

APPENDIX A

Report related to Informal inspection of South Lakes Zoo, undertaken on 3rd November 2016

The Inspection team was made up of Anne Chapman, Graham Barker, (LA) Matthew Brash MRCVS (LA vet advisor). Representing SLSZ Ltd was Karen Brewer, Jon Cracknell MRCVS, Andreas Kauffman, Stewart Lambert and Kim Banks

This informal inspection was undertaken as part of a monitoring process undertaken by the LA to ensure that the zoo continues to be run in an orderly manner, whilst the complex process of the application for a Fresh license is undertaken by the license holder.

This report concentrates solely on two areas of concern noted during the inspection.

1. The tiger enclosure fencing

It was pointed out to the inspection team, by the zoo, that the Perspex and metal fence, between the tigers and the penguin pool, which retains the tigers in their enclosure was unstable when pushed. In particular it was noted that when pushed, the top part of the fence had a sideways movement of approximately one foot.

It is of a solid construction, and there is a low likelihood of it failing, however it may fall if a lateral force was applied. The instability has come about as retaining metal struts have been disconnected when the elevated walkway was taken down earlier in the year. (See Photo 1)

This is a potential escape hazard, and as such must be reinforced so that the lateral movement no longer occurs.



Recommended condition

In accordance with 8.6 of the SSSMZP animals, except free ranging animals, should be kept in enclosures so constructed as to avoid escape. The instability of the tiger fence is a potential weakness that could allow the tigers to escape in certain circumstances. The fence must be

stabilised using suitable brackets to ensure that is able to withstand impact that could lead it to fall over (Immediate).

Further comments

Since the inspection the zoo has confirmed that the stabilising brackets had been inadvertently disconnected when the elevated platform was taken down. They have now replaced them using 5 inch galvanised drive screws, each fixed in 2 places onto the neighbouring structure. See photo 2.



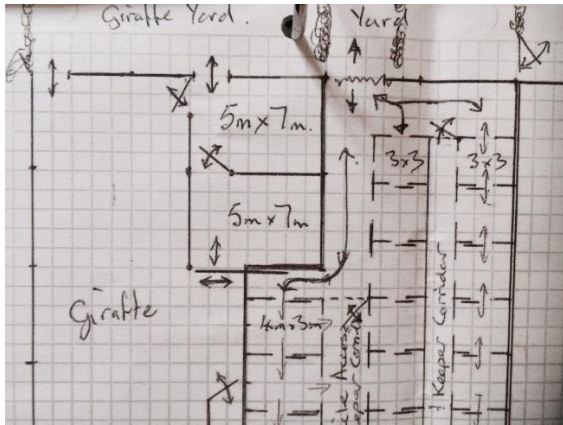
2. Heating, substrate/ bedding and drainage in the Africa house

Background

The large Africa house was constructed during 2015-16 to house mixed species including Giraffe, White Rhino, Zebra, Wildebeest, and Nyala amongst other potential species.

This was first inspected during the November formal inspection by the three Inspectors Nic Jackson, Professor Anna Meredith and Dr M Brash. At this time there were a number of relatively hardy animals housed in this building including Bactrian camels, Donkeys, and one Nyala. The building was incomplete, and the housing available for these animals was unsuitable, posing an escape danger as the animals were retained using only bales of straw and pallets, all held together with string. A number of conditions were applied, to ensure that keeper and public safety and the animal's welfare was ensured.

One of these conditions was that further development of this enclosure should not be undertaken by the zoo until the plans had been seen by the LA. However presented plans have always been sketchy at best, and do not contain details about heating, drainage etc. (See copy below)



The building has been inspected a number of times since then, at the special inspection in May, and again in August during an informal inspection.

During the August inspection it was noted that the heating for the building had still not been installed. The inspection team queried this and were informed that this would soon be in place, and would definitely be in place before winter.

With the onset of winter and colder weather the Inspection team wished to reassure themselves that suitable provisions had been made for the animals in the Africa house.

Findings

The building is a, almost cavernous construction, approximately 50 metres by 30 metres wide, with a high central roof. It is of steel construction on a concrete base, with insulated panels. There are a number of animal exits along one long wall, and keeper access along the other long wall.

Although all one airspace the interior can be divided into four sections; rhino accommodation, giraffe accommodation, mixed species stabling and keeper zones.



The Giraffe end of the house.



The central mixed species stabling (Photo taken in August).



The Rhino accommodation

Flooring and substrate

The flooring throughout is smooth concrete, which whilst easy to clean, is not an ideal surface for animals as it can act as a slip hazard. One giraffe has died after slipping in June 2016. The giraffe floor now has a scattering of sand, with some straw to minimise the possibilities of a giraffe slipping. There was no evidence of a thicker bed, e.g. of straw or shavings, for the giraffe to lie on, should they wish.

There was no bedding or substrate present for the rhino. This is of particular concern as one of the rhinos has a juvenile calf, and two others are pregnant. Concrete is a cold material to lie on, and uncomfortable. The lack of bedding is of particular concern to the juvenile rhino, as a prolonged period of lying on cold concrete may lead to hypothermia.

The mixed species had bedding provided, and were out in the paddock at the time of the inspection.

There are a large number of guidelines regarding flooring and substrate provision for both Rhino and giraffe. For example;

Rhino

1. *A brushed or broom-finished concrete floor that is well-drained and ensures adequate footing is recommended.* **RHINO Husbandry Manual**, Editors Lara Metrione and Adam Eyres INTERNATIONAL RHINO FOUNDATION (Page 46)
2. *Bedding materials such as hay, wood shavings and hoofed-stock rubber matting are optional for white rhinos. Other situations in which bedding is required include barns with rough substrates (which may cause skin ulcerations) or for additional warmth for sick animals or young calves.* **RHINO Husbandry Manual**. Editors Lara Metrione and Adam Eyres INTERNATIONAL RHINO FOUNDATION (Page 46)
3. *White rhinos can suffer from nail cracks and laminitis. This means that the substrate they are walking on is very important. The best types of substrates include wood chips / concrete / rubber / soil / sand. Hay can be put on top of the concrete to offer a softer place to lay down (IRKA, 2010a). No extra bedding material is needed if hay is offered **in abundance** on the floor of the pen. Pens that house calves should be furnished with more hay than is eaten. (Goltenboth et al., 2001)*

Giraffe

1. Substrate should be broom finished concrete or decomposed granite. **AZA Husbandry Recommendations** Rieches, Randy. "Giraffes." AZA Minimum Husbandry Guidelines. Silver Springs, MD: American Zoo and Aquarium Association, 1997.
2. Most giraffe are housed at night and bedding, such as sawdust, straw or mulch to sleep on is provided in the house. **Giraffe Husbandry Manual** - Australasian Zoo Keeping (pages 18 -21)
3. Giraffe are rarely seen lying down on hard surfaces, such as cement (Murray 1997). Captive giraffe spent a much greater time standing than wild giraffe, particularly in metro zoos. To prevent the problem of overgrown hooves, a hard abrasive surface is recommended for giraffe. The surface needs to be non-slip. The following has been used: textured cement or concrete, scoria, various crushed gravels, decomposed granite, granitic sand, asphalt and loose sand spread over concrete. The abrasive surface is not required throughout the exhibit, but recommended for walkways, feed stations and areas of heavy traffic. Inside giraffe houses, cement, and rubber mat flooring has been used, this is usually covered with some form of bedding material, such as sawdust, straw or mulch. **Giraffe Husbandry Manual** - Australasian Zoo Keeping (pages 18 -21)

Drainage

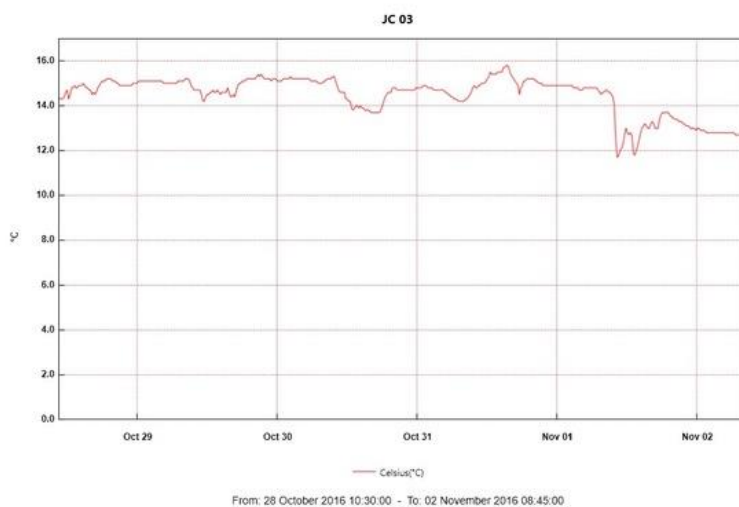
There is a lack of suitable drainage in this facility, with the tilt on the concrete flooring such that urine and waste is moving to the walls of the pens rather than the drainage channels. As long as staff are available to remove waste on a regular basis, then this situation is manageable, however a long term solution to the drainage will be required.



Heating

A heating system has still not been installed. Whilst there is a heater of some type present there is no evidence of any attempt to fit this. None of the zoo management present knew what the plans for heating the animal house were, nor are there written plans.

The temperature in the house is being monitored, see chart below. From this it is apparent that as the ambient temperature drops, the indoor temperature is also dropping.



The graph clearly shows that the temperature of the house is already dropping below that required by the animals. It is essential that animals such as rhinos have accommodation that meets their welfare needs.

This is of particular importance as whilst Giraffe can cope well with high ambient temperatures, they are not good at coping with low temperatures. Non Shivering Thermo-genesis uses energy reserves that these animals do not have, and makes them prone to Per-acute Giraffe Mortality Syndrome.

Rhino are more robust at coping with a lower temperature, but juveniles are very susceptible to low temperatures, and in all cases they should be provided with an environment that meets their needs at all times.

There are many freely available Husbandry guidelines regarding the provision of suitable temperatures in Rhino and Giraffe accommodation.

1. White Rhino

1. *The temperature in the stable should be at least 14 °C with the capability of maintaining some areas at 20 °C / 16 -17 °C as maximum (Goltenboth et al., 2001). For sick or older animals the inside temperature should be a little higher than for healthy white rhinos. Ref Concept Husbandry Guidelines for the White Rhinoceros (Ceratotherium simum)*
2. *Localities that experience average daily temperatures below 10°C (50°F; average of high and low temperatures over a 24-hr period), should provide heated facilities capable of maintaining a minimum temperature of 13°C (55°F). RHINO Husbandry Manual Editors Lara Metrione and Adam Eyres INTERNATIONAL RHINO FOUNDATION (Page 41)*
3. *An indoor facility in the winter should be heated to a minimum of 13°C (55°F) with the capability of maintaining some areas of the barn at 23.9°C (75°F). Supplemental heat may be needed when dealing with infants or with sick or older animals. RHINO Husbandry Manual Editors Lara Metrione and Adam Eyres INTERNATIONAL RHINO FOUNDATION (Page 45)*

2. Giraffe

1. *Temperatures in the house should be maintained at a minimum of 20°C (68 °F), and at no time should fall below 18°C (64 °F). Floor heating is not recommended – it can contribute to dry hooves and increase the evaporation of ammonium fumes. Air humidity is not of special importance. Ref EAZA guidelines 2006 (Authors note; This is probably a bit high, as the disparate temperature to the outside may lead to other problems. Ideally aim for a minimum of 15 degrees C, with some hot spots. MB)*
2. *Inside giraffe barns, the optimal ambient temperature near the giraffe's body is 65 degrees or higher. It is best to measure this temperature at the mid-chest level of the giraffe. Heaters located at the top of a barn will certainly warm a giraffe's head but may not properly warm its body. Barns with heated floors are optimal, as the heat will rise and warm the animal's legs and body. By way of example, one giraffe became hypothermic and died inside a heated,*

*albeit drafty, barn where the upper level of the barn was nearly 70 degrees but the lower area was only 45 degrees. (ref **Proper Giraffe Care in Cold Weather** USDA APHIS)*

3. *Giraffe are very susceptible to the cold and their body temperature is likely to fall when ambient air temperatures are low, in these circumstances the giraffe will have increased energy demands (Clauss M, Suedmeyer WK, Flach EJ. (1999). Susceptibility to cold in captive giraffe (*Giraffa camelopardalis*). **Proc AAZV**, pp. 183-186.*

The SSSMZP state that;

Provision of a suitable environment for the animals is essential;

SECTION 2.1 States;

- *The temperature, ventilation, lighting and noise levels of enclosures must be suitable for the comfort and wellbeing of the particular species of animals at all times.*

It also says;

- *Consideration must be given to the special needs of pregnant and newly born animals.*
- *Indoor housing must protect against extremes of sunlight, heat, draughts and cold and provide appropriate humidity.*

Conclusion

The species housed within the Africa house are African continental species, and whilst some are relatively hardy, such as the Zebra, others are more susceptible to temperature fluctuations. With the location of the zoo being so far North, Giraffe and White rhino require a house that is heated.

The smooth concrete flooring is not ideal, and adaptations are needed in the short term, such as deep littering, to provide a suitable substrate. In the long term changes to provide a better surface and improve drainage are likely to be necessary.

As such it is important that a condition is applied to SLSZ to ensure that suitable heating systems are put in place immediately, or as soon as possible, before colder weather arrives with winter.

Condition

1) In accordance with Section 2 of the SSSMZP an appropriate written action plan must be developed that demonstrates clearly how the Africa House will be heated, how suitable bedding and substrate will be provided, such that the welfare needs of all the animals housed within this building are met at all times, thus ensuring their well-being and comfort. A copy of this action plan must be submitted to the Local Authority. Timescale: 1 week.

2) The action plan must then be implemented, and the temperature of the house continuously monitored to ensure that suitable temperatures are maintained. Timescale: A maximum of 3 weeks after 1 above.