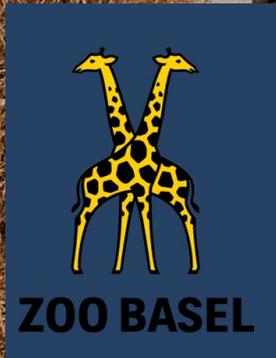


WELFARE AND STOCKING DENSITY

CITES WORKSHOP ON TRANSPORT OF LIVE SPECIMENS
21.03.2024

FABIAN SCHMIDT, ZOO BASEL
BASIL VON AH, ZOO ZÜRICH



TRANSPORT IS A STRESSFULL EVENT FOR ANIMALS

- Animals are in a foreign surrounding
- Capture prior to transport
- Stimulies during transport
- Unexpected interruptions (hold-ups) can have a massive impact

Organisation is key

- Every species is different!
- Behaviour and biology of the species has to be understood
- Events/Handling before and after transport will influence welfare and health massively



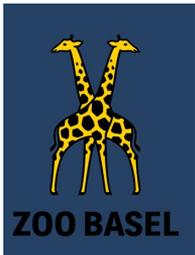
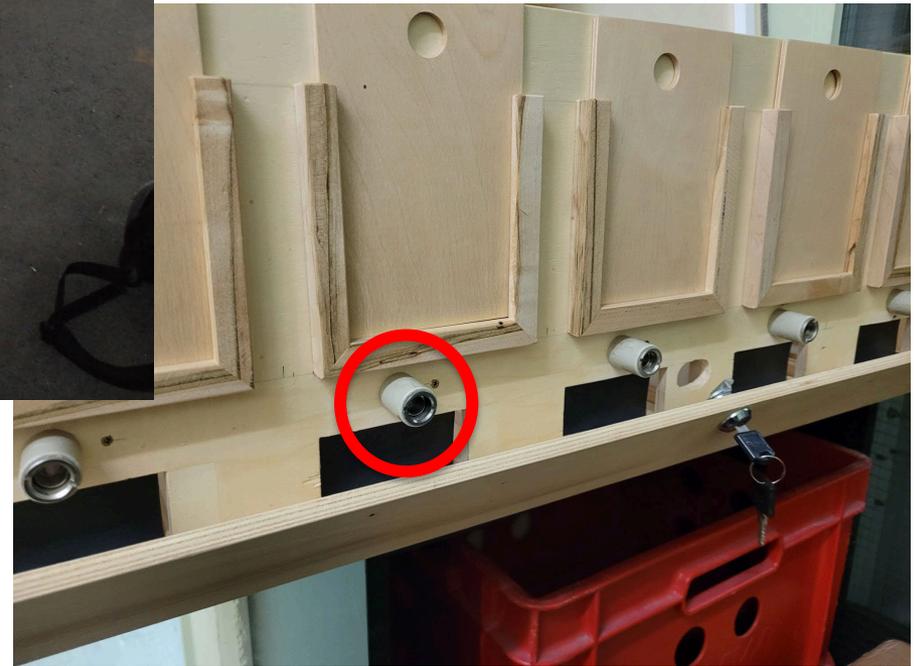
CRATE DESIGN AND TRANSPORT LOGISTIC

- Adapted to the species! **One size does not fit all!**
- Possibility of checking up on the animal
- Possibility to intervene must be available
- Provision of food and water -> Risk / benefit!

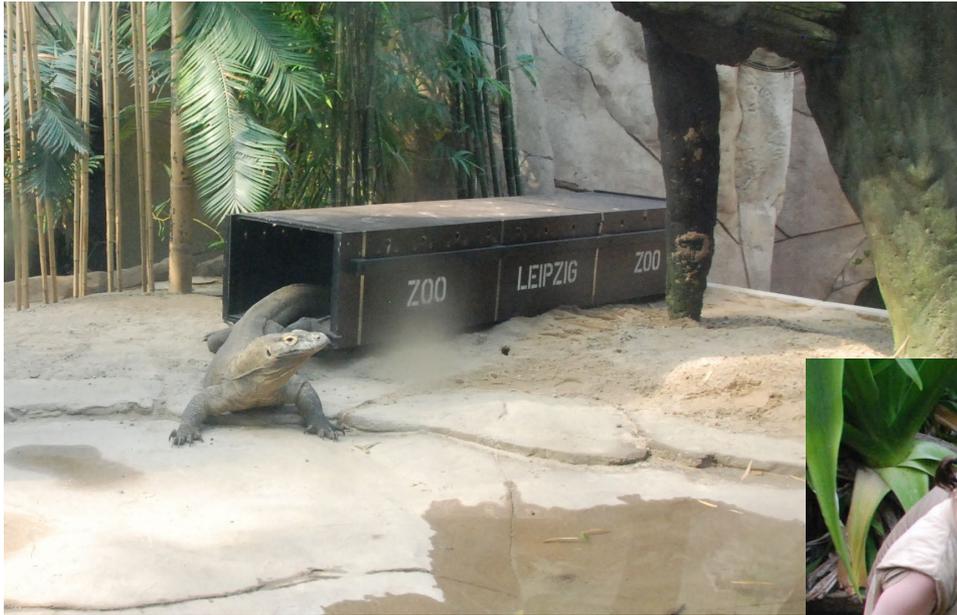
- Air circulation
- Temperatures and humidity
- Water quality (aquatic animals)
- Lighting



INSPECTION WINDOW



REDUCE STRESS – TRAINING VS. MANUAL RESTRAIN



MAMMALS

Small mammals = high metabolism and energy consumption

- hypothermia (small/tropical species) happens quickly!
- hyperthermia if ventilation is bad or stocking density high

Bigger mammals

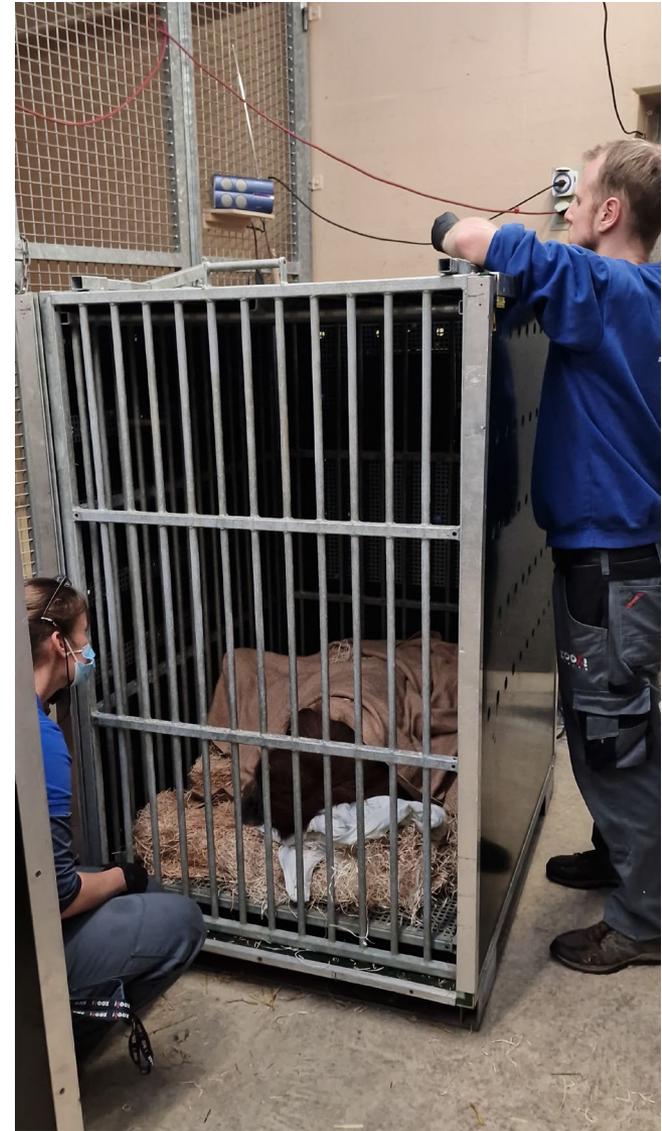
- Safety for animals and humans
- Stress especially high in prey species/ group living species (smaller ungulates)



MAMMALS



MAMMALS – ANAESTHESIA / SEDATION

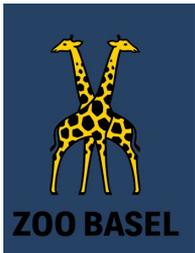


BIRDS

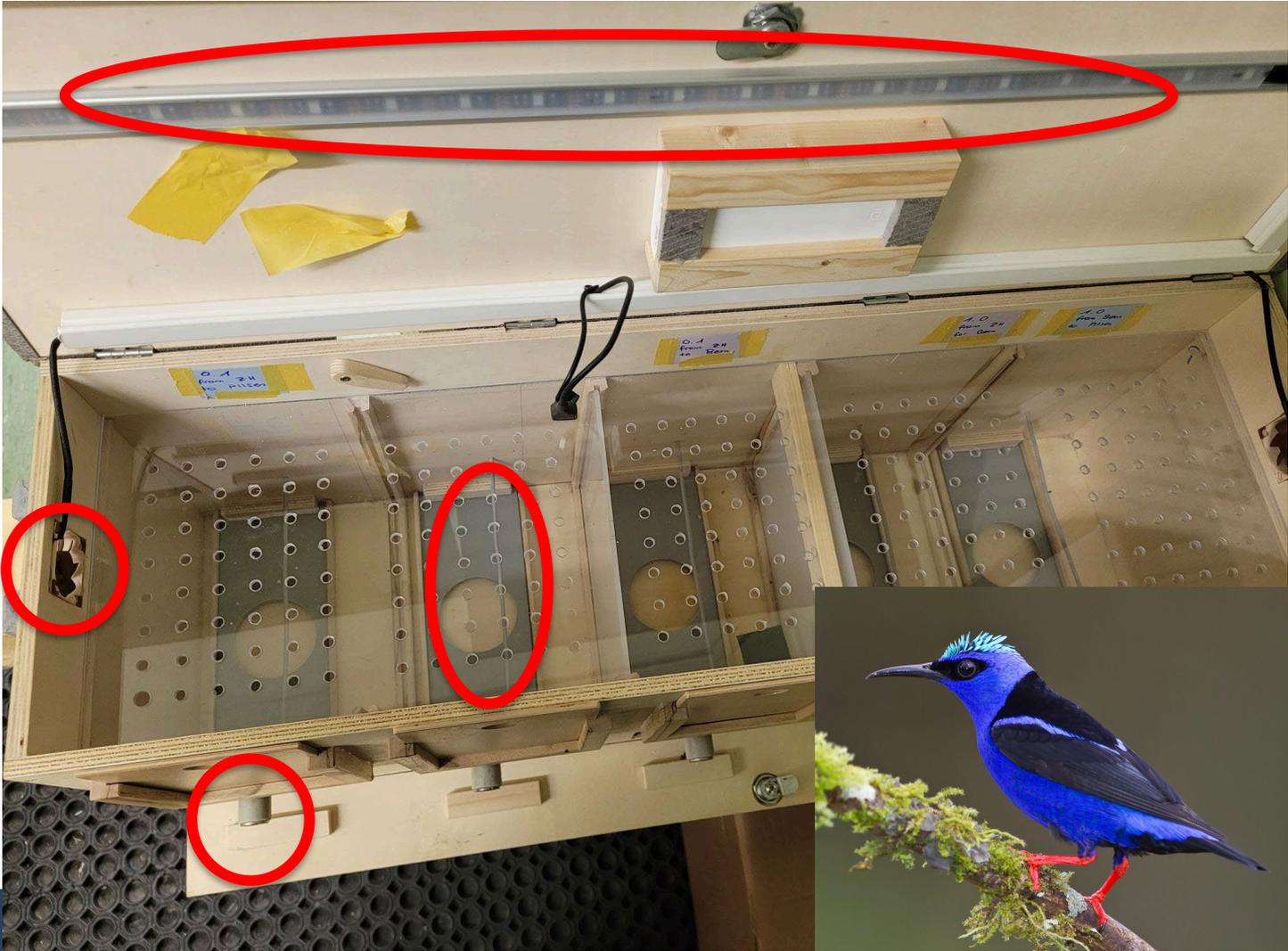
To be considered

- High metabolism (fast heart rate, body temp +40°C etc.)
- High need of oxygen/good airflow
- Temperature! Depending on the adaption of the animal

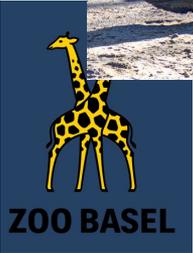
- Food and water: can the animal even find the food (light)
- Injurie of beaks, feathers, wings -> adapt crate



BIRDS – SMALL PASSERINES



BIRDS – SMALL PASSERINES



BIRDS – CHEAP METHODS CAN BE BEST FOR THE ANIMAL

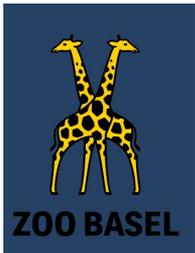


REPTILES

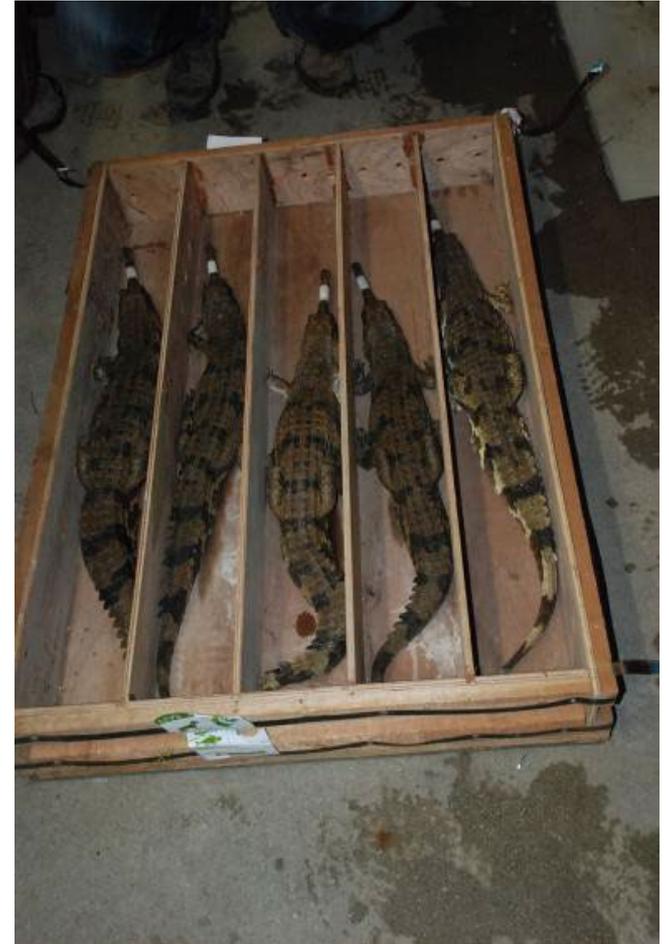
To be considered

- Ectothermic animals -> very susceptible if not chosen right
- Most reptiles stay a lot calmer in confined spaces/ contact to body (e.g. snake bags)
- Oxygen and airflow not as relevant
- Food and water not necessary for most species

- Caution: Safety for animals and humans -> venemous animals, big reptiles (e.g. crocodiles) etc.
 - > Never open a crate if species is unknown!



REPTILES – REDUCE RISK OF INJURY



REPTILES – REDUCE STRESS



AMPHIBIANS

To be considered

- Ectothermic animals -> very susceptible if temp. not chosen right
- Contact with moist substrate relevant for most species (skin must not dry out!)
- Oxygen and airflow not as relevant
- Safety for humans: caution with (hypothetically) wild caught animals! (e.g. poison dart frogs)



FISHES

To be considered

- Water quality and temperature is essential!
- Needs to be adapted to species
- Water current essential in some species (e.g. pelagic sharks)

- Caution if opening a fish container/bag if transport duration is long -> sudden change of oxygen level = change in PH = ammonium converted to ammonia = **dead fish**

- Taking fishes out of a bag needs a well planned process -> slowly adapt the fish to the new water parameters and temperatures. Never empty the transport water into an aquarium



FISHES



STOCKING DENSITY

Every individual seperatly for most species

- Animal injuring eachother (aggression, stress etc.)
- Weak animals can get crushed to death
- Hyperthermia and lack of oxygen can occur quickly

Examples of aimals that should be transported in groups

- Animals that need the safety of the group (e.g. flamingos etc.)
- Lactating mammals with juveniles
- Animals with complex social sturctures or strong pair bond

Animals in different crates but next to each other (animal can smell, see, hear eachother)



STOCKING DENSITY



PHOTO CREDITS

Pictures kindly provided by:

Fabian Schmidt, Zoo Basel and Zoo Leipzig

Sandro Schönbächler/Nicole Schnyder/Basil von Ah, Zoo Zürich



THANK YOU FOR YOUR ATTENTION



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Questions?

