

# LION BEHAVIOUR CONSIDERATIONS FOR NEW ENCLOSURE DESIGNS & MODIFICATIONS

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This brief document aims to give an idea of the different lion husbandry and behavioural considerations that have stemmed from observations of working with lions over several years and discussions with colleagues in other zoos.

## Group Size/Enclosure Implications:

- Lions are incredibly complex socially and can be difficult to manage in breeding (and even non breeding) groups within a captive environment. Due to the possibility and likelihood of social disputes between individual's choices and options are a vital part of lion enclosure design.
- This is particularly important when it comes to housing design. Houses are often the area of a zoo environment where lions will be locked in to allow servicing of the outdoor enclosure. It is vital therefore that the housing given to the lions is large enough for all individuals to feel comfortable to make for efficient recall into this area in an emergency. If a lion is particularly nervous around other lions it will be incredibly difficult to manage in a housing area that doesn't allow for this.
- As mentioned above lions can be difficult to manage due to social dynamics and their independent nature, housing can be made more appealing by featuring an outside caged yard. They will not consider themselves as confined as an indoor area and can make the lions feel more comfortable and also allows them 24/7 outside access regardless of any enclosure work.
- Lions are crepuscular and therefore more active at night. Lion fences should be designed alongside the local council recommendations to ensure that overnight access can be given if appropriate. Due to the activity pattern of lions outside enclosure access at night is vital for their welfare.

## Safety Features:

- There are two ways of slide operation in lion houses, 'side' slides or 'drop down/guillotine' slides. In my experience and those of many colleagues in other collections side slides are much more preferable. Lions can become incredibly nervous and wary of drop down slides and due to the way that they are operated, lions can suffer from bad experiences or even injury (on very rare occasions) while they are being used. Lions can be incredibly quick when moving through a building and if nervous and trying to lock in, incidents with these slides can happen, anything dropping from above makes most animals very nervous.
- Double slide systems are becoming much more commonplace throughout most collections and are recommended by most guidelines and licensing measures for new and even existing builds. This can be achieved through by having slides either side of a wall/mesh panel or by using a tunnel between areas.

## Indoor Housing:

- Lions definitely appreciate a light and airy environment as opposed to a more confined and darker one. This can be achieved by skylights or transparent panels in the roof of the house and windows around the building.
- When having two slides having one mesh and one solid metal one is also important as it can allow lions a view of each other if separated which can be useful for introductions and in keeping lions comfortable if in ill health. Likewise having some mesh panels as opposed to all walls in between dens/indoor areas is also useful in making the lions feel comfortable in these similar scenarios.
- Having a housing area that can offer the lions a variety of different resting locations and areas to give the lions options to either rest together or apart, particularly important in winter and during social disputes.
- Where possible having a housing area that can give the lions 360 degrees movement around is also ideal in making them feel more comfortable and giving them options when locked in with others.
- Limiting dead ends in confined areas, especially houses to ensure that no individual can be stuck in a confrontation is also important.
- A tunnel to help with crating is also a useful feature. A lion can be trained to enter the tunnel and to be stationed in there which can help if there is a crate the other side.
- Off-show space is also vital to keep lions comfortable and to deal with varying circumstances.

## Outside Enclosures:

- Having an outdoor space made up of two or more enclosures as opposed to one larger space can help act as a buffer during challenging social situations. These extra spaces can help give lions breathing spaces by giving them a chance to go into a distinctly separate area (although still linked) to give the lions chance to come back together when tensions have gone down. They also allow more flexibility if linked properly to houses to allow high standards of welfare if lion social groups fail and need to be split permanently.
- High vantage points are appreciated greatly by lions who will spend a great deal of time surveying their surroundings and neighbouring species from a high platform and/or mound. For a larger group of lions, giving more than one of these different resting and vantage points will be useful to give them plenty of choices and options.
- Encouraging plenty of vegetation growth from a variety of species will not only offer lions the chance for plenty of natural cover (similar to their native 'bush') but also a mixture of different smells and natural enrichment. Plenty of natural screening and undulating landscaping can also give the lions the chance to get away from one another without the need for a much greater distances in between due to lack of constant obvious visual contact.

## APPENDIX



**Figure 2** - Caged outdoor area built from weld mesh with access into a housing area and into the main outside enclosure at Linton Zoo. Sand floor and added platform. Size – 76m<sup>2</sup>.



**Figure 1** - Two examples of weld mesh tunnels used at Knowsley Safari to link enclosures together. This gives the lions a space they can be airlocked in if needed but also a double barrier between enclosures to give staff the ability to enter the next door paddock with the lions safely secured the other side. (Hessian in right hand picture as a partial visible barrier for introductions.)



**Figure 3** - Lions enjoying the natural vegetation and mounds at their enclosure at Linton Zoo.



**Figure 4** - Asiatic Lions enjoying their mound and platform vantage points at the Cotswold Wildlife Park.



**Figure 5** – A pride of 2.4 African lions at Knowsley Safari using different outside resting spaces. These two areas are approx. 75 meters apart and in different adjoining enclosures. Although kept as one group at the time allowing the lions the chance to rest separately is important to encourage natural bonding behaviours between members of the same gender as they would in the wild.