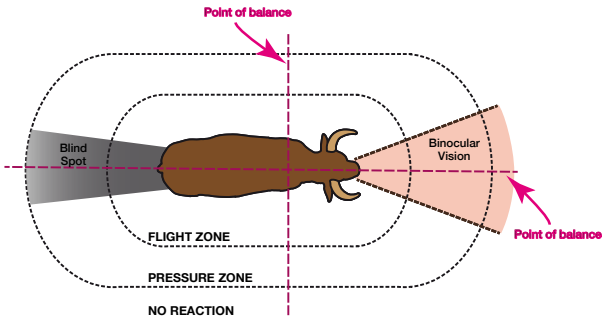


Figure 8. Diagram showing terminology often associated with low-stress handling techniques.

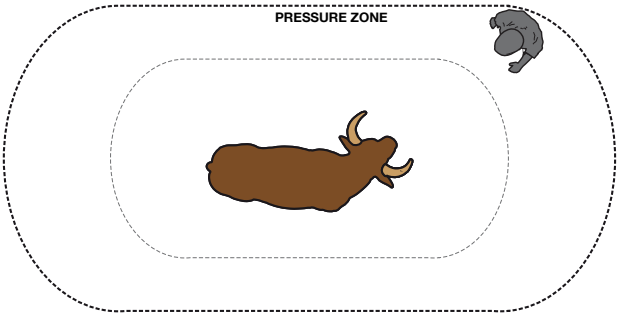


Figure 9. When a handler enters the pressure zone, the animal turns to face him/her.

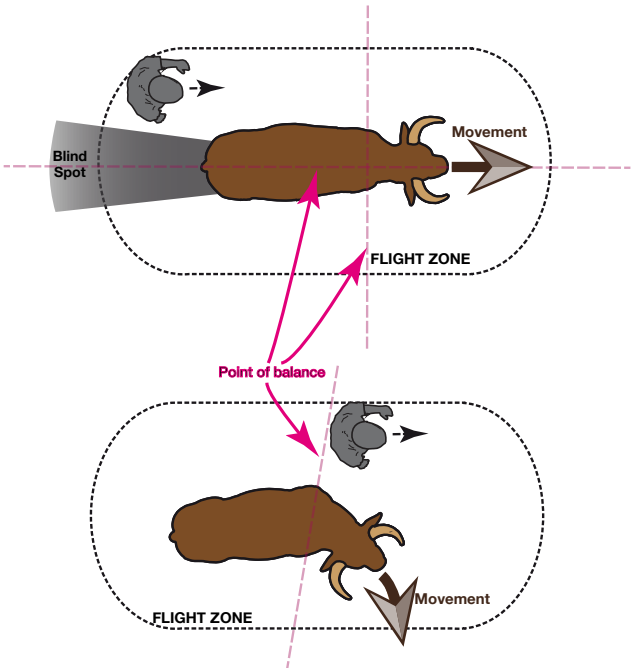


Figure 10. When a handler enters the flight zone, the animal moves away. It depends on where s/he is in relation to the point of balance (and the direction s/he is moving in) as to which direction the animal moves.

When working with flight zones and point of balance, you want to be close enough to make the animals move, but not so close that they panic and flee.

- If the flock/herd starts to move too fast, then you need to back off and get out of the flight zone.
- When they slow or stop, then you need to move back into the outer edge of the flight zone to keep them moving.

This movement in and out of the flight zone is also known as '**pressure-release'** or **'pressure on, pressure off'**. Moving into the flight zone puts pressure on the animal while moving out of flight zone 'rewards' the animal by releasing pressure. The animal seeks this 'reward' and so quickly learns to go in the desired direction.

Low stress handling it is about using the appropriate amount of pressure at the correct time. It does not mean 'no pressure' nor should you exert continuous pressure within the flight zone. This never 'rewards' the animal to let her know she has done the right thing–instead the continued pressure increases the animal's stress levels and she may start to panic.

Smooth, minimal movements are best. A good stock-handler will almost seem to dance with their animals as they alter their position in relation to the balance point plus move in and out of the flight zone to exert the appropriate amount of pressure-release. This video by Curt Pate for NCBA Cattlemen to Cattlemen is an excellent example.

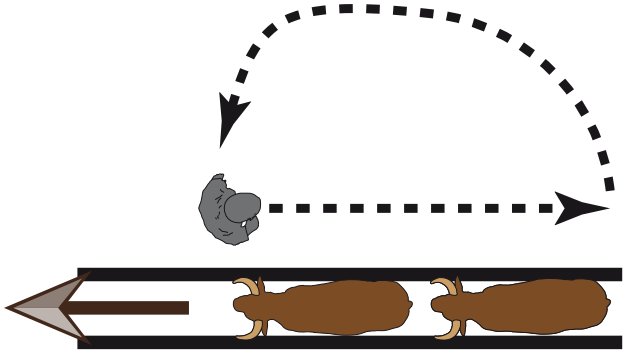
Continually monitor your stock's body language and use the direction of her nose as an indicator of where she intends to move. When moving a herd, use the lead animal's nose to determine where the whole group will go. However, you also need to gauge the direction of the other's noses (and their body language) to indicate whether one is looking to break away. With experience, these continued observations become second nature.

Alter your position plus the distance inside the fight zone to control your lead animal's direction. Use decisive, confident moves to give the animal a clear signal. As soon as she starts to move in the correct direction, you should take a step back to reduce pressure. This 'rewards' her and indicates that she has made the correct decision. Once she is moving, adjust your pace to modify hers–if she speeds up, you step further back, but if she slows down or stops, you move further into her flight zone.

Because (non-tamed) stock want to keep a certain distance from you plus they also want to keep you out of their blind spot, they instinctively curve around you (assuming they are not fleeing in panic!). This enables each animal to see you as long as possible. By positioning yourself appropriately in the centre of the curve, you can use this behaviour to direct the stock through gates or through a handling system.

'**Parallel Movement**' is another useful technique to get stock to move. The handler starts in front of the point of balance and within an animal's flight zone. S/he then walks parallel to the animal's body, across the point of balance (Figure 11). In response, the stock will move in the opposite direction. This method is useful when moving animals along a race. It can also be used when stock are in larger pens or out at pasture.

Figure 11. Parallel Movement. The handler moves within the flight zone in the opposite direction to that of the stock. To return back to the head of the stock, the handler has to move out of the flight zone.



Preparations on the day

Livestock will generally do what you want but often not as quickly as you may like, so always give yourself plenty of time.

A large part of gathering and handling stock is about preparation and planning.

Considerations may include

- Time of day and the weather forecast.
  - » Do you have sufficient daylight to do what is required?
  - » Will the height of the sun in the sky have an impact?–animals do not like walking towards a bright low sun.
  - » Will adverse weather conditions mean you need to adapt your plans.
- Facilities and equipment. These need to be suitable, well maintained and ready to use.
  - » What procedures are you intending to do?
  - » If the facilities are not satisfactory for any reason, can you adapt them?
- The stock, both as a group, and as individuals.
  - » Are there mixed species or mixed sheep breeds?
  - » What are their temperaments? Is there a lead animal? Are there any known potential trouble makers?
  - » Do any have youngstock at foot?
- The site and route.
  - » Bear in mind any public use of the site and try to avoid a route where they could inadvertently interfere with the gather and/or put themselves in danger.
  - » Choose a route that uses topographical features and vegetation to help guide the animals.
  - » Anticipate hazards that put stock, handlers or the public at risk e.g. cliff edges, roads, deep water.
  - » Are there known potential 'fear points' that may spook the stock e.g. noisy machinery, barking dogs, members of the public spectating from an inappropriate location
    - > Can you these mitigate these?
  - » If stock need to ford water, have any in the group done this before? If not, how will you encourage them across?
- Vegetation.
  - » Will this help or hinder you?
  - » How will you gather stock in densely wooded or shrubby areas?
- Walls and fences.
  - » Are they secure or could an animal break through?
    - > Goats and primitive sheep breeds can easily climb over dry stone walls, especially when pressurised.
    - > Cattle and ponies, if spooked, may try to jump fences or gates.
  - » Set up any additional temporary fences and barricades.
    - > Electric fencing (and ropes) can be used if animals are well trained. A cold (non-electrified) wire is preferable as you can grab and move it without concern. Also, if an animal does get tangled in it, she won't get repeated shocks – in addition to the immediate distress, this could leave a significant 'fear memory' that makes subsequent gathers difficult.
  - » Are there any 'draw points' that stock may move towards e.g. other stock along the side of the route, open gateways along side of road. Can these be blocked off with hurdles, vehicles, ropes, people etc?
- Gates.
  - » Which gates should be open in advance?
    - > This is especially useful if stock know where they are going or if you want stock to move smoothly and quickly away from a hazard e.g. off a road into a field.
    - > Also make sure that the handling system gates are open.
  - » Which gates should be shut to either stop stock escaping along the route or to allow them to be regrouped? For example
    - > Before moving into a known hazard e.g. before a road.
    - > If moving stock with different herding/flocking characteristics across several paddocks e.g. dams with youngstock or a flock containing mixed sheep breeds
  - » Don't assume that gates are still in the open/closed state that you last left them in. If they are not locked in position, it is not uncommon for these to have been altered.
    - > The time taken to check this is often significantly less than the time it would take to re-gather an escaped herd/flock if a gate you assumed was closed has been left open!

- Finding/gathering/handling the stock.
  - » How are you going to gather them together–will a call or food shaken in a bucket suffice or will people need to go around behind the stock?
  - » Once gathered is someone going to lead stock to set the pace and guide them or is the decision to gather and 'drive' (push) them? Or will you use a combination of these?
  - » Will the stock be put through a handling system? How will you work the stock through these?
- Anything else relevant to your site/stock.

Based on the considerations above, you will be able to estimate how many people you need to assist and do the work safely.

- More is not necessary better–too many people can upset some animals. It also increases the likelihood that someone stands in a position that puts inappropriate pressure on the stock and so interferes with their free flow.

Make sure that everyone involved

- Is fully briefed on the plan of action.
- Knows their roles and responsibilities.
- Is fully aware of the hazards involved and follow all precautions to ameliorate the risks involved (see Box 1).
- Wears appropriate protective clothing including footwear with safety toecaps.

Figure 12. Stock are easier to gather if they are trained to follow a person with a bucket.

Nick Bohemia

Additionally

- Ideally, all helpers should be adequately trained and familiar with the temperament of the animals they are working with.
- All helpers should be prepared to take direction from the person in charge, but also be able and willing to use their initiative when necessary.
  - » Explain that you may ask helpers to alter their position/role at short notice.
- Allocate jobs based on an individual's skill and fitness. Examples could include
  - » More experienced helpers should work the stock, while less experienced could block the roads or direct traffic/the public.
  - » Nimble and agile, experienced helpers could help move stock through a handling system, while an inexperienced person could take notes for a vet during a Tb test.
- Work out a good communication method in case a problem occurs e.g. mobile phones or walkie-talkies. Remember that shouting, running or waving arms may spook the stock.

After you have worked with your stock on a particular site a few times, both you and your animals will learn what is expected.

Gathering Stock

Don't rush the gather – a calm approach results in a calmer herd/flock

The objective when gathering or handling stock is to do so calmly, quietly and patiently with the minimum of stress and risk to people, stock and working dogs (if used).

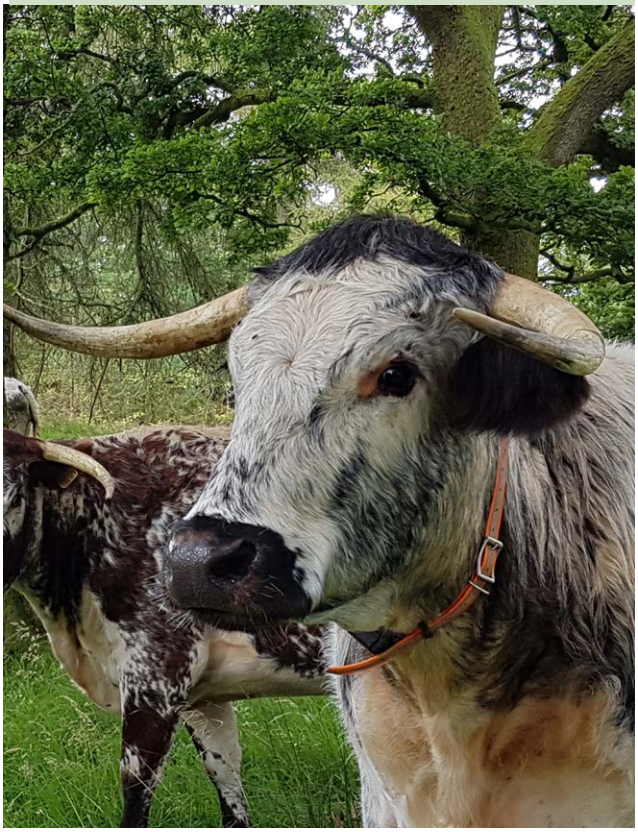
The way in which you initially approach the stock can affect the whole process for the rest of the day. Livestock are not stupid–if you behave differently from your normal visits, they will pick up on these alterations. These could range from non-verbal cues (such as anxiety or excitement) to shouting or waving arms (even if the intent is to direct other people) to setting up temporary handling pens and fences or just having more people on site. It will depend

on their previous experience as to how your initial actions alter their behaviour – if stock associate your behaviour with something nasty, they may become highly agitated and become difficult to work with.

If the animals become distressed and the gather fails, it is often better to leave them for at least 30 minutes before trying again. If you still fail after a couple of attempts, rethink your plan and try another day.

Ideally, feed the animals in the handling pens for a week before you need to gather them. This will hopefully ensure that the stock associate that area with something positive. Distribute the feed so that all stock can access it and get their share without being intimidated by their more dominant herd-mates. If the site restrictions allow, then feeding hay may be more successful than pellets.

Figure 13. A GPS tracking collar on one or more of the stock can help you find the herd.



Bekka Corrie-Close

On the day of the gather, if appropriate, ensure that sufficient feed is out to entice them into the gathering pens. However, if they are not used to being fed from a bucket in the pen, then the unusual presence of one may spook one or more of the animals and actually deter them from entering the system.

Before starting, plan your gather and the route, then allocate tasks to your helpers (see previous section). Make sure everyone is fully briefed.

Finding stock on large sites can be time consuming.

- Stock often have distinct grazing patterns and if you know these, they can be used to narrow the search and also predict how the animals will react once the gather starts.
- GPS tracking collars attached to one or more animals can also help (Figure 13).
- The easiest option is if the stock are trained to come to your call, a whistle or a rattling food bucket. However, on a large site, especially with high winds, you may still need to walk some distance before they hear you.

You need to decide whether you are using feed to draw stock to you and the pens or whether you will drive (push) the stock. Whatever method you intend to use, you initially want to get all the individuals and small groups together in one large herd before moving them to the handling pens.

If the site layout permits (e.g. has multiple paddocks), close the gate when you enter the paddock that the stock are in. This will help you maintain control of the situation. Only open the gate when all the livestock are calm, herded together and ready to move on towards the handling system.

If you are not using feed to draw the animals, then it is your movement that will stimulate individual and herd movement. You can make the job easier, more efficient and safer if you understand animal behaviour and what you need to do to communicate effectively with them (see previous sections). Always remember

- If stock can see you, you can influence them.
- Never chase escaped stock, let them settle and return to the herd by themselves.
- Stay calm, quiet and ignore distractions.
  - » Use the smallest movement possible, keep your hands down and work at the edge of the animal's flight zone.
    - > If you do need to make some noise or put your hand up to get some movement, then this option is still available for you.
    - > Large movements/sounds or going too far into the flight zone will exert more pressure on the stock and may make them panic.

Distressing stock at the start of a gather can have a negative impact on their behaviour for the rest of the day

Try to ensure you do not startle the stock when you initially approach them. Stand back and observe their normal behaviour. This will help you determine their flight zone and how much pressure you may need to apply to get them to do what you want.

Livestock (especially primitive sheep breeds) that have had minimal handling will have large flight zones and be very sensitive to pressure. They often need to be worked from a long distance and with minimal pressure–this can be very challenging especially on sites with an adverse terrain and/or has large amounts of vegetation where the stock can easily double back and/or hide from humans.

Case Study 3. Gathering Sheep. James Allen, Heritage Graziers

We run a herd/flock of rare breed cattle and sheep conservation grazing across the Cotswolds.

Gathering sheep when conservation grazing can be a time consuming process as they can have a mind of their own. We work hard to make it as easy as possible, particularly as it has to be done regularly.

A well-trained calm sheep dog would work well if it was gentle with the stock and could round them up without stressing them too much. A good dog, however, isn't cheap and needs regular training/working.

We run under 100 sheep on sites so manage without a dog. There are a number of things that can be done to make rounding up the sheep as easy as possible:

- Get the sheep used to coming to handling areas, training to the call with nuts really helps.
- Run younger stock in with older sheep who are used to coming to nuts and being rounded up.
- Use fence lines to work the flock along towards the handling area; be wary of using walls as native sheep will climb when pushed!
- Try to set up the pen in the same place every time so the sheep get used to its location.
- Use stock netting as a funnel and close the end of the funnel by rolling out more netting when everything is in. For difficult to catch flocks just keep shrinking the funnel until the sheep are in the pen. Split the pen into sections so you can pen the easy to catch sheep up first and then drive the rest to them.
- Make sure the sheep yet to be caught can see those already in the pen; sheep are much easier to gather up if they have other sheep they can see to go towards.
- Try and be as calm as possible; if needs be just step back and leave the last few awkward sheep to do their own thing for a while before starting again.
- Understand flight zones and points of balance to help walk sheep in the direction you want them to go.
- If you are using a dog consider just stationing him at a gap or escape route while you drive on foot to reduce the nervousness of the sheep.
- Two or three people who know what they are doing and do as they are requested are an ideal number of people for rounding up sheep; we have a number of children that can herd up a flock of sheep on their own under supervision.
- When working on sheep in a pen, have it set up and easy to manage as possible; walk through how you are going to process each sheep before you catch them.
- If you need shears, syringes, sprays etc. then have them either on you or easy access in a bucket fixed to the hurdle where you are going to be working on the sheep.
- Take your time. Plan for it to take longer than you expect, the more relaxed and prepared you are the more likely it is to go well.

Starting the move

You first need to get behind the stock. In general, it is better if all handlers give the animals a wide birth and go round them on the same side. Ideally, you want to be outside both the pressure and flight zones. Walk quietly and unassumingly just in case you inadvertently enter their flight zone.

When deciding which side of the stock to move past them you should choose the side that could

- Block an escape route.
- Stop them being pushed into a potential hazard e.g. weak fence, a cliff edge.
- Stop them moving to a 'draw point' e.g. stock in a neighbouring field.

The final decision of which side to walk will be dictated by the site specific circumstances that occur on that day.

The Bud Williams method to bunch stock.

This method imitates the stalking behaviour of a predator and is similar to how a working sheepdog will initially gather a large flock that is spread out over a field (Figure 14).

- Walk in a wide 'windshield-wiper' pattern on the outer edge of the pressure zone. At this stage, you need to zigzag back and forth without moving forward. Your actions will stimulate the herd to bunch together.
  - » Move sufficiently to the side in each direction so that the lead animal can see you.
  - » Keep your movements steady and take your time. Work quietly and don't press the stock to bunch too quickly or they may scatter.
  - » Don't chase stragglers and outliers – they will want to join the group as it starts to bunch and move.
- To initiate forward movement of the group, continue the zigzag arcs, but move forward into the flight zone to increase pressure.
- Once the group is moving forward, narrow the zigzag spans. You need to find the right amount of pressure on, pressure off to keep the herd moving forward steadily. Always remember that alternating pressure is more effective than continuous pressure – you do not apply pressure when the stock are behaving appropriately.

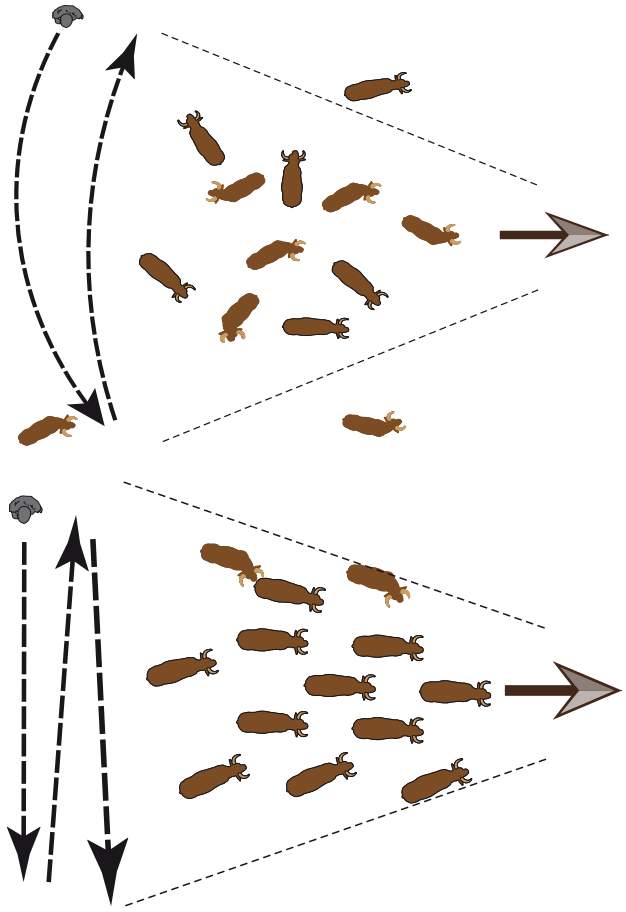


Figure 14. The Bud Williams method to bunch stock and initiate movement.

When you first start using this technique, the bunching response is an innate response from the stock as they react instinctively to a potential predator. However, if used regularly, this behaviour will become learned and calmer.

This technique only works if you have a patient, calm and steady attitude plus you respect the pressure and flight zones of the stock. If animals become excited so that they start to flee, you must leave them for at least 30 minutes to calm down.

Moving stock

The hardest part of any livestock movement is getting them started, so once they do start, try to keep a good steady pace on the stock. It is often useful to have one person leading the stock (with or without a feed lure) and the other stockperson(s) at the rear.

- The person at the front sets the direction and pace of the stock.
- The person(s) at the rear creates and maintains movement by moving in and out of the flight zone as required.
  - » This pressure should not be exerted in the blind-spot (Figure 8).
    - > Standing or walking into an animal's blind spot can make it turn and face you.
  - » If the handler is walking in a zigzag (Figure 14), then the span should be sufficiently wide that the lead animal will also see him/her. This ensures that pressure is also applied to the lead animal and that herd movement is not just caused by pressure on the followers.
  - » Steadily pushing the herd from the rear without releasing pressure may increase stress levels to the animals at the back.

The people working at the rear of the herd needs to keep a close eye on both the individual animals and group dynamics. A raised head, staring eyes, switching tail (in cattle and ponies) are all signs that an animal is becoming stressed. If you see these, you need to reduce pressure.

You also do not want the stock running, circling, stopping too frequently or turning back to look at the person(s) walking behind (which can happen if someone is walking in the animal's blind spot).

Every time you work with animals you are training them, so always try to keep you stock moving smoothly

A single animal behaving badly can disrupt the whole gather. If one or more animals breaks away, don't chase them–this will just increase their stress and push them further away. Instead, stand back and let the main herd/flock attract them back.

If this doesn't work, other options may include

- Use parallel movement and walk past the stragglers balance point to push them back.
- Circle widely outside the flight zone in order to be apply pressure from the an appropriate point to push them back towards the main herd/flock.

If attempting these alternative methods, keep a very close eye on the animal(s) behaviour as they can quickly become increasingly stressed and harder to manage not just for the current day's work, but also for all future gathers.

- » Pay close attention to disruptive individuals, but be circumspect and do this out of the corner of your eye–these animals are more likely to spook if they feel excessive pressure from a long steady gaze.

If you are struggling, it is often better to rethink your plan and/or leave the gather till another day.

Box 7. Tips for moving dams with young at foot

- Don't be in a rush when moving dams with youngstock.
- You want the dam plus offspring to move together.
- You need to be very aware of the balance point and the flight zone– the latter usually gets larger after birth.
  - »If you exert too much pressure, the mother could either leave the youngster or else stand and confront you.
    - >It often helps to decrease the pressure on the dam. Just block the direction that you do not want her to go and use fencelines to help guide the pair–the mother will take her youngster to safety by moving in the 'unblocked' direction. Continue to exert sufficient pressure so that the pair move at a pace that suits the youngster.
- Although the dam should understand from your position where you want her to do, the youngster won't.
  - » Reposition yourself to keep the pair together.
- If you tend to call the mother to you or you exert too much pressure, you will teach her to leave her young.
  - »You should send the mother back to pick up her young rather than try to move the youngster on its own.
  - »If possible move dams plus youngstock early in the morning before the first feed as they will still be lying together–after this feed, the mother will go off to graze and the youngster will go back to sleep.
    - >Alternatively, walk quietly among the stock for a few minutes before you start the move, this will let them 'mother-up' and they should be calmer when moved.
- If one enters the pen and the other doesn't–use this to your advantage as the two will want to get back together.

Negotiating hazards points

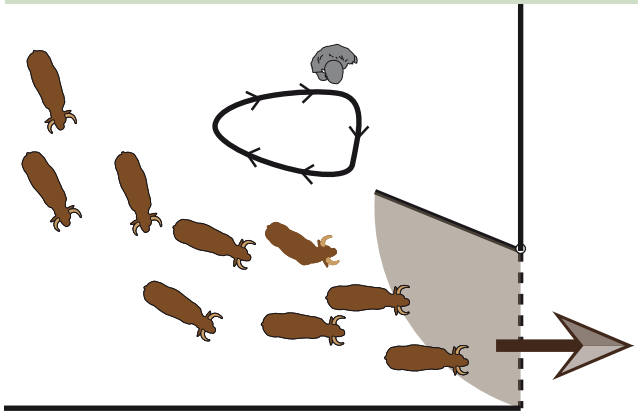
When gathering and moving stock on conservation sites, it is not uncommon to encounter a range of different hazards. These could include

- A weak/absent fence-line.
- A body of deep water.
- Steep hillside with rabbit holes.
- A cliff edge.
- Neighbour's stock posing a biosecurity risk
- Vehicular traffic on roads/lanes.
- Members of the public, especially if
  - » With dogs under poor control.
  - » On horse-back.
  - » Jogging.

It helps in situations like this to have calm, well trained stock. It is also especially important to

- Be able to read your stock's body language to anticipate their intent.
- Understand the flight zone and how you can use 'pressure on, pressure off' to help counteract any problem.
- Understand balance points and where you and your staff need to stand/move to minimise the risk.
  - » Watch the direction of your animals' noses and position yourself so that these are re-directed to go in the direction you want.
  - » If the stock start milling or circling in a bunched group, this indicates that they are under too much pressure and one or more may break in an effort to escape.
  - » If near a fence-line or dry-stone wall and the stock feel pressurised, they may try to jump or break through the barrier.

Figure 15. The handler should control movement of stock as they go through gateways.



Try not to run when in the animal's flight zone. This is likely to increase

- The animal's stress.
- The size of the flight zone.
- The probability of causing a stampede.

If you do run, then your position in relation to the stock will effect how they behave.

- If behind or beside the stock, but behind the point of balance, the animals will speed up going forward.
- If beside the stock, but in front of their point of balance, they will either stop or turn away from you.
- If you (or a member of the public) is running directly in front but away from them, the stock may start running to catch up.

If you have to get around the stock e.g. to head them off or to open a gate, you should move out of their flight zone before moving forward.

Going through gates

Ideally, you want stock to move at a steady pace through an open gateway and therefore you do not want them to stop. However, you often also want to influence how the first few animals go through. You can do this by standing near to the gate and moving in a small triangle in and out of the animals' flight zone. Because stock want to keep a certain distance from you, they should curve round you and go through the gateway (Figure 15). Use your position to control their speed as you not want them to run wildly through a pasture gate and discover they can escape from you.

You want your animals to associate going through gates as 'a good thing', because this will help train them for when you need them to go through a handling system. Therefore, as they go through the gate, reduce the pressure i.e. slow your movement. However, if you remove pressure completely the stock may turn and face you through the gate–as always it is a matter of reading the situation correctly.

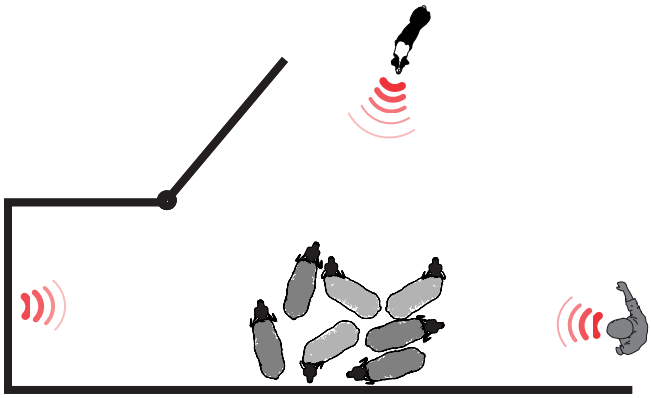


Figure 16. Under Pressure. It's important to appreciate what may exert pressure on an animal. A good stockperson modifies the different pressure levels to minimise the stock's anxiety so that the job is completed successfully (in this case penning some sheep).

Approaching the handling system

As animals approach a handling system, they may become increasingly anxious and likely to break from the group due to increased pressure. This pressure comes from various sources (Figure 16) including

- The handlers (and working dogs).
  - » Handlers start bunching closer to both the stock and each other.
  - » They get increasingly excited/anxious and the stock detect the altered body language.
- The handling pens.
  - » Livestock instinctively do not want to walk towards a dead end.
  - » They may associate the handling system with something unpleasant that happened previously to them.
  - » There may be something near the pen that is spooking them.
- Some of the lower ranking animals in the herd may be intimidated at the possibility of 'invading' a more dominant animal's personal space, especially
  - » In a confined space.
  - » If competing for food.

It is the stock-person's job to know their stock and watch each animal's body language. S/he can then manipulate the pressure appropriately so that the animals are safely penned. Possible options that can help include

- Design a handling/gathering system that works with an animal's natural instincts (see next section).
  - » Design your gathering area so that animals move through different gated areas that decrease in size until they are in the pens–close the gates behind stock so that they can't go back.
- Decrease pressure from the pen.
  - » Use food as a lure.
  - » Remove objects (e.g. trailers, coats hanging over the pen wall, a plastic bag on the floor) from the animal's field of view.
  - » Ask spectators to move well away from the pen–remember, if stock can see someone, they can be influenced by that person.
  - » Use a temporary or permanent fenceline to act as a funnel and also to extend the distance from the dead end.
- Manage the handlers' positions and number –remember, more is not necessarily better.
  - » Do all who helped with the gather need to assist with the penning?
  - » If possible only use people experienced in working with low stress handling techniques–they will be able to appreciate subtle changes in the stock's behaviour and respond promptly and appropriately.
  - » If using a dog with a primitive breed of sheep, it can help to position him to block potential escape routes should a sheep attempt to bolt to the side or back past the handler.

If one or more animals escape, don't give chase. Stand well back and let them see the animals that have already been caught. They will be drawn to these.

After gathering stock, give them sufficient time (20-30 minutes) to settle down before proceeding to handle them further.

Case Study 4. Grazing at Wicken Fen. Carol Laidlaw, Grazing Ranger, Wicken Fen NNR

Grazing using Konik polski started at Wicken Fen in 2001. Highland cattle followed shortly after in 2005. They are an integral part of the National Trust's long-term expansion project which aims to create a 5,300ha nature reserve in the area.

The NT is establishing shifting vegetation mosaics using factors such as hydrology and low intensity grazing by large herbivores. We use naturalistic, minimum intervention husbandry techniques which encourage and support a large degree of social dynamism and self-determination within the herds. We are finding that this brings added layers of complexity and variety to the evolving habitats on the expanding reserve.

We currently have 116 Koniks and 46 Highland cattle grazing three separate areas of the fen. These are

- 12 non-breeding Koniks and 3 non-breeding Highlands on 58.2ha of tall herb fen on 2-5m deep peat.
- 81 breeding Koniks and 9 non-breeding Highland cattle graze 151.41ha of ex-arable land, in reversion since the late 1990's, on 0.5m deep peat and clay.
- 21 non-breeding Koniks and 34 breeding cattle graze 154ha of ex-arable land, in reversion since the early 2000's, on remnant peat and clay.

Overall, the fen is more than 800ha of which about half is grazed. Within each grazing unit, the animals are completely free-roaming. As more land is added to the reserve, larger, unified grazing units are 'stitched' together using crossings, green livestock bridges and/or the removal of fences.

Naturalistic behaviour is encouraged where possible, with breeding groups of both horses and cattle. Young born to the herds stay with the herds, the male to female ratio is approximately 50:50 in both the breeding cattle herd and breeding horse herd. Both the cattle and the horses exhibit social structures and behaviours recognised in other feral/wild type herds across the world.

Currently there is no meat crop harvested from the cattle. Occasionally small numbers of Koniks are sold. Otherwise, where practicable, individuals are not removed from the breeding groups unless they are temperamentally or physically unfit to breed.

However, practical considerations of population control must be considered, so, where appropriate, family groups are removed from the breeding animals. These family groups form non-breeding groups in areas of the fen that are not contiguous to the main grazing areas, or where we need slightly more control of population expansion. The aim with any population control is to create fluctuating numbers of animals, rather than maintaining a steady grazing ratio (mimicking, but not as extreme as, a 'boom to bust' scenario; for example, in 2013, we reduced the numbers of breeding Konik from ~ 60+ individuals to ~30).

We adapt our handling techniques depending on the end requirement, and our understanding of the herd/individual involved: sometimes animals are sedated, sometimes they are trained, sometimes we seei an opportunity and just going with the flow. We always have a plan, but are prepared to change or drop it at a moment's notice as the handling event progresses. Interactions with, and handling of, the animals are always based on low stress techniques utilising knowledge of animal behaviour and psychology.

Handling the cattle: Due to the requirement to TB test, we have both permanent and mobile handling systems. The two permanent handling systems are based upon Temple Grandin's principles and are solid sided and curved. Prior to any corralling event, the cattle are trained to come to the corral using a specific call; at the corral they receive a small food reward (pre-placed in the corral to avoid conflicts between handlers with food and cattle). Permanent holding pens can be expanded using mobile, galvanised hurdles. We also can manipulate the size of the grazing area to ensure the approach and flow of the cattle to the corral takes advantage of the lie of the land, using fencelines, ditches etc.

The cattle remain calm going through the system, and generally move through very well. However, handlers need to pay close attention to the social bonds/dominance between herd members to facilitate corralling the animals and moving them through the system. Subordinate bulls in the breeding system will not enter (or even come to the corral) when dominant bulls are nearby, so we generally take our mobile hurdles to subdominant bulls, build a large enough pen and bait the pen with food. Particularly reluctant individuals are sedated, and a pen built round them, before handling.

Handling the horses: The horses are not routinely rounded up for any reason and any treatment or intervention is done on an individual, as needed basis. In this instance, the individual is sedated (by hand, blow dart or rifle depending on its individual approachability), a pen is built around it, then it is restrained using a head-collar before treatment starts. Dominant stallions (and dominant bulls) can be very resistant to sedation, with adrenalin markedly reducing the effects of the sedation.

Some minor handling work is done on amenable foals and yearlings to accustom them to being approached and having human contact, which helps to make handling events less stressful. Otherwise, the animals are not handled. Horses in the herd are never fed or given treats by hand. This prevents horses mugging the public/staff for food. We also don't administer any prescribed antibiotics orally, as training a stressed, unwell horse to try new foods laced with antibiotics is futile.

We have, in the past, trained small numbers of horses to come to a corral prior to transporting them. The corral has been baited with a food reward at the same time each day, so the association of the provision of food is with the corral, and not the human. Food rewards have included hay, willow brash and soaked sugar beet. This method has only been used with small numbers of horses (10 or less) that have already been removed from the grazing herd and are being kept in a holding paddock prior to moving elsewhere.

Handling facilities

It is often fear of 'something bad' rather than the procedure itself that makes an animal feel stressed and therefore more likely to panic. Your animals will be more willing to work for you if you use methods that minimise fear.

The advice and diagrams provided here are based on Temple Grandin's design principles.

Some procedures
- Can be carried out in the field with minimal or no handling facilities.
- Require a simple system – 3 or 4 hurdles (Figure 17) or even just a field gate plus fenceline (the latter is only suitable for sheep and goats).
- Require
  - » A more complicated handling facility.
  - » That the (semi-feral) animal is sedated using a dart and a temporary pen built around it.

Whatever system you intend to use, make sure you have taken appropriate safety precautions (see Box 1).

General Principles when designing facilities

Handling facilities may only be required a few times a year. However, the procedures that need to be done are often important and how the facilities are designed will either help or hinder you.

Thoroughly research your options and spend time designing and building your system – it doesn't have to be complex or the 'latest and greatest' – it just has to suit your needs. However, if it is designed to take your animal's natural instincts into account, then in the long run, it will save you time and effort plus reduce stress for both your stock and your staff.

If you use a grazier, include him/her in all discussions about the design to ensure that the final facility is fit for purpose.

The handling system location, design and facilities (See Box 8), depends on

- The budget.
- The stock – species, breed, age, size, if they have horns or not.
- The number of animals.
- How trained or accustomed the stock is to being handled e.g.
  - » Trained ponies may only need a secure tying-up point alongside a solid barrier for most routine procedures.
  - » Head-collar trained ponies may require a simple pen for invasive treatment e.g. worming, foot trimming, injections.
  - » Semi-feral equines require a substantial handling facility that prevents them jumping out plus allows the handlers to be safely separated.
- The handler's skill.
  - » A well designed, more elaborate facility often requires less skill to use effectively and safely.
- The site.
  - » The size and sensitivity of the site.
  - » The space available to build the facilities.
  - » Ease of gathering stock to the pens.
  - » Ease of vehicular and trailer access.
  - » The general public – do not site the system where it may put the public at risk or interfere with their use of the site.
  - » The impact of prevailing winds and the position of the sun.
  - » Whether it needs to be situated near a barn or other site facilities e.g. electricity or water.
- Which procedures will be performed e.g.
  - » Tb testing – needs decent neck access.
  - » Vet examination/procedure – potentially needs good access to all parts of the body.
  - » Giving medication/mineral boluses – a head restraint is useful.
  - » Loading stock onto a vehicle – can a trailer be easily reversed into position?
  - » Sorting stock.
  - » Foot trimming.
  - » Body condition scoring.
  - » Dagging or shearing.
  - » Weighing.
  - » Encouraging a dam to take a newborn – need to be able to access the dam's udder without getting kicked or butted.

Box 8. Parts to a handling system
Not all systems require all parts – it depends on your stock and your requirements.

Gathering Pen(s)	Hold stock once they enter the handling system • It has to be large enough to encourage stock to enter plus comfortably hold all the stock • It should be sited so that animals can easily enter from the paddock and also flow through to the main working area • Stock in long narrow pens are less able to circle and bunch compared with animals in square pens.
Crowding Pen	A transit area where small groups of animals are brought through in order to enter the race (Note: sheep are the exception to this – see main text) • A circular crowding pen is preferable to a square or rectangular one • It should be large enough to ensure that there is plenty of room for the stock to turn and follow one another up the race without getting bunched into corners.
Race	A narrow lane to fit stock in single file • Livestock will baulk if the race appears to be a dead end – they need to see forward • The race can be built on a gentle curve or in a straight line • For a curved race, the turns must not be too tight – an animal should be able to see at least 2 animal lengths in front of it – for cattle this means an absolute minimum inner radius of 3.5m (ideally 4.8m) • The race does not need to be too long – holding 4-6 animals is usually sufficient • A race that holds only 1 or 2 animals often works poorly because it is impossible to take advantage efficiently of stock's natural following behaviour • If space is limited, a double-size race with 2 side-by-side single-file alleys can also work well • Solid sides often stops the stock being disturbed by external distractions.
Race angle entrance	Keep one side straight and the other at a 30°angle • This enables stock to see up the race with their narrow binocular vision • If joining onto a curved race, the latter needs to be straight for at least two animal lengths before the first turn.
Crush	Restrains an animal while a procedure is done safely • There are a number of different kinds available on the commercial market – choose a system that suits your stock (breed, size, horns or not) and your requirements • Depending on the manufacturer, side options can vary from 'single set' width to 'dual width' to 'full squeeze' – in the latter example, as well as being adaptable for different sized animals, a restrainer that applies appropriate pressure to a broad area of an animal's body can have a calming effect • The number, size and location of side doors also can vary as can options for 'rear restraint' (from a revolving ratchet rump bar through to a chain or loose metal bar).
Locking front gate and yoke	The yoke allows the cow's head to be firmly held • It can be either manual or automatic, solid or not • Although often attached to the front of a crush, it can also be directly pinned onto hurdles (i.e. used without a crush) • A self-locking front gate adds additional security to ensure that the animal does not escape before the yoke is closed • It should definitely not be solid nor have too much metal around it • Make sure there is good neck access especially if your stock require regular Tb testing.
Post-work pen(s)	Pen that holds the stock after the procedure is done.
Gates	Consider which direction(s) you want gates to swing and from which post you want to hang them from • They need to swing and open/close smoothly and quietly plus be easily reachable and be able to be secured when the handler is in a safe position • All gates should not injure stock as they pass through • You should not require too many 'anti-backup' gates – if stock are backing up all the time, then you have a problem, either with where people are standing or with the design of the facility • Gates can be solid or not – it depends on your design and where they are sited as to which are appropriate: Stock can easily see solid gates and are less likely to collide or push through them. On the other hand, animals will baulk at moving towards a perceived dead end • Consider including strategically positioned horizontal or vertical slide gates – the latter with a rope to operate • `Shedder' gates after the race/crush will enable you to sort stock into groups • Include strategically-placed access gates for handler safety.
Latches and bolts	These should be easily reachable and securable when the handler is in a safe position • They should not injure stock as they pass by • They should be regularly maintained to ensure they work effectively, quietly and smoothly • DIY versions can work just as well as commercial options.
Optional extras	These could include a head scoop – to stop a cow's head dipping down when being given a bolus • Weigh crates (either separate or integrated) • Foot trimming accessories (block, winch and belly straps) – if you intend to do your own foot trimming • Turnover crates for sheep (and cattle) – inverting sheep completely on their back is stressful, if you need to use these, then a well-designed squeeze device that tilts sidewards is preferable. Also make sure the device fits your sheep breed(s).

Kevin Caster

Figure 17. Hebridean sheep gathered into a temporary pen so that one can be treated for lameness. Note how some hurdles are placed on their end to stop stock jumping out.

Many parts of a permanent facility can be built with wood. However, if you intend to buy new or second-hand equipment e.g. hurdles, crush, yoke, locking front gate, swing gates, slide gates, weigh crate, turn-over crate, curved sided hurdles etc.(Box 8) make sure they are suitable for your stock and your system–not all brands will meet your requirements. If buying second-hand equipment, remember to consider the biosecurity risk and properly wash it down and disinfect it before use.

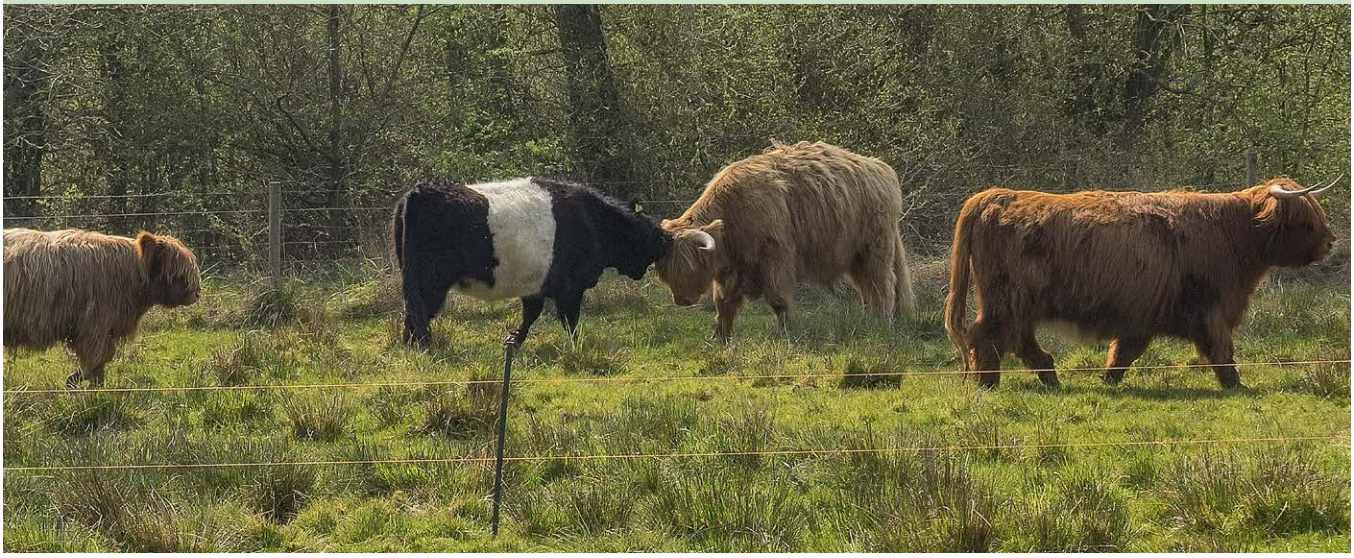
Before purchasing equipment, seek advice plus inspect and operate it. Places to seek advice include.

» Other conservation graziers e.g. via GAP nibblers forum.
» Large agricultural fairs.
» Local agricultural supply shop (may only be willing to provide advice on 1-2 manufacturers)
» Internet searches and social media.

Locate the system in an area that

- Makes gathering stock easier e.g. where natural site features and/or fences can assist.
- Is convenient to load stock onto a trailer.
- Is on level ground. If this is not possible then slope the race and crush so that the animals move uphill as they go through.
- Avoids areas where the public could inadvertently interfere and/or put themselves in danger.
- Has firm, non-slip flooring underfoot. If directly on ground, choose an area that is not wet, boggy nor will poach easily. If allowed, put down hard-standing throughout the corral and also in the areas leading up to the system's gates.

Figure 18. Cattle sometimes tussle with each other. These interactions usually quickly settle when they occur in an open space. However, when animals are in a handling system, the pens are often too small for each to have its own territory. Animals that appear to get along in pasture may fight when confined in a pen (especially if they are used to extensive grazing system and feel pressure from being confined). It can become even more dangerous when the less dominant animal is pushed into the corral sides and starts to panic when it is unable to get away.



Pen Rashbass

Decide whether it should be permanent or mobile.

- Permanent/fixed facilities.
  - » Are quick to use once in place.
  - » They can be much more elaborately designed, if required.
  - » Livestock can be familiarised to that system.
- Mobile systems.
  - » Are flexible and can be moved around the site as well as being used on different sites.
  - » Can be a cheaper option where several sites are to be grazed.
  - » Must be able to be set-up quickly in an emergency.
  - » Are at greater risk of being stolen, so you need to consider security options e.g. hiding them from passers-by, heavy duty locks and chains, marking or tagging them with postcode/paint/chemical or DNA markers.
  - » If the site restrictions permit, bang appropriately placed permanent posts into the ground. Hurdles can be tied to these making them less likely to slip or topple over.
- A mix of both permanent and temporary.
  - » Make some key parts permanent fixtures (e.g. race and crush /yoke) but other parts temporary (e.g. gathering and holding pens).
  - » Temporary pens can be made from hurdles, netting or electric fencing.
  - » Can be safer and easier to work stock than in a completely mobile system.
  - » Faster to set up than a completely mobile system.
  - » Requires less permanent space removed from the site than a fixed facility.
  - » Allows flexibility in size and shape of pens.

Include safety features for handlers.

- Add narrow access gates at strategic points for people to escape quickly.
- Add toe slots and grab rails on the sides to allow the handler to climb out of the system easily.
- Make sure all sides are secure and will not topple over if a handler climbs on them or animals push into them–this is especially relevant for mobile systems.
- Make sure all parts of the system are well maintained.

Design your system with the animal in mind

- Orientation and 'flow' through the system.
  - » Animals want to go back to where they came from.
    - > They tend to move best when the direction of flow is back towards their 'home' pasture or to where they entered the pens.
    - > A curved race take advantage of this desire (They also ensure that stock cannot see distractions ahead). A curved race only works better than a straight one if the animals are in single file.
  - » Stock do not want to walk towards a dead end.
    - > Avoid pointing the race and crush at walls, hedges, into dark buildings etc.
    - > Make sure angles and curves are not too tight nor change direction too abruptly. Animals dislike sharp bends because they perceive these as dead ends especially when they lose visual contact with the animal in front–as a rule of thumb, an animal needs to see at least two body lengths in front of it.
- Avoid sharp edges.
- Consider the lighting.
  - » Animals prefer to move from darker areas towards the light (but not get blinded by being forced to look directly towards a low sun).
  - » Shadows or bright shafts of light can upset some animals and make them baulk (refuse to move) –this can be exacerbated if the stock are unused to the system.
  - » Animals will enter buildings more easily if they can see daylight through it. The worst place to put a building entrance is where the crowding pen joins the race.
- If your system has solid sides, a raised walkway/platform built to the side of the system can help handlers work the point of balance more safely.
  - » To help prevent falls, walkways over 60 cm off the ground should have handrails.
- Don't build overhead catwalks.
  - » All species become agitated and confused when people are above them.

Consider the sides of the facility.

- The height of all sides must be higher than the animals' heads and/or a pony's feet if it rears.
  - » Primitive sheep breeds can jump over most commercial sheep hurdles.
- Open sides work well with
  - » Gentle, tame animals
  - » Skilled handlers who will correctly position themselves and use appropriate body language to move stock through the system while remaining outside it.
- Solid sides block vision. They
  - » Can help minimise outside distractions e.g. a near-by road or public footpath, spectators/inexperienced handlers standing in the wrong place.
  - » Are necessary when handling semi-feral equines or stock that are not accustomed to being handled. Rearing animals should not be able to get purchase on the sides or they will climb out.
  - » Are highly recommended when handling is done by inexperienced people.
  - » Are less likely to be broken down by charging animals.
  - » May be especially useful
    - > On the outer perimeter of the facility.
    - > At key handling points to focus animals on where they have to go e.g. in crowding pens and along the race.
    - > To make a shield to stop animals seeing people standing up ahead e.g. at a head yoke.
- The sheet material covering the sides does not need to be sturdy – thin ply-board is often used.
- If you are uncertain whether solid sides may be worth the investment, consider covering the sides with cardboard first and assessing whether the stock's behaviour improves.
- If using post and rail construction, make sure that animals cannot put their heads through nor get their legs trapped.
  - » If a race and crowding pen are primarily open fenced, then it is recommended that the bottom 1m of the race is solid to prevent an animal injuring her leg (leave a 5cm gap at the very bottom to make cleaning easier).

Figure 19. A solid-sided Temple Grandin-inspired handling system with curved race.

Mike Selby

» The size of your facility will depend on the species, size and number of animals that you have. It will also depend on how used they are to being held in confined spaces.

- If the space is too tight, you may find it difficult to move stock in or out of an area They may also become more agitated with each other (except for sheep who often prefer to be tightly bunched).

» If the stock respect an electric fence, then this can be used to make temporary holding pens. This also has the added advantage that the size of the pen can quickly be adapted.

- The gathering and post work pens should be sufficiently large that lower ranking animals are able to position themselves away from more dominant animals and so avoid being bullied.

» If being held overnight, the holding pens need to be sufficiently sized so that the stock can comfortably lie down.

» Extensively grazed cattle, especially if not used to being in confined areas, need more space in the gathering and post work pens– if the pen is too small they may circle, mill around or even fight with each other.

» If you do have a problem with fighting, consider dividing the holding pens into several sections so that tussling individuals can separated out.

» These separate sections can also be useful if working with a medium to large herd–as the animals are moved through the system and only a few remain in the gathering pen, its size can be reduced accordingly.

» The shape of the pens can also effect behaviour. In general, stock are less likely to mill around in long thin pens compared to square ones.

Kevin Caster

Figure 20. Exmoor ponies lined up in a race waiting for a vet check.

» The width of any alleys depends on the size of your stock.
» For average sized adult cattle a width of ~3.5m often works well.
» If too large a width (e.g. over 4.2m) then
> This can be dangerous if you have cattle that are panicking and wild.
> Cattle may learn they can get past you and double back.
» If too small a width (e.g. less than 3m) then you may find that cattle don't want to come by you and you have to get so far in amongst them to get them to move that they start panicking and running by you.

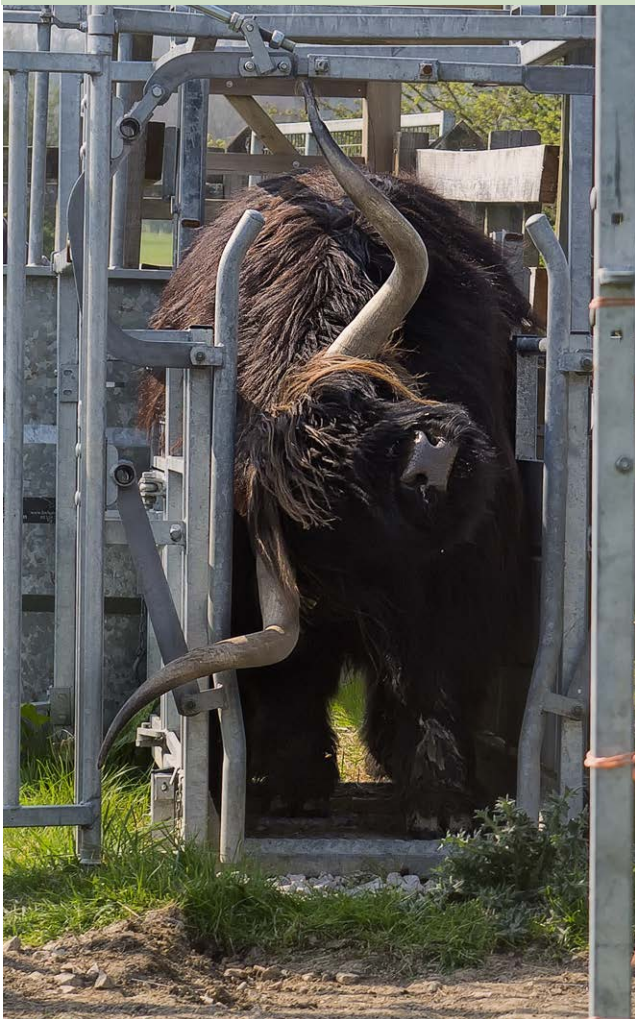
• For a crowding pen to work well
» Cattle and equines (especially wilder, extensively grazed stock).
> Small crowd pens that lead up to loading ramps or a single file race should be designed so that after the crowd gate is closed, stock can be moved by a person standing outside the pen.
> You never want to fill it more than ½ full.
> You only want to bring up the number of animals that will fit in the race.
» Sheep often prefer to move as a bunch and a 1.5m straight crowding area can work well.
» If you are not using a semi-circular crowding pen then the entry angle where the race joins it can be critical. One side should be straight and the other should be between 30-40^0 to avoid stock jamming into one other.

• Don't put a gate at the join between the race and the crowding pen –it can make animals baulk. Put it one body length from the entrance.

• The race does not need to be very long.
» It is usually sufficient if it can hold 4-6 animals (Figure 20).
» A race that holds only 1 or 2 animals often works poorly because it is difficult to take advantage of stock's natural wish to follow one other.
» The race needs to be wide enough to fit the largest animal, however, it should not be so wide that stock can turn round.
» Animals with long horns will learn to turn their heads as long as they are not rushed as they move through the system (Figure 21).

• A curved race does not need to have multiple turns–see Box 8 for more details.
• If building a facility that will handle both cattle and sheep, it can help to have separate races for each species.
• For advice on the crush see Box 8.

Figure 21. A large Highland steer will manoeuvre his horns through an open yoke if allowed time to do so.



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Checking your design

When laying out a new fixed permanent facility, and before building starts, it helps to

- Mark the outline on the ground first e.g. with spray paint / planks of wood / string and nails / sheep hurdles etc.
- Adapt a yard broom so that brush width and handle length are equivalent to the width and length of your largest animal respectively. When held horizontally this broom will give you an indication of the animal's size and movement restrictions.
- Walk through the design with the broom held horizontal. Imagine you are one of your stock (Figure 22), check that
  - » The 'flow' works well.
  - » You can get the broom easily around the system and that the angles are not too sharp (animals need space to turn round).
  - » There are no dead ends (or perceived dead ends).
  - » If using a curved race, that the animal is able to see 2 animal bodies in front of it.
- Think about how you will open, close and secure stock gates.
- Consider where you need to put safety features (access gates, toe slots and grab rails).
- Make any adjustments necessary.
- Build your facility and check everything again.
  - » Look for visual distractions – bend down so that your eyes are at the same height as of your stock to perceive what they would view as they move through the system.
  - » Listen for any sounds that may startle an animal e.g. a noisy latch as it bolts shut, a banging gate or rattling chain.
- Decide whether some sides or gates should have solid panels.

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Figure 22. Look at your system from the animal's perspective. The top photo shows a short race with a dead end plus high contrast shadows – all these may make the stock baulk from entering the race. Open the gates (middle photo) and it becomes more appealing for the first animal to enter. Once several animals have been through the system (bottom photo), the one in the head yoke plus the cattle at the hay ring feeder in the 'post work' pen all act as a draw encouraging the next animal to enter the race.

Working stock in handling systems

Never get complacent when working with stock in confined spaces

The majority of accidents occur within handling systems because of

- Fearful, agitated animals (Box 9).
- Mothers protecting their young.
- Bulls/stallions/rams.
- Faulty equipment (including slippery floors).
- Handler's complacency and/or not reading the situation correctly.

Smooth handling on the day usually depends on the effort and training you have put in before the stock are actually in the gathering pens.

Stock handling is best when your animals want to work with you and will willingly move calmly and steadily through the corral. You do not want to use fear as a motivator because this will cause unnecessary agitation and stress (for both stock and humans). It may also make the animals harder to handle on future occasions.

Box 9. Understanding and managing the fear response in livestock

- Livestock are prey animals and a fear response is part of their survival instinct–even a tame, well-mannered pony may rear, bolt or kick if frightened by an unexpected object or noise.
- The signs of fear/stress can include
  - »(All species) head up, ears pinned back, eye white showing, hyperventilation, defecating loose manure.
  - »(Cattle and equines) tail swishing when no flies are present.
  - »(Cattle) increased salivation.
- Livestock can become extremely agitated when they are suddenly exposed to a new experience.
  - »Stock with excitable temperaments are more likely to be difficult to handle in new surroundings.
- When corralled, some individuals will start bullying their herd-mates to try to maintain some 'personal space'–the handler should not enter a confined space when an animal is in this frame of mind.
- Grazing stock are herd animals. A single animal can become very fearful and agitated when separated from her herd/flock. A cow/semi-feral equine that is frantically attempting to rejoin her herd-mates can be very dangerous–she may jump fences or run down people in her attempt to rejoin her herd.
- If you do need to separate an animal (e.g. because it is being bullied by others) then put her in a pen that neighbours her herd-mates. This way she can be kept safe, but still be close enough to others so that she does not develop separation anxiety.
- An animal's stress levels will rise when she is forcefully handled. In contrast, when animals voluntarily cooperate, their stress levels will be low.
- If an animal is severely frightened by something the first time she encounters it, then she could have a fear of that object/place/person for the rest of her life.
  - »This fear association can be avoided if the first few experiences with a handling system are positive. Whenever possible, let your stock investigate the handling system/trailer on their own on several different occasional before any procedure is performed. During this training
    - >Tie open all gates so that they cannot bang and frighten the animals.
    - >Use a favourite food so that the animals learn to associate the corral/trailer with something positive.
- An animal can learn to overcome and suppress a fear response, but if exposed to a similar event in the future, that memory may resurface and the animal will become agitated. Highly strung, flighty individuals are more likely to have these 'fear memories' reactivated.
  - »In general, animals with a flighty, excitable temperament should be trained and habituated slowly with small steps over many days, If these flighty animals are not treated in this way they can develop permanent fears (e.g. to a crush or trailer) that can be almost impossible to overcome–it is often safer to cull these animals out of the herd.
  - »In contrast, animals with a placid temperament can be trained relatively quickly over several days.
- Spend time training your youngstock to be used to your presence, going through handling system and having procedures done (e.g. foot inspections or being given a mineral bolus)–you will produce calmer animals, that are easier to handle and have a smaller flight zone when they are adults.
- If you also train them to tolerate different people, vehicles and herding/driving methods, they will become less stressed when encountering new places and things.

Enclosed spaces can exert significant pressure that make animals feel very stressed and fearful. This is especially true for stock that spend the majority of their life grazing out on extensive sites. They may display this anxiety by milling around, attempting to flee or by bullying others who invade their 'personal space'.

Even if animals will happily come when called when out at pasture, their behaviour can swiftly change as they react to being corralled. Furthermore, if you have trained animals just to come/follow when called, they may not understand what you expect of them when you try to move through a handling system.

To overcome this do additional training–either using feed to train them to move through the handling system (Figure 23) and/or working with your stock while they are out in pasture e.g. train them to respond to pressure-release and to go smoothly through gateways. Alternatively, use a Temple Grandin inspired design (Figure 19). These encourage stock to flow through a system with minimal training.

Figure 23. Training a young Highland steer to enter a race using feed as a reward. Note the stockman's non-threatening posture–he is turned to the side plus his shoulders and head are down and relaxed as he steps away from the feed bucket. However, he is still looking out the corner of his eye at the steer so that he can continually monitor the animal's mindset.

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Other general points that can help move stock through a handling system.

- Design your system with the animal in mind –see page 25.
- Understand the fear response (Box 9).
- Observe your stock's behaviour closely and know how to modify your position, posture and movement to reduce the level of threat and keep stress levels down.
  - » The more precise and the more control that you have on the flight zone, the better your stock will work with you.
  - » Keep the stock calm and in a steady frame of mind as they approach the race/trailer.
  - » Remember that release of pressure (e.g. taking a step backwards) acts are a reward and tells the animal she has done the right thing.
  - » Learn which individuals are calmer/tamer and which are potential 'trouble makers'.
- Handling is safer when animals are moved quietly.
  - » Use the smallest movement that you can to get the reaction that you want.
    - > Quick sudden movements are more likely to scare an animal.
  - » Do not shout. Working stock in silence is best–if you do need to vocalise, use a low, calm, steady tone.
  - » Avoid sudden jerky movements and do not flap your arms about.
  - » If you do yell or flap your hands to move an individual, you will inevitably effect every other animal that can also see/hear you.
- Always give over-excited animals at least 30 minutes to calm down.
  - » If an animal is upset when she is in the gathering pens, she will often get worse when she goes through the race/crush.
- If an animal rears up, then back off –it is attempting to increase the distance between itself and you.
- Never get into a confined space with a single, agitated, large animal. Either the animal should be released or more animals should be put in with it.
- Don't chase an escaped animal, you will only make situation worse.
  - » Instead stand back and give the animal time. In most cases, it will be drawn towards others of its own kind. Use this to your advantage.

Make a plan before you start.

- Be prepared to adapt it at short notice.
  - » An experienced stockperson will 'read' the animals' reactions and immediately alter what s/he is doing to suit the situation. It could be moving further in or out of the flight zone, altering his/her position with respect to the balance point or slowing down/speeding up.
- Make sure the plan is clearly discussed with your fellow workers and that they know their roles and responsibilities.
  - » If stock can see a human, then that person can influence stock behaviour.
  - » An animal may become increasingly confused and agitated if pressure is exerted from both in front and behind the balance point at the same time.
  - » Everyone needs to consider whether their actions could cause injury to another person e.g. by inadvertently pushing stock over him/her.
- If using a handling aid, make sure you know how to use it properly (see Box 6).
- Have the pens and equipment prepared plus decide which gates should be opened and which closed.
- If stock are properly trained to respect an electric fence, then this can make temporary holding pens (Figure 24). A rope can also be quickly swung across to make the pen smaller as required (the stock treat the rope with the same respect as they give the electric wire).
  - » These are quick to set up and the pen size can be rapidly adjusted e.g. if it needs to be enlarged to fit round an animal that does not want to enter the pen.
  - » However, if an animal is agitated or is not trained, it can easily break through.
  - » Never wrap wire or rope around any part of your body in case an animal tries to break out.
- Whenever possible, use the 'follow the leader' principle to encourage stock through the system.
- If animals baulk when moving through the system, look and listen for possible distractions e.g. plastic bottle on the floor, coat hanging on a post, rattling chain or noisy bolt, human in the wrong place.

Figure 24. Calm, trained stock held in a temporary gathering pen made from electric fence and rope. The gathering pen is large enough to ensure that each animal has sufficient 'personal' space and the herd does not mill around. The animals are less likely to fight and lower ranking animals do not become unduly stressed by more dominant herd-mates. In this photo, a few animals are being walked into a smaller holding area made from (rigid) hurdles. These will then be moved through the permanently-sited crowding pen/race and crush.

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- Cattle and semi-feral equines should be moved in small groups to help keep them calm. In contrast, sheep have a strong following instinct so they can be moved through the system in a continuous flock (see next page).
- Try to work out when each individual should be moved through the system. This will depend on
  - » The individual's temperament.
  - » If they have youngstock at foot.
  - » Whether you intend to do different procedures with different individuals.
- Be prepared to alter this order at short notice.
  - » The herd dynamics will change as the number of stock in the gathering pen decreases.
  - » The most important thing is **NOT** to leave highly-strung individuals until the end. These animals will
    - > Often hang back and will be less willing to move through the system.
    - > Become more anxious as the number in a pen decreases. The number left where these individuals will start to panic will vary depending on the circumstances on the day plus how large the main herd/flock usually is e.g. an animal may become spooked if the herd number drops down to 8, in other cases it could be when the number drops down to 2.
- It can often help to take a couple of tame, confident animal through first. Alternatively, if you use a feed lure, greedy animals will often be willing to go first.
  - » Give these initial animals time to investigate their surroundings.
  - » These animals can then act as a draw and encourage all other animals to follow.
- Consider moving the 'bullies' in the next group (or at the start).
  - » This will remove the risk of these starting to harangue the more sensitive animals as the herd numbers decrease in the gathering pen.
- Then move the highly strung animals.
  - » It can help to take a confident, calm individual through the system at the same time as these to act as reassurance.
- Leave a couple of calm tame animals that don't mind being on their own till the end.
- When moving a group through the handling system, try to mitigate potential problems e.g.
  - » By walking around them on the side that will deter the animals from breaking out from a weak point or towards other stock.
  - » Bringing more animals than you actually need up to the next gate so that the stock remaining in the pen do not act as a draw back away from the next part of the system.
  - » By reducing pressure from the next part of the system by removing distractions (inc. people).
- Know how many stock can fit in each section of the handling system – this will help determine how you bring stock through the system.
  - » It also ensures efficient and safe handling plus maximises animal welfare.
- Don't overfill the crowding pen
  - » The crowding pen is not a holding area – animals should only enter it when there is space in the race for them.
  - » Animals need space to turn round in order to enter the race in single file and at a good pace.
  - » If working with semi-feral ponies or cattle that have minimal experience of handling systems, then the crowding pen should never be more than ½ full (with tame stock, this can be increased to no more than ¾ full).
- Use your body position and parallel movement (Figure 11) to encourage stock to move through the race.
- If using slide gates, have them either fully opened or fully closed.
  - » This minimises the risk of the stock or handler getting injured plus lessens the risk of infrastructure damage.
  - » Always stand to the side of the gate when opening and closing it.
- When using a restraint e.g. yoke or a full squeeze crush (Box 8).
  - » A full body squeeze crush often helps a semi-feral animal relax and become easier to handle.
  - » The pressure should be sufficient that the animal feels held, but it should not be excessive. If an animal struggles, the pressure should usually be decreased (not increased).
  - » The restraint should be applied slowly and steadily. Sudden bumping or a noisy, slamming yoke can increase an animal's fear.

Working with sheep

It helps to understand how sheep respond to your actions.

- Sheep are not stupid.
- They have excellent memories, recognise individual humans and they will remember a nasty experience.
- Gathering fewer than 4 'untrained' sheep can be very challenging– especially if they are primitive breed, semi-feral and/or have had a previous bad experience being gathered. These sheep will have large flight zones and will be very wary of being trapped. They often respond poorly to trained dogs. They require patience and calm handling–plan your gather carefully, think like a sheep and be prepared to adapt your plan at short notice.
  - » Work at the edge of their flight zone, keep calm and use fence-lines plus temporary stock netting to funnel the sheep into the handling pen (see case study 3).
    - > If they are panicking, will they even notice the entrance gate to the handling system?
    - > Will they feel excessive pressure because the gather pen is too small or because there are distractions (e.g. coats hung on posts or spectators in the wrong place)?
- Sheep are adept at reading our body language.
  - » Humans are less threatening when they are standing still and side-on or low down.
  - » Waving your arms, shouting or getting frustrated will increase their stress.
- Other things to consider with sheep.
  - » Never grab or lift a sheep by its wool–it causes severe bruising and pain.
  - » In hot weather and full sunlight, a full-fleeced sheep may start to suffer from heat stress. Try to plan your work so that it can be done in the shade or at a cooler time of the day.
  - » Sheep want to be with their own kind and want to follow each other. Use this to your advantage and allow them to flow as a mob through the system–it helps to know how many sheep can fit in each section.
  - » When under threat, most sheep form tightly bunched flocks.
    - > Sheep from different sources/different breeds, may not operate as one group.
- Primitive sheep when put under pressure, will often try to jump out of a pen and others may try to follow.
  - » Make the corral sides higher e.g. stand some hurdles their end (Figure 17).
  - » If one or more sheep escape, don't give chase. Close the caught sheep in a small pen and set up a larger outer pen next to it with the gate open. Stand well back (e.g. go and have a tea break). Give the animals at least 30 minutes to calm down. The escapee should be drawn to the penned stock.

To move sheep through the handling system.

- » Apply sufficient pressure to the sheep in the yard to create a leader. Once you have a leader step back and use parallel movement (Figure 11) to speed them up or slow them down.
- » Unless very tame, sheep instinctively want to keep a certain distance from humans. This means that they will curve around you–use this to your advantage when moving them around the handling system and through gates.
- » If you are using a simple handling system of two pens made out of sheep hurdles, then you can still take advantage of the sheep's natural instinct to go back from where they came from by initially moving them all into the furthest pen and then sorting the animals you want back into the pen nearest the paddock they came from.

At the end of the handling session

- Stock should be returned to the paddock in a steady, calm manner.
- If the weather is hot, it is a good idea to take them to water before you leave them. Similarly, if they have not been on a site before, you should show them where the water is.
- Make sure that the livestock are calm and settled before you leave them. Livestock have great memories and their behaviour is influenced by their experiences.
  - » If you leave them in the right frame of mind, they will associate you with positive things.
    - > This is better for animal welfare.
    - > It also will help when you next need to move and handle stock.

Transporting stock

There are several things to consider when transporting stock.

- Fulfil legal requirements regarding
  - » Transportation – see Box 10 plus the appropriate devolved administration website for more details (The GAP resources webpage has links to these).
  - » Animal identification and reporting animal movements – see appropriate devolved administration website for more details.
  - » Cattle Tb pre-movement tests.
  - » Post movement standstill times.
- Health and Safety for handlers- see Box 1.
- Animal Welfare.
  - » Mitigating animal stress before, during and after transportation.
  - » Fitness to travel – see Boxes 9 and 10.
- Biosecurity.

Animal welfare during transportation

When moving animals, you must transport them in a way that won't cause injury or unnecessary suffering

This suffering can be both

- Physical e.g. injury, extreme temperature.
- Psychological e.g. fear, anxiety.

Novelty causes high levels of stress. Research has shown that the most fear-inducing journey is the first one that an animal takes. This fear can be significantly reduced if stock are trained to enter a stationary trailer willingly (Figure 25 and Box 9). This training can be done well in advance of any move e.g. as part of the general training for weaned youngstock.

Furthermore, the different stages of transportation (before, during and after the move) can each confer their own additional stresses. These when combined, can make an animal extremely fearful and agitated as soon as they suspect they are about to be moved and well before they have even entered the trailer. It is therefore important to work out ways to minimise this fear.

Box 10: Summary of Defra regulations for transporting livestock as of May 2019.

Regulations for anyone transporting animals on any journey

- No one shall transport animals, or cause them to be transported, in a way likely to cause them injury or undue suffering.
- Journey times are kept to a minimum.
- The animals are fit to travel.
- Those handling animals have been trained and are competent.
- The vehicle and its loading and unloading facilities are designed, constructed and maintained to avoid injury and suffering and to ensure the safety of the animals.
- Water, feed and opportunity to rest are made available to the animals as appropriate, and sufficient floor space and height is available in the transport
- The driver has the appropriate driving licence.
- For non-export journeys, an Animal Transport Certificate (ATC) is provided which shows the following:
  - »Origin and ownership of animals.
  - »Place of departure and destination.
  - »Date and time of departure.
  - »Expected duration of journey.
- Note – If you are a farmer transporting your own animals under 50km (~31miles) using your own vehicle then you are exempt from ATC requirements.
- If journeys are under 65km (~ 40miles), training doesn't have to involve a formal qualification, but should cover:
  - »Fitness for travel.
  - »Means of transport and use of its facilities.
  - »Loading, unloading and handling.
  - »Watering and feeding intervals.
  - »Journey times and rest periods.
  - »Space allowances.
  - »Documentation.

Transport stock for 'short' journeys over 65km (~40miles) and up to 8 hours (journey times is from 1st animal loaded on to last animal unloaded)

- Hold a Type 1 transporter authorisation.
- Ensure that drivers and attendants are in possession of a certificate of competence.
- Demonstrate that they have appropriate staff and equipment to transport animals in a proper way, and to have no record of serious infringements of animal welfare legislation in the preceding three years.

Transport stock for 'long' journeys over 8 hours

- Hold a Type 2 transporter authorisation.
- Have any vehicle used for transporting livestock inspected and approved.
- Have contingency plans in case of emergencies.
- Complete a Journey Log where livestock are being exported.

.Before loading

- Plan your journeys thoroughly.
  - » Keep the trip duration down to a minimum.
  - » Have an emergency contingency plan in case of an accident/breakdown *en route*.
    - > This is especially important during very hot or very cold weather, where the extreme temperature could make any delay critical.
- Ensure that all handers are competent and don't use violence or any methods likely to cause fear, injury or suffering.
- All animals must be fit to travel (Box 11).
- If you have a casualty animal, there are legal and welfare requirements that must be adhered to (Box 12).
  - » You should have a pre-prepared action plan to deal with casualty animals.
    - > All staff and volunteers should be aware of this.

Box 11. Fitness to travel

Defra regulations as of May 2019.

It is illegal to transport an animal that's considered unfit for travel. This includes:

- Very young animals e.g. calves less than 10 days old and lambs less than 1 week.
- Calves less than 14 days old, for journeys over 8 hrs.
- New-born mammals where the navel hasn't completely healed.
- Heavily pregnant females where over 90% of the expected gestation period has passed–unless they are being transported for veterinary treatment.
- Females who have given birth during the previous 7days.
- Sick/injured animals where moving them would cause additional suffering, unless instructed by a vet–see Box 12.
- Shorn sheep during cold weather–particularly between November to March.
- Animals should be handled and transported separately in the following cases
  - »Animals of different species.*
  - »Animals of significantly different sizes or ages.*
  - »Adult breeding boars or stallions.*
  - »Animals with horns from animals without horns.*
  - »Sexually mature males from females.
  - »Animals hostile to each other
  - »Tied animals from untied animals.

Note–points marked * above do not apply where animals have been raised in compatible groups or are accustomed to each other or where separation would cause distress or where females are accompanied by dependant young.

Loading the stock

- Don't rush–give the stock time to choose to enter.
- Use the low-stress handling methods described earlier in this leaflet to gather the stock into the holding area.
  - » If any of the animals may be spooked by the trailer, it can help to keep this out of sight while the stock are gathered into the holding area.
  - » If you choose to use any form of restraint, it is important to weigh the benefits of having a 'controlled animal' against the animal's distress (and possible long term 'fear memory').
- Ensure there is a suitable loading ramp with a non-slip surface (Figure 26).
  - » Loading ramps should not be orientated so that an animal has to look directly into the sun.
  - » Cleats should be correctly spaced so that an animal's foot fits comfortably between them.
    - > Cleats set either too far apart or too close together can cause an animal to slip.
  - » Current Defra regulations stipulate that the maximum ramp angle used is
    - > 26°34' (equivalent to a rise of 4 over a distance of 8) for cattle and sheep.
    - > 20°00' (equivalent to a rise of 4 over a distance of 11) for horses and calves.
- Ramp side panels deter escapes.
  - » These may not be needed for equines that are halter led during loading/unloading.
- Make sure there isn't a gap between the ramp, its sides and the trailer itself.

Figure 25. A trailer set up with food so that stock learn to have a positive association with entering it. This training is done over several days and can be performed well in advance of the actual move. Once stock are used to entering the trailer, further training could include being shut in for short periods of time and then rewarded again if they are calm–see Box 9.

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- Know how many animals can safely fit in your trailer–do not overload it.
- Consider individual animal temperaments, not just for which animals to transport together, but also how the remaining herd/flock dynamics will change.

» Stressed, dominant individuals or animals that are unfamiliar with each other are more likely to fight.

> It often helps to take the most dominant animals who may bully others off the site first.

> Other animals may not wish to enter the trailer with the most dominant animal.

> If your trailer has a compartment, it can help to separate out the 'bully' from the rest.

» Do not to leave highly-strung individuals until the end (see page 36 for more details).

> It can help to load these alongside a calm one.

- Remove all distractions inc. spectators.
- It can help if animals see daylight through the trailer e.g. by opening the jockey door.

» Animals can be reluctant to enter a trailer that is darker than the light outside.

» For semi-feral equines and cattle that are not used to being corralled, it can also help if the loading race is covered as they instinctively want to move from the dark towards the light.

- Make sure that you will not get trapped inside the trailer with large stock–have the jockey door open as an escape route.
- Only stand behind/touch the rear of an animal if you are certain that you cannot be kicked.
- Take care closing the ramp gates–most accidents occur as these are being closed and livestock kick-back or push-back.

Figure 26. Exmoor ponies about to enter a trailer. Note how the ramp is covered with sawdust to make it less slippery and intimidating.

Kevin Caster

Box 12. Transporting casualty stock.

See Defra website for more details.

- It is an offence to 'cause or permit' an animal to be transported in a way which causes or is likely to cause injury or unnecessary suffering.
- The animal's best interests and welfare must be the most important consideration when deciding whether it can be transported. If you have any doubts
  - »Seek advice from your vet.
  - »Arrange to have it slaughtered humanely on site.
- If an animal is in severe, uncontrollable pain, then it should be slaughtered without delay.
- An unfit animal may only be transported if it is being taken for veterinary treatment or if it is being taken to the nearest available place of slaughter.
- Ask yourself the following questions.
  - »Can the animal be loaded without being forced up the ramp?
  - »Can the animal bear weight on all four legs?
    - >If it is likely to stand during the journey, can it do so without pain or distress?
  - »What is the duration of the journey?
  - »What is the nature of the road over which the animal will be transported?
  - »Is there a suitable vehicle and driver available?
  - »Can the animal be looked after satisfactorily during the journey?
    - >Can suitable padding or bedding be provided?
  - »Is there a slaughterhouse near enough which will accept the animal?
  - »Is the animal's condition going to deteriorate significantly over the time it takes to reach the slaughterhouse?
- Any animal which cannot bear any weight on one or more limbs (e.g. due to a fracture or other severe injury) should not be transported.
  - »You need to consider both the degree of lameness and the animal's demeanour. The vehicle's movement will require a standing animal to use all four legs to maintain balance–this is likely to inflict considerably more pain than simply standing in a pen located on site.
- When transporting a casualty animal
  - »Prepare a deep bed of straw or other suitable material.
  - »Take care to protect it from banging against the sides of the lorry or partitions during the journey.
  - »Separate it from other animals, unless to do so would cause distress.

When stock are in the trailer

During transport, stock are exposed to a number of different stresses including

- Motion – both motion sickness and trying to maintain their balance.
  - » 'Driving style' had a major influence on animal welfare.
    - > Avoid abrupt cornering, sudden braking or rapid acceleration.
  - » Try to choose a route with good quality, straight roads.
- Temperature and humidity.
  - » Within the UK, excessive heat is likely to be a greater problem than extreme cold.
  - » When heat builds up within a vehicle (usually because of inadequate ventilation), a point can quickly be reached where the animals are no longer able to regulate their own body temperature. In this situation, they can suffer significantly and may even die.
    - > The pattern of air flow through a trailer is influenced by both the vehicle's movement and by the direction and speed of the wind.
    - > It is important to ensure there is adequate ventilation – do not cover openings with tarpaulins or other materials.
  - » In hot weather
    - > Carry fewer animals on each trip.
    - > Plan your journey so that you are not moving animals during the hottest part of the day.
    - > Do not park in direct sunlight or for prolonged periods.
- Noise.
- Social re-grouping.

Figure 27. Non-tethered Exmoor ponies in a trailer. Note the trailer has sufficient head height and open vents. The animals appear unstressed and have sufficient space to turn around.

Kevin Caster

At the end of the move

Stock may want to exit a trailer quickly once they become aware that release is imminent – when the ramp is lowered to unload, step well to the side in case a stampede occurs. Conversely, they may be uncertain about exiting, in which case be patient, stand back and don't rush or force the stock to exit the trailer.

Livestock can be significantly stressed by their move especially if they arrive at a site they have not been before. This problem can be exacerbated if they are

- Placed with animals they don't know.
- Not able to find food they recognise.
- Handled roughly.

Long-term stress can decrease performance and depress the immune system which in turn can increase the risk of ill-health.

For more advice on how to manage stock when they arrive on a new site see the GAP leaflet on Purchasing Stock/Finding a Grazier.

Biosecurity

Never mix animals together without considering the possible disease risks

Good biosecurity not only applies to newly purchased stock, but also when stock from two or more sites are mixed together – animals on different sites could have mixed with other livestock (or their by-products from previously grazing), wildlife or contaminated water supplies.

For more details on biosecurity see the GAP leaflet on Animal Health and Welfare.

Handling system designs.

The diagrams shown here are for illustrative purposes only – they should adapted to suit your particular requirements.

As a rule of thumb, the better you understand stock behaviour and the better trained your animals are, the simpler the handling system design needs to be.

Cattle handling systems

Inexperienced handlers often find it easier to work cattle in a stress-free manner if the system includes a well designed crowding pen. For more details about the individual components and how to move animals through a system see page 23 onwards.

Figure 28. Cattle Handling pen suitable for 35 cows or 15 cow/calf pairs. The position of the entrance from paddock, crowding pen and race all take advantage of the animal's desire to return from where they came from. Do not overfill the crowding pen and only take the number of animals past the crowding gate that can fit into the race – hold the rest in the gathering pen. A sort gate after the crush can be highly useful. The system can be easily extended for more animals by expanding the gathering and post-working pens.
Adapted from Temple Grandin 'Guide to Working with farm Animals' (Storey Publishing 2017) ISBN-13: 978-16121274

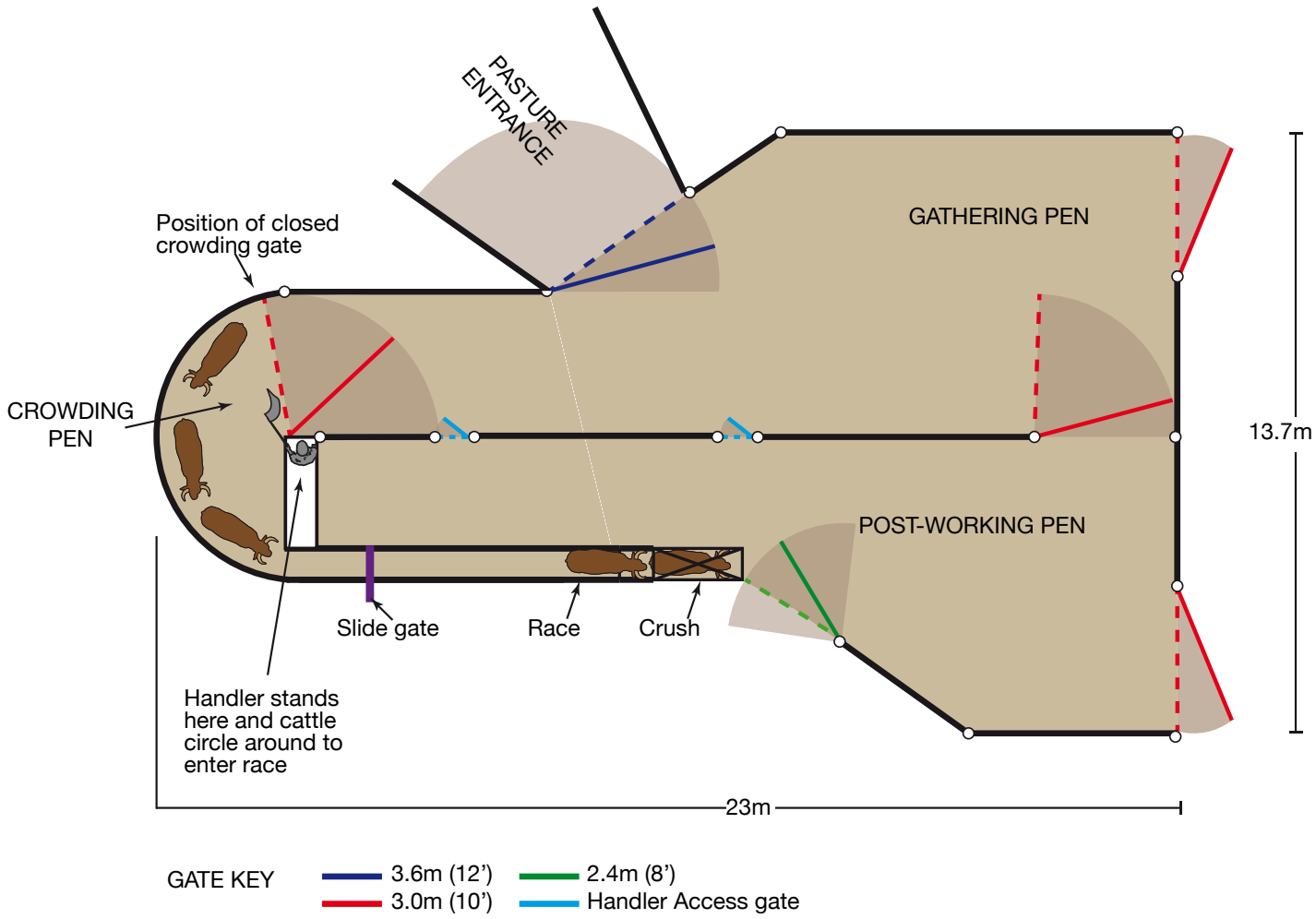

Figure 29. Cattle Handling pen. Suitable for 25 cows or 12 cow/calf pairs. Do not overfill the crowding pen and only take the number of animals past the crowding gate that can fit into the race–hold the rest in the gathering pen. A sort gate after the crush can be highly useful. The system can be easily extended for more animals by expanding the gathering and post-working pens.
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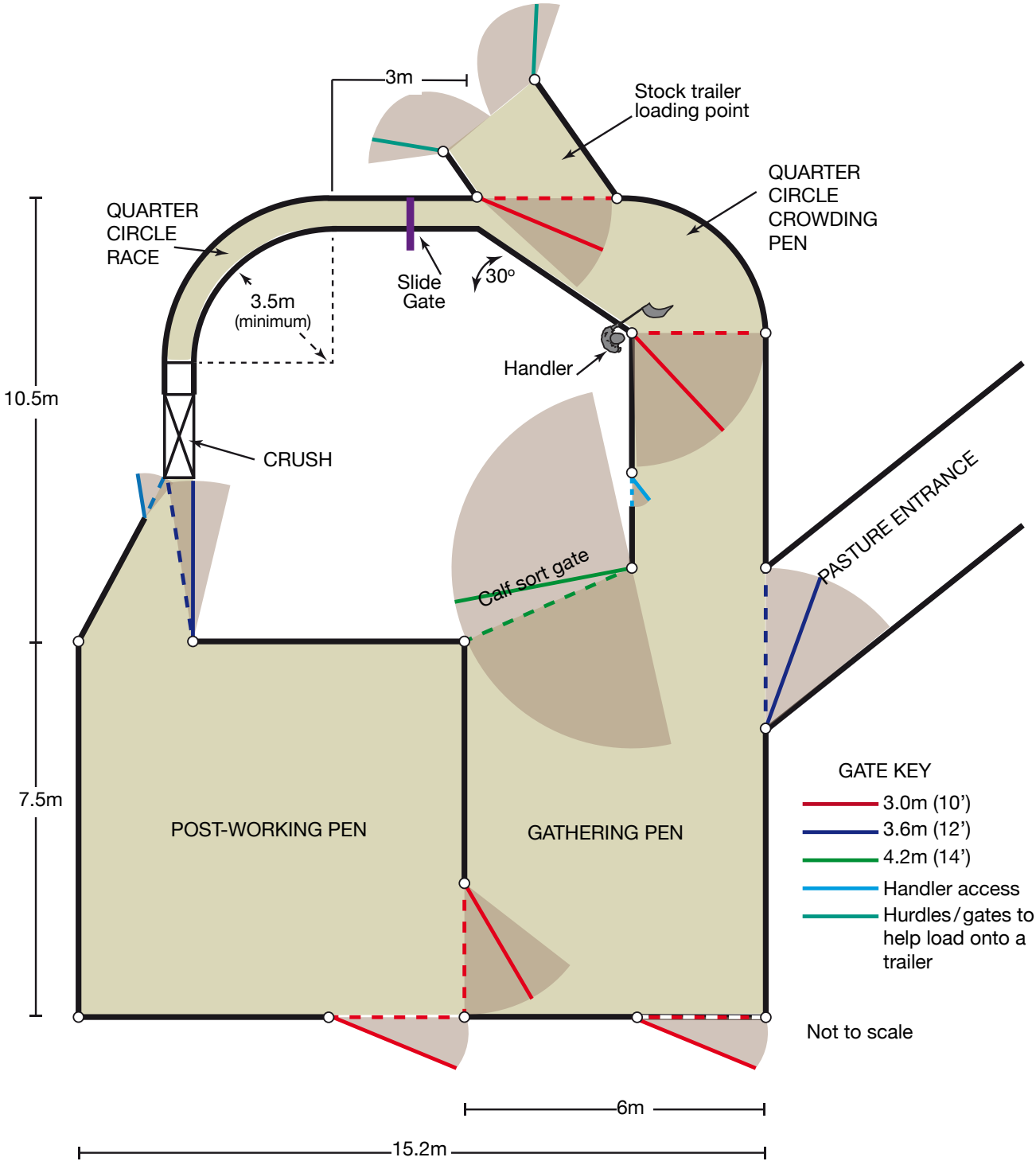


Figure 30. Bud box. Using a Bud box properly requires good stockman skills. However, it is easily portable and quick to build. It can help if the gate between the gather pen and bud box is solid (i.e. the cattle cannot see through it). To expand to fit more cattle, increase the number of holding pens. The size of the bud box can be critical to ensure that the cattle 'flow' smoothly around the handler and into the race.

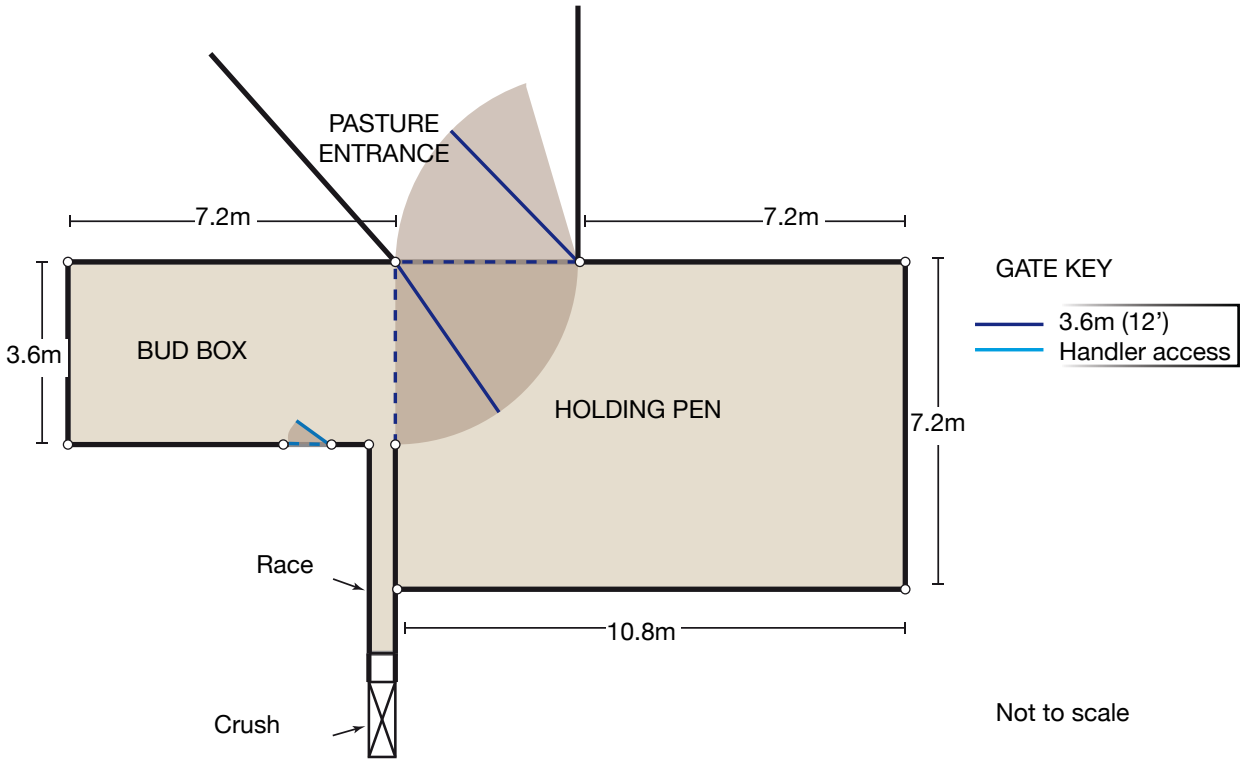
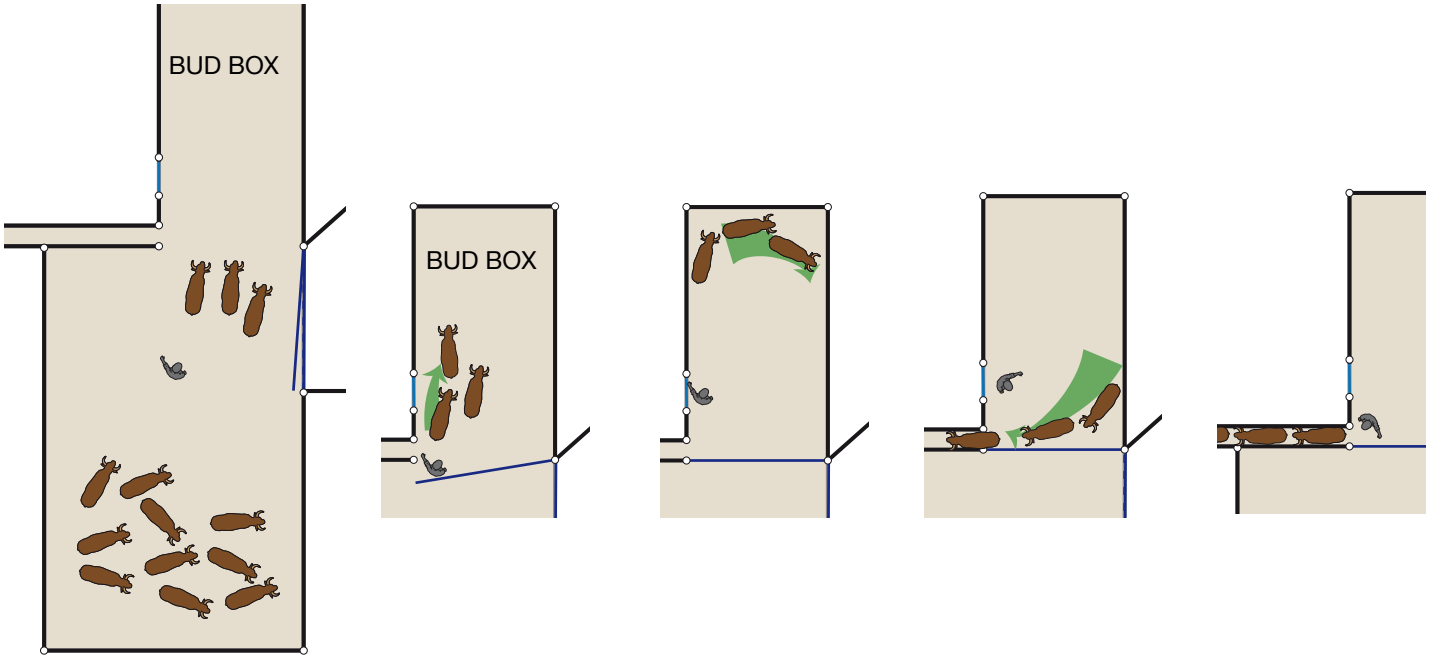


Figure 31. Using a Bud box. Do not overfill–only take the number of cattle into the box that can fit into the race. Once in the box, use the natural tendency of the animal to a) circle around the handler and b) return to where they came from. As the gate between the gather pen and bud box is shut, the animals see the race entrance as their 'escape route' and enter that. The handler should not need to walk far into the box in order for the animals to move in the required direction.



Sheep and Goat handling systems

There are several mobile sheep handling systems available on the market, but they are often quite expensive plus they may be difficult to pull onto some sites. Often a simple handling system made from a few hurdles can be sufficient.

However, on other occasions it is useful to have a more elaborate setup. The diagrams here give examples of a permanent system (Figure 32) and one that can be made up from 6 ft hurdles (Figure 33).

Figure 32. Sheep or Goat handling system using a half-circle crowding pen. The half-circle takes advantage of the natural tendency of stock to want to go back from where they came from. If necessary, the 'half circle' can be made from 4-5 straight hurdles. It is easier to sort sheep, if the sort gate incorporated within the race rather than placed at the end. If required for larger flocks, additional gathering pens can be added (black dotted lines). Adapted from Temple Grandin 'Guide to Working with farm Animals' (Storey Publishing 2017) ISBN-13: 978-16121274

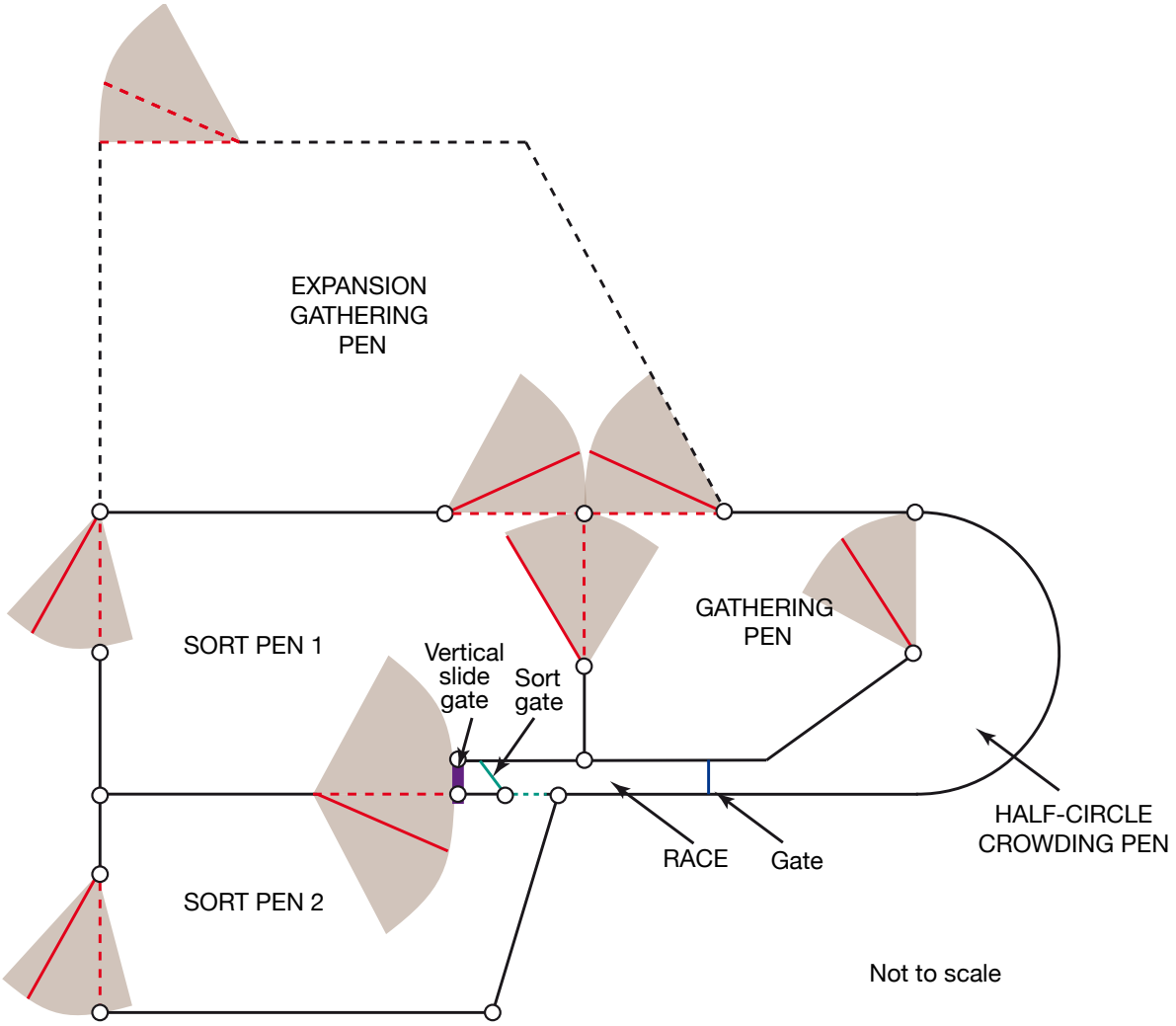


Figure 33. Sheep or Goat handling system made using 6ft hurdles. Suitable for ~40 sheep. In order to take advantage of an animal's natural tendency to go back from where they came from, initially, the inner hurdles (red) are swung back so that the pen is less threatening and the animals can enter the pen furthest from the paddock. As the animals are moved between the two compartments, adapt the two pen sizes as required by repositioning the inner (red) hurdles. The 2 green hurdles act as swing gates for the race entrance and exit. A pair of snap hooks attached to short piece of rope can be used as a quick-release fastener. To stop the race bowing out as the animals move through, fasten the outer hurdles to a fence line–alternatively add an additional hurdle outside the system at right angles to the race. The inner (red) hurdles provide rigidity to the inner side of the race as well as providing an additional sorting pen or 'safe-space' to stop sheep trampling equipment, medicines etc.

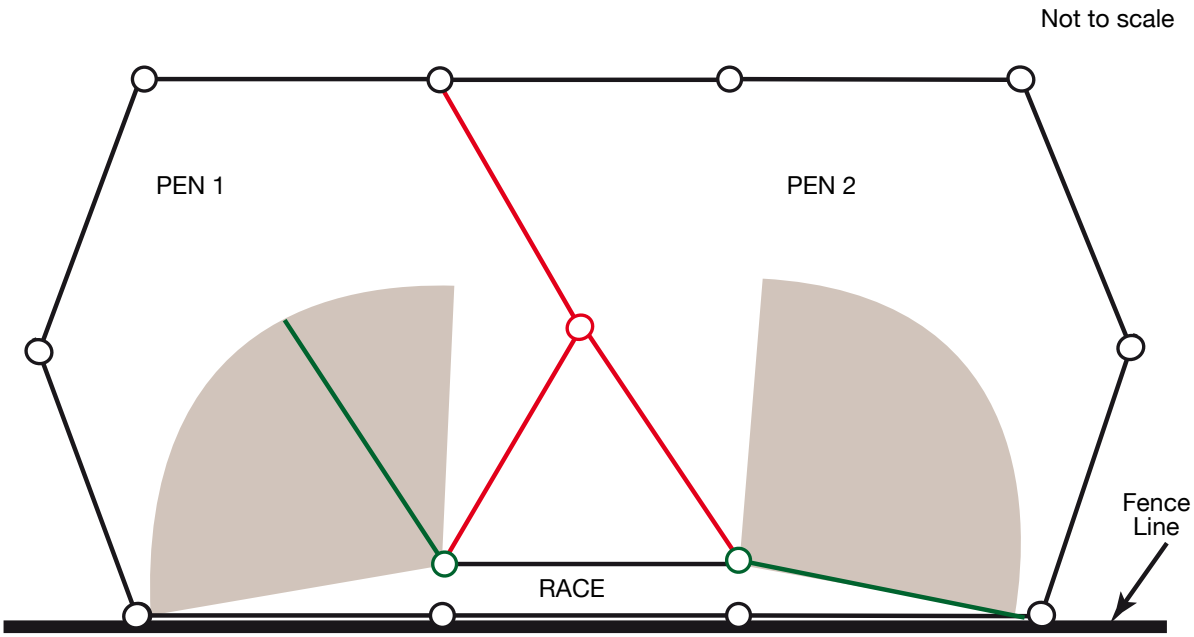
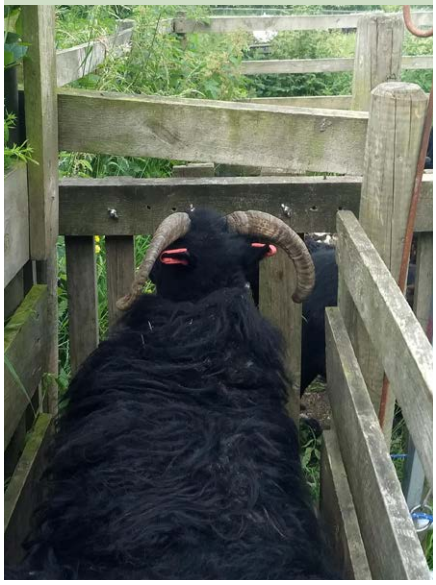


Figure 34. A pair of snap hooks on a piece of rope makes a versatile quick-release fastener.

Figure 34. A vertical slide gate with rope and pulley enables the handler to operate it from behind the sheep.

Figure 36. If using a low exit gate on a race, a bar placed above it will stop sheep from jumping over.



Pen Rashbass

Equine Handling Systems

There are few "off the shelf" equine handling systems available in the UK, so site managers have to develop their own. In the USA, adaptations of Temple Grandin's cattle handling systems are often successfully used to corral wild mustangs–her basic design is provided here (Figure 37).

Semi-feral equines can become severely stressed when constrained within handling systems. Their instinct in these circumstances is to flee and they may injure themselves as they attempt to jump or push through barriers. When they find they cannot escape, they may resort to "fight" and as a result may rear buck, kick and bite. It is therefore imperative to design a system where the handlers can work safely. See page 24 for Case Study 4 and page 25 onwards for design tips. Consider

- Solid sides of sufficient height–especially in the race and crowding pen.
- Use lighting to your advantage– Animals prefer to move from darker areas towards the light.
- A full-body squeeze crush–The equal pressure around the body usually calms and relaxes the animal. This pressure should not be excessive.

Figure 37. Basic Temple Grandin "Tub and Snake" handling system. The curved system (snake) takes advantage of the animals desire to return from where they came from. To guide stock through the crowding pen (tub), the handler stands at the pivot point, just outside the system.