ANIMAL-VISITOR INTERACTIONS

Ethical Reasoning and Participatory Approach Towards Achieving Regulatory Processes For Animal-Visitor Interactions (AVI) In South Africa.

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EXECUTIVE SUMMARY

The results in terms of research, educational and participative outcomes of this ongoing project on Animal-Visitor Interactions (AVIs) in South Africa are detailed. The research activities concern mainly two areas. One is the designing and application of an Animal Visitor Interaction assessment protocol, which evaluates the overall value of such interactions. The other is the collection of animal welfare relevant data, using different methodological approaches, in order to use them as the basis for a housing and management protocol tailored on semi captive elephants and planned on captive lions participating in Animal Visitor interactions in South Africa. The main participative activities are consensus studies involving stakeholders and independent experts using Delphi and an Ethical Delphi procedures and ethical matrices in dealing with the possible contentious issues involved in lions (*Panthera leo*) and elephants (*Loxodonta africana africana*) "experiences" for tourists.
The project is a joint venture between the Ethics Laboratory for Veterinary Medicine, Conservation, and Animal Welfare of Padua University, Italy, and Conservation Guardians, the National Zoological Gardens (NRF) and, more recently, the University of Kwazulu-Natal, in South Africa. The educational activities concern mostly workshops for post-graduate students from Europe offering opportunities for welfare and conservation education in the field, cultural exchange with local communities, and internationally highlighting South Africa commitment in conservation.

SUMMARY

The research group of **Padua University - Ethics Laboratory for Veterinary Medicine, Conservation, and Animal Welfare**- has been collaborating for seven years with **Conservation Guardians and National Zoological Gardens** and, more recently, with **University of Kwazulu-Natal** in South Africa, conducting scientific investigation on Animal-Visitor Interactions (AVI), with the approval of the captive elephant management group, now referred to as ECASA (Elephant

Care Association or South Africa). In the following document we will present what has been done and what is ongoing or planned, which could be of use for the realization of guidelines on animal-visitor interactions.

1. INTRODUCTION

The project started in 2013, with a collaboration agreement between the research group of Padua University (Italy) and Conservation Guardians (South Africa), which was commissioned by the Department of Agriculture Forestry and Fisheries (Keith Ramsay, South Africa). The project was then registered with the National Research Foundation-National Zoological Gardens (NRF-NZG, South Africa). In more recent years, the University of Kwazulu-Natal (UKZN, South Africa) signed a collaboration agreement to join this initiative. The overall project focusses on animal welfare, biodiversity conservation and their connections, tackling these issues with an original interdisciplinary and participatory approach, which intertwines science, ethics and education at various levels (e.g., of staff, of tourists and of University undergraduate and PhD students).

The project is part of a line of research of the Padua University's *Ethics Laboratory for Veterinary Medicine, Conservation, and Animal Welfare* aimed at studying subpopulations of wild animals that are involved in visitor-interaction programs both in zoos and other facilities offering such interactions.

In the first years of collaboration, the project focused mainly on the African elephants (*Loxodonta africana africana*) housed in South African facilities offering a variety of elephant experiences to the public. Although there is scientific literature on welfare assessment in captive elephants (for a review see Williams et al., 2018), such approaches for elephant welfare assessments have been developed for target elephant subpopulations (mostly zoo animals) that differ from the semi-captive elephants involved in interactive animal–visitor experiences in South Africa. External validity has never been evaluated in the abovementioned studies (de Mori et al., 2019b) and there are, hence, tangible risks of errors in transferring findings from those studies done on zoo animals to elephants in South African facilities. Therefore, an approach that relied, at least in part, on findings derived from ad hoc studies targeting the specific semi-captive, visitor interacting elephant population under study was preferred.

The project includes the development and the application of two protocols, one evaluating the overall quality of interactions with visitors (i.e., animal–visitor interactions protocol, AVIP) and one for assessing the welfare effects of the elephants' general housing and management (i.e., housing and management protocol, HMP). Both protocols merge a scientific approach with ethical analysis in order to evaluate the overall welfare of the elephants kept in semi-captive conditions and involved in interactions with visitors in South Africa. Their goal is to enable facilities to begin working symbiotically towards better welfare and to translate this into a more positive and definitive conservation contribution within the education realm.

Both protocols include a phase consisting of an ethically guided participatory processes, directly involving all the stakeholders, so that the whole procedure could be useful when defining guidelines for the regulation of animal-visitor interaction tourism experiences.

In the last year of collaboration, the project has been focusing on captive and semi-captive lions (*Panthera leo*) and on captive lion facilities offering AVIs for tourists.

2. OVERVIEW OF COMPLETED, ONGOING AND PLANNED ACTIVITIES

A brief overview of the various pertinent completed, ongoing and planned activities within the project will be provided, dividing them into "educational activities", "research activities" and "participatory processes". However, it is important to note that the educational, scientific and participatory areas of the project are interconnected, and most activities pertain to more than one area (e.g., a scientific study can be the dissertation project for an undergraduate student; a participatory activity can yield data to select parameters for welfare assessment). After the

abovementioned overview, we will provide a more detailed description of the activities. Our results could be pertinent to a process aiming to regulating AVIs in South Africa: the AVIP and the Ethical Matrix participatory approach.

2.1. Educational activities

A one-week field workshop, in which (mostly post-graduate) students are exposed to different facets of the welfare and conservation issues in South Africa, including the visit also to facilities offering AVIPs was initiated in 2013, starting in with a Master Course in Conservation Education held in SA in 2013, presented by the University of Padua in collaboration with Conservation Guardians. After that, these workshops have been held for Welfare Ethics postgraduate courses of the University of Padua yearly since 2015. The workshop has created opportunities for welfare and conservation education in the field, cultural exchange with local communities and for internationally highlighting South Africa commitment in conservation.
Moreover, 5 Italian undergraduate and 5 Italian post-graduate students have been involved in the research activities of the project in South Africa for their final dissertation study (for the undergraduate students) or in other capacities. The undergraduate students' dissertations concerned: validation aspects of the application of a welfare quality –like protocol for the assessment of the welfare of semi-captive elephants involved in AVIs in South Africa(for two students), the study of *stockmanship* (for one student), that of anticipatory behavior (for one student), and a pilot survey of expert opinion on welfare relevant issue and the differences in their relevance between zoo and "semi-captive" elephants involved in AVIs in South Africa (for one student).
At the moment, one Italian undergraduate student and an Italian PhD student are involved in the part of the project concerned with applying the AVIP to AVI with elephants and AVI with lions in South Africa, whereas another student is involved in the participative area of the project, having participated in the pilot phase of the Matrix workshop with stakeholders last November in South Africa. One PhD student and another two undergraduate and postgraduate students are involved in running the Delphi and ethical Delphi participative procedure involving both stakeholders and independent experts on welfare relevant issues in semi-captive elephants involved in AVIs in South Africa. The corresponding Research and Participatory activities will be described in more detail in the respective sections.

2.2. Research activities

The research activities pertained four main areas:

1) The Animal-Visitor Interaction Protocol (AVIP),
2) The Housing and management protocol (HMP) for elephants
3) A Delphi procedure for lions involved in AVIPs
4) Collateral studies

1) AVIP - animal–visitor interactions protocol

During the last three years, The Padua University Research group has developed a protocol for the overall assessment of animal-visitors interactions in zoos and aquariums in Europe, the AVIP. Such protocol evaluates animal welfare, outcomes of AVIPs for participants in terms of education, conservation mindedness and other benefits, the health risks for the people and the animals involved, the outcomes in terms of wellbeing, autonomy and fairness for all stakeholders and the presence of conflicts of interests and gives a final overall ethical assessment of the specific AVI activity under investigation. The AVIP, thanks to its unique design, is now in the process to be customized for animal interactions' evaluation in SA, namely lions' and elephants' experiences. More detail about the AVIP will be given in a later section of the present document.

2) ***HMP -*** housing and management protocol

The HMP consists of two procedures, one derived from the results obtained from animals in a different context ("external procedure", i.e., an application of the welfare quality as that done on dolphins by Clegg et al., 2015)

and one based almost exclusively on results of preliminary ad hoc studies targeting the semi-captive, visitor interacting elephants under study (i.e., "internal procedure"), using different methods and paradigms and then comparing their results. For an overview of the HMP please see de Mori et al., 2019a. The activities related to the external procedure have been limited to validation phases mentioned in the "educational activities" section, testing intra and inter-observer and test-retest reliability in three facilities.

For the 3 methodological approaches of the internal procedure, what has been done and is ongoing or planned is briefly summarized below:

- for the correlational study: a first draft of the data gathering protocol including check lists, entries form health records, observation data sheets and questionnaires, specifically created for the project during 2014, were tested on the field thanks to the National Zoological Gardens' staff and the visit to the "Adventures with Elephants" in Bela Bela in 2014 and were refined accordingly after being tested there. Concurrently a pilot study on stockmanship was conducted and methods of saliva collection (for cortisol assessment) experimented. The updated version of the data gathering protocol is now ready and the next step will be to compare it with the results of the expert consensus, for validation and simplification of the protocol, which will then be used to gather data in all facilities and assess correlations between management features and welfare relevant animal outputs. As soon as the results from the Delphi is received, they will be used to refine and simplify the welfare assessing procedure designed in 2014. After that access to all facilities housing semi-captive elephants participating in AVIS, will be sought, and data gathered to investigate the existence of correlations between welfare relevant animal based output and characteristics of management and housing.
- for the experimental approach: a first study using qualitative method for the assessment of the emotional state of captive and semi captive elephants by experts was done in 2016 in four facilities, using a Free Choice Profiling methodology, and the relative scientific manuscript is about to be sent to a scientific journal for publication. The emotion valence study to validating behavioural correlates of positive and negative mental states in elephants encountered technical difficulties, and the plan has been changed into asking experts for such correlates and then devise the most suitable way to validate them. Moreover, the 1200 videos of elephants made in 2016 together with the qualitative study videos will be used to pinpoint and validate affiliative behaviours which mean a good cohesion among elephants and behaviour that are sign of a poor cohesion. Often captive elephants are kept in bonded groups so the study of their social behaviour within such groups is important (best practice protocol recognises these bonds as significant to the welfare of the individuals in those bonded groups), also because most of these elephants have not grown up in a normal species specific social setting. A pilot study on anticipatory behaviour was done in 2018, highlighting the strong individual asset of such behaviour in elephants, which makes them not the best candidates of a standardised assessment protocol, but makes them very interesting for an internal control within a facility. The judgemental bias paradigm study has not been run yet, as it is supposed to be done when the other parts of the HMP have been standardised and validated.
- for the consensus procedures: two pilot surveys have been run for elephants, one involving only independent experts and then a second one, based on the results of the first one, involving both independent experts and stakeholders. In both the most important welfare relevant topics in captive and semi-captive elephants, together with the most suitable ways to assess them, and acceptability of some practices concerning elephants taking part in AVIs, were asked. It is important to note that stakeholders can be experts as well and consensus procedures are both participatory processes and research activities. A Delphi and Ethical Delphi process is about to be launched in the first half of 2020, involving both stakeholders and independent experts, which will investigate the experts' opinion on the welfare relevance of many entries that are pertinent to AVIS and general management of elephants involved in AVIs, and behavioural correlates of positive and negative mental states. In the context of the HMP the data derived by the expert consensus will be used to refine and simplify the welfare assessing procedure to be used in a standardised way in all facilities in the correlational study. The Delphi study will be further detailed in the "participatory activities" section.

3) ***A Delphi procedure for lions involved in AVIPs***, analogous to that in the HMP for elephants is about to be launched in mid-2020, and will be detailed in the participatory activities section.

4) ***Collateral studies***: the same video assessed by experts for the experimental approach were also analysed by naïve adults and children with the same method and their results are included in the same manuscript. Their data were deemed worth including because they are likely to represent the perception that visitors have of the emotional state of captive and semi-captive elephants they encounter when they visit the facilities housing them. Another study investigated distances kept by elephants when free to choose while browsing and its results are deemed to be of some interest when assessing at what distance to provide food enrichment (Stagni el al., 2017).

2.3. Participatory activities

Different kinds of participatory processes have been run and are ongoing. The main aims of these processes are to collect data useful to design guidelines for AVI through the engagement of experts and to fulfill structured ethical analysis through the engagement of any relevant stakeholder. The main ones are:

- the Delphi and Ethical Delphi studies involving independent experts and stakeholders on welfare relevant issues in elephants and lions participating in AVIS, which will be started in 2020, and
- process of **ethical analysis**, based on Ethical Matrix, whose pilot has been done in 2019.

1) ***the Delphi and Ethical Delphi studies***

Classical Delphi and Ethical Delphi methods are expert consensus methods. A combination of them has been developed to ask experts and stakeholders to identify issues and viewpoints affecting the welfare of captive elephants in the already mentioned pilot studies. This first data collection highlighted how caution should be used when exporting welfare assessing methods to other subpopulations than the one they have been designed for. Moreover, thanks to the pilot experience, a combination of classical Delphi and Ethical Delphi methods is now going to be run. Of course, a species-specific approach is required, so we are developing two specific methods, one focused on Lion and the other on African Elephant. Providing a participatory approach, these investigations will engage experts in order to create animal welfare checklists, to orientate AVI-guidelines and to conduct an ethical analysis. The rationale behind expert consensus studies concerning welfare is that animals do not have the possibility to directly express themselves the same way we do, so their needs are reconstructed and filtered through our interpretation. Consequently, to evaluate the respect for their wellbeing, autonomy and fairness concerning AVI, a careful welfare assessment should be done. Scientific Literature helps us to do so and consensus development methods can guide us through scientific knowledge especially when exploring subpopulations of animals whose conditions can differ from those studied in published welfare assessment studies. This considered, we decided to apply a consensus development method to investigate “Animals point of view” and animal welfare assessment, along with its “external validity” issues. As caution should be used when exporting welfare assessing methods to other animal subpopulations than the one they have been designed for, the aim is to collect useful information to orientate AVI-guidelines , taking in account the unique context of the South African animal facilities. The consensus development method chosen is a combination of classical Delphi and Ethical Delphi methods. Of course, a species-specific approach is required, so we are developing two specific methods, one focused on Lion and the other on African Elephant. “An ethical Delphi is an iterative participatory process between experts for exchanging views and arguments on ethical issues. The method is structured around the notion of a virtual committee where the exchange of ideas is conducted remotely through a series of opinion exchanges (in the form of 'Rounds'). Anonymity of the participants is central to the process. This feature aims to eliminate external power relations and personal influences that may interfere in the discussion of ethical dimensions within a committee environment” (Millar 2006). The technique has been used for a variety of applications such as technology assessment, Environmental Impact Assessment (EIA), public health (Millar 2006). This methodology allows to identify the diversity of expert value judgements, to identify divergence and convergence in expert opinion, to encourage ethical reflection, to provide a rational basis for ethical decision-making and to clarify the basis of disagreements and highlight related values(Millar 2006). “Ethical Delphi is a structured process for collecting

and distilling knowledge from a group of geographically dispersed experts by means of a series of questionnaires interspersed with controlled opinion feedback"(Millar 2006). Its advantage is that "it can bring together individuals from different perspectives, abilities and skills sets to contribute to the solution of a complex problem" (Millar 2006).
Running this process will highlight the experts' opinion on animal welfare issues which should be considered, as priorities in a welfare assessment plan. The use of indicators to assess the identified issues will be investigated as well. Furthermore, all data collected, combined with scientific literature available, will allow to complete an ethical analysis. In fact, animals are relevant stakeholders and their needs can be highlighted trough a careful welfare assessment and expert opinions. Items such as the relevance for welfare of the single affected animal and for the general populations of items such the way the animal is trained to participate in AVIS, the amount of time in which the animal can express freely its species specific behaviour during the day, the choice to interact or withdraw, and some general management will be asked. Moreover, acceptability of practices such as restraint, medical training, etc will be asked together with possible factors which could influence acceptability (such as conservation education content of the AVIs, source of the animal, etc).

2) a process of **ethical analysis**, based on Ethical Matrix tool, has been started to explore AVI ethical dimensions and to reflect the sensibilities of a pluralistic society**. Including relevant stakeholders**, the Ethical Matrix makes ethically relevant issues **transparent** and provides a descriptive base to gain sustainable solutions. **Workshop**s and **surveys** allow the engagement of the stakeholders. This activity will be described in more detail in the focus section below.

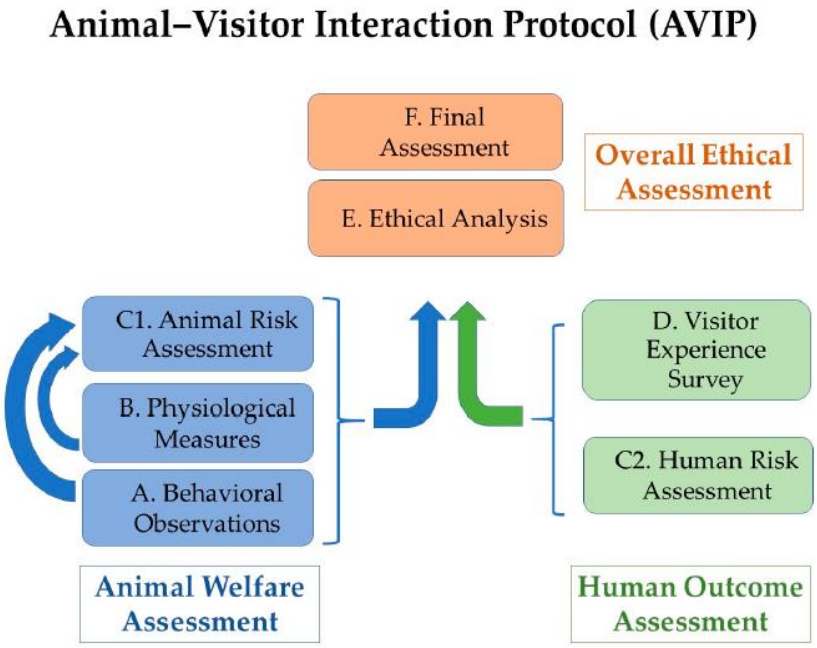
3. FOCUS ON SOME OF THE PERTINENT ACTIVITIES

1. AVIP: The Animal-Visitor Interaction Protocol

The AVIP is designed to **assess and monitor AVIs**, as it helps to identify the strengths and weaknesses of the interaction and supports the staff in highlighting specific problems and finding acceptable solutions. Furthermore, AVIP may help to promote animal welfare assessment by using a uniform protocol in zoological facilities as advised in the Animal Welfare Strategy of WAZA. Moreover, AVIP helps to promote the idea that not only zoological facilities and aquariums, but all the facilities offering wildlife AVIs should assure the same high standards of safety and welfare to animals, workers, and visitors (de Mori et al. 2019).

The suggested protocol (Scheme 1) was designed to assess each AVI considering its different facets, by grouping them into six steps and three "assessment areas" (**Animal Welfare, Human Outcome, and Overall Ethical assessments**):

A. Behavioural observations and analyses;
B. Physiological measures;
C. Risk assessment;
D. Visitor experience assessment;
E. Ethical analysis;
F. Final assessment.
(de Mori et al. 2019)



Scheme 1. The diagram of the animal–visitor interaction protocol (AVIP). The six steps of the protocol (steps A–F) are shown with their relative connections. Step C is divided into two parts: C1 focuses on animal risk assessment, whereas C2 focuses on risk assessment related to staff and visitors. The steps represented by blue boxes are the ones dedicated to animal welfare assessment. Results of step A and B are the base of step C1. Steps C2 and D are represented by green boxes and focus on human outcome assessment. Step E and F are represented by orange boxes and correspond to the final phase of the protocol being the overall ethical assessment part of the protocol.

Up to now the protocol has been applied to AVIs involving different types of interactions and different species (Giraffes, de Mori et al., 2019; ring-tailed lemurs; giant Aldabra tortoises; touch pools in acquaria) and two customized versions of it have been designed in the last few months, one specific for **lion facilities and the other for semi-captive elephant facilities in South Africa**. These two protocols will soon be applied by specifically trained Animal care students of the University of Padua. Data collection should have started in April of 2020, but due to COVID-19 outbreak and consequent lockdown it has been postponed.

Details of this scientific protocol can be found in the article **"A Protocol for the Ethical Assessment of Wild Animal–Visitor Interactions (AVIP) Evaluating AnimalWelfare, Education, and Conservation Outcomes"**(de Mori et al. 2019b)**.**

2. Ethical Matrix and participatory approach

Animal-Visitor Interactions are experiences offered by zoos, sanctuaries and other tourism facilities in which people can be very close, and even touch, wildlife (de Mori et al. 2019). This proximity could affect animal welfare, both positively or negatively (Wolfensohn et al. 2018), and could impact visitors' and staff's health and welfare. At the same time, this proximity could have a positive emotional impact on visitors and so could provide an excellent opportunity to communicate conservation and educational messages (de Mori et al. 2019).

The need for more research on **animal welfare and educational impact** of such popular and questioned interactions (Green and de Lima 2017; WAZA (World Association of Zoos and Aquariums) 2015) goes along with the urge of exploring their **ethical dimensions**. This last necessity, representing the desire to reflect the sensibilities of a pluralistic society (Whiting 2004), should be met by using **inclusive ethical methodologies**, like the **Ethical Matrix** (Mepham et al. 2006) which has been included in the AVIP protocol for the overall ethical analysis of all data collected.

University of Padua in partnership with Conservation Guardians organized a workshop on 20th November 2019. The workshop focused on Animal-Visitors Interactions (AVIs), in order to expose participants to ethical reasoning process

on AVIs topic, using a scientific participatory approach. More specifically, the aim was to provide an introduction to the Ethical Matrix tool, which could be useful when many stakeholders are involved to achieve regulatory process for wildlife in captivity, but that can also be helpful in everyday working with animals and dealing with visitors and public opinion.

The relevant stakeholders involvement based on Ethical Matrix has been used in farm animal welfare and biotechnologies, but not for wild animals welfare and conservation (Biasetti, de Mori, 2019). This novel approach to AVI-related issues has been structured in 3 steps:

A) **1st Workshop "Ethical Reasoning And Participatory Approach Towards Achieving Regulatory Processes For Animal-Visitor Interactions (Avis) In South Africa** (Shongweni Dam and Nature Reserve 20th November 2019), to provide an introduction to the Ethical matrix tool.
B) **Visitors Survey and Staff survey**. National questionnaires have been designed to explore respectively Visitors' and Staff's point of view concerning AVIs. Both visitors and staff (keepers, handlers, trainers) are deeply affected by AVIs; as a consequence, the perception and the needs of these two relevant stakeholders have to be investigated to fulfill a complete and transparent ethical analysis.
C) **2nd Workshop Ethical matrix tool, advanced data collection**. This workshop, originally planned for July 2020, has been postponed to November 2020 because of recent COVID-19 outbreak and lockdown.

Below a brief description of the **workshop held in Shongweni Dam and Nature Reserve** and its evidences collection, followed by details about the **Visitors Survey and Staff survey** (ongoing data collection).

A) 1st Workshop "Ethical Reasoning And Participatory Approach Towards Achieving Regulatory Processes For Animal-Visitor Interactions (Avis) In South Africa

This workshop, organized by University of Padua in partnership with Conservation Guardians, focused on Animal-Visitor Interactions (AVIs) in order to expose participants to ethical reasoning processes on the topic of AVIs, using a scientific participatory approach. Owners, managers, handlers, keepers, government representatives, veterinarians and academic researchers participated, while animal rights groups were invited, however did not attend the workshop.

Host institution for the meeting was Shongweni Dam and Nature Reserve NPC; Sanele Ndlovu, reserve director, was present and conveyed the greetings of the Zwelibomvu Community Trust. The two workshop facilitators were Gregory Vogt, Conservation Guardians CEO and director, and Professor Barbara De Mori, director of the Ethics Laboratory for Conservation, Veterinary Medicine and Welfare of Padua University.

The main aims of this workshop were to:

- Let the delegates experience a participatory approach method to conduct a structured ethical analysis. A customized version of the Ethical Matrix tool was presented during this workshop to obtain stakeholders engagement.
- Gain insight of the range of welfare issues, ethical concerns and key management issues, specific to the South African facilities offering AVIs
- Collect different opinions and points of view
- Promote "Put ourselves in the shoes" of each interest group and meanwhile make needs of every stakeholder transparent (Notice: participants were not expected to reach consensus).

The workshop was characterized by two sessions.

The **preliminary session** focused on **KEY WELFARE AND MANAGEMENT ISSUES**. With the aim to provide a base for ethical reasoning, the objective of the preliminary session was to identify key welfare and management topics concerning AVIs and to highlight which of these participants considered as priorities.

The main session focused on ETHICAL MATRIX application AND STAKEHOLDERS POINTS OF VIEW. The aim of this session was to give participants a glimpse on what an ethical matrix tool is and its potential and possible applications. Using welfare and management topics highlighted with the preliminary session as reference points, participants experienced Ethical Matrix customizing.

At the beginning of the workshop some examples of interest groups having "ethical standing" in AVIs were provided, like people working daily with the animals, people managing the facility, people working in the field of research, veterinarians, government regulators and policy makers, visitors etc. It is important to note that animals themselves have to be considered as stakeholders, and their point of view should be scientifically explored. It was also explained that, in a standardized ethical approach like the one participants were later exposed to, there is no stakeholders ranking: each stakeholder, properly identified, is on the same level of all other stakeholders and offers essential contribution.

A participatory scientific approach is mandatory to embody ethical analysis in guidelines and regulation. To reach this challenging goal, it is crucial to include each stakeholder's point of view, using standardized scientific methodologies, which allows stakeholders to provide suggestions and solutions to critical aspects of the topics they face daily.

Among standardized scientific methodologies, the Ethical matrix tool is useful to make ethical conflicts evident and thus facilitate informed decision making. This methodology allows relevant concerns of relevant stakeholders to be incorporated in an overall framework, in a transparent way. A multitude of ethical concerns and the need to trade-off between them are made apparent by the matrix; this could support decision-makers in mapping the ethical dimensions of a situation.

About preliminary session: key welfare and management issues

The First task proposed in the preliminary session was to identify key management issues and key animal welfare issues of AVIs. The key topics which affect the welfare of the animals involved in interactions, highlighted by the participants in the 1st Round, are:

Animal Welfare Themes AVI-related
Animal rights interferance
Assessment (animal)
Assessment (human)
Best practice
Communication
Compliance
Enrichment
Five domains
Health

Human competency
Implementing husbandry
Population control (management)
Regulating "rules"
Regulating interactions
Safety (Animal, Human)
Space
Training (animal)
Zoonosis and diseases

- The key management topics concerning AVI, highlighted by participants, are:

Management themes AVI-related
Brand reputation
Communication
Conflicting legislatory bodies
Conflicting mandates
Conservation education
Environmental threats
Governance
Human threats
Husbandry and care protocol
Internal codes of conduct
Legislation
Safety (Animal & Human)
Sustainability
Training people

The aim of the **Second task** was to define welfare and management topics that participants considered priorities. Every stakeholder voted for three animal welfare topics and for three management topics, choosing from the previously identified list. Below, the ranking obtained.

AVI- related ANIMAL WELFARE TOPICS RANKING


Animal Welfare Topics Ranking
Animal rights interferance
4
Assessment (animal)
3
Best practice
5
Communication
2
Compliance
5
Five domains
1
Health
5
Human competency
8
Implementing husbandry
3
Population control (management)
2
Regulating "rules"
3
Regulating interactions
2
Safety (Animal, Human)
4
Space
1
Training (animal)
3
Zoonosis and diseases
2

AVI- related MANAGEMENT TOPICS RANKING

A widely appreciated **open discussion** between participants followed.

About main session: ethical matrix and stakeholders points of view

This session provided evidence to fill the ethical matrix (EM), so first of all the facilitator presented the basics of this conceptual tool. Ethical Matrix provides a general approach to decisions concerning complicated dynamics, as AVIs are. The challenge is dealing with ethical issues in which initially there is no agreement between different interest groups.

Referring to an empty ethical matrix displayed on the board, the facilitator explained how it applies a number of ethical principles to a set of selected interest groups (stakeholders), in order to map AVI, ethically relevant issues and to provide structure to a discussion, without preempting content or ignoring pluralism (England and Millar 2008).

Considering AVIs, the interest groups selected were; Interacting animals, Owners & Managers, Handlers/Keepers/Staff, Veterinarians, Government Representatives, Biodiversity, Visitors participating to interaction, Researchers, Animal rights groups, Society.

General ethical principles form the columns of the ethical matrix. In the standard matrix version, these principles are: respect for wellbeing, autonomy and fairness. Respect for wellbeing was explained as “maximizing the good and minimizing the harm, in order to enhance health and welfare”; respect for autonomy was described as promoting

individual freedom & choice as well as valuing differences; respect for fairness was embodied in equity, justice, avoiding discrimination. Each cell of an ethical matrix should contain a need/an idea embodying respect for a principle and a stakeholder (I.e. Respect for the wellbeing of stakeholder #1, respect for the autonomy of stakeholder #1, respect for the fairness towards stakeholder #1). This requires one to focus on what is acceptable and what is not for each interest group affected by AVIs, being correct in doing so and including emotions during the reasoning.

To do the task, participants were requested to use their personal, self evident, approach to ethics-and so make their needs clear (or) define their needs, defining what they consider acceptable. Participants were asked to express, using adhesive notes, their suggestions. They were supposed to do so individually and referring to any issue between that which they identified as priorities during the previous steps of the process.

B) Visitors Survey and Staff survey

Animals, Keepers, Visitors, animal rights group are all relevant stakeholders and only by including them in the process it is possible to provide a complete descriptive base to gain sustainable solutions. The need to collect data about these stakeholders was highlighted during the workshop and with the support of the facilities who joined the workshop, we set up additional investigation to explore Animals, Staff and Visitors perspective. The animal rights groups point of view will be considered, making reference to SATSA guidelines, while waiting to be able to run **C)** the **2nd Workshop on Ethical matrix tool, for the advanced data collection**.

Visitors survey

A visitor survey is currently ongoing; its aim is to collect data and analyze visitors' perspective about Animal-Visitor Interactions. The survey incudes questions concerning safety, amusement, education, informed consent, affordability and accessibility of the experience. Moreover, the questionnaire allows them to express their needs and to point out what is relevant for them about AVI. A pilot version of the survey was released on March 7th 2020, but unfortunately data collection did not take place due to COVID 19 outbreak and the consequent lockdown. For this reason we requested that the facilities assist us in the process of continuing the investigation. We revised the questionnaire so that it could be distributed to past visitors of the participating facilities, enabling a review of their experience that is retrospective on a national and international level.

The revised Visitors survey was released on April 24th 2020 and data collection will take place untill the 5th June 2020. Data will subsequentially be analyzed and integrated into the ethical matrix to include and describe the Visitor's point of view.

Staff survey

Because of their unique experience and position, the staff caring for animals involved in AVI are a key stakeholder. Their work with the animals requires a complete and full-time commitment, so for many keepers, handlers, and trainers it is difficult to take part in events like workshops. In order to better explore their perspectives and point of view about AVI, a dedicated questionnaire has been designed and will be soon released. This survey investigates staff's wellbeing, autonomy and fairness, by questioning them about many aspects: their safety, their rewarding, the respect for their work deontology, their professional development, their involvement in management strategies to promote animal welfare and education activities related to interactions, their possibility to work independently, the respect for their role, etc. Moreover, the survey will collect their point of view about AVIs animal welfare issues and AVIs

management issues, alongside possible solutions for those issues, AVI safety conditions and possible improvements concerning this complex topic. This questionnaire is also included in the AVIP protocol.

More Details of what mentioned in this section can be find in the final Report of the Workshop.

CONCLUSION

Acknowledging the volume of documentation the Ministers Advisory Panel will be receiving, this submission will not include the detail of our work, such as the articles describing the protocols we mentioned or data and questionnaires we collected. Should any panel member be interested in seeing further detail of any of the work we have done, we will be at disposal to supply it. Below our contacts:

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Relevant Publications

Articles

1. Stagni E., Normando S., de Mori B. (2017). DISTANCES BETWEEN INDIVIDUALS IN AN ARTIFICIAL HERD OF AFRICAN ELEPHANTS (*LOXODONTA AFRICANA AFRICANA*) DURING RESOURCE UTILISATION IN A SEMI-CAPTIVE ENVIRONMENT. Research in Veterinary Science, 113: 122-129, DOI: https://doi.org/10.1016/j.rvsc.2017.09.014.
2. Ferrante L., Normando S., Florio D., de Mori B., (2017) "ANIMAL WELFARE AND ETHICS COURSE FOR POST-GRADUATE AT VETERINARY SCHOOL: HOW TO IMPROVE ASSESSMENT METHODOLOGIES WITH A BOTTOM UP APPROACH." in Proceedings of the 3rd International Conference on Higher Education Advances (HEAd'17), Domenech J., Vicent-Vella M. C., de la Poza E., Blazquez D. (a cura di), Valencia, Editorial Universitat Politecnica de Valencia, pp. 1147 – 1155. WOS:000412809400132
3. Normando S., Pollastri I., Florio D., Ferrante L., Macchi E., Isaja V., De Mori B. (2018). ASSESSING ANIMAL WELFARE IN ANIMAL-VISITOR INTERACTIONS IN ZOOS AND OTHER FACILITIES. A PILOT STUDY INVOLVING GIRAFFES. *Animals 8*(9), 153*;* https://doi.org/10.3390/ani8090153
4. De Mori B., Ferrante L., Florio D., Macchi E., Pollastri I., Normando S. (2019). A PROTOCOL FOR THE ETHICAL ASSESSMENT OF WILD ANIMAL–VISITOR INTERACTIONS (AVIP) EVALUATING ANIMAL WELFARE, EDUCATION, AND CONSERVATION OUTCOMES. Animals 9, 487; https://doi:10.3390/ani9080487.
5. De Mori B., Stagni E., Ferrante L., Vogt G., K. A. Ramsay, Normando S. (2019). SCIENTIFIC AND ETHICAL ISSUES IN EXPORTING WELFARE FINDINGS TO DIFFERENT ANIMAL SUBPOPULATIONS: THE CASE OF SEMI-CAPTIVE ELEPHANTS INVOLVED IN ANIMAL-VISITOR INTERACTIONS (AVI) IN SOUTH AFRICA. Animals 9, 831, https://doi:10.3390/ani9100831.
6. Biasetti P., de Mori B., "LE MATRICI ETICHE NELLA CONSERVAZIONE DELLA BIODIVERSITÀ/ETHICAL MATRIX IN WILDLIFE CONSERVATION". Etica&Politica/Ethics&Politics, 2019,1, 233.

Oral presentations and Posters:

1. de Mori B., Normando S., Vogt G., Stagni E., Fazio G., Avesani C., Patarnello T., Cozzi B., Martini M., Rehse T., Kotze A. (2014). SOUTH AFRICAN ELEPHANTS' WELFARE INDEX AND CONSERVATION EDUCATION. Poster presented at the World Association of Zoos and Aquariums (WAZA) 69th Annual Conference and Technical Congress 2014, 2-6 November 2014, New Delhi, India.
2. De Mori B., Vogt G., Kotze A., Normando S. (2015). SOCIAL GROUPS IN SOUTH AFRICAN CAPTIVE ELEPHANTS. Poster accepted at "Behaviour2015" (joint meeting of the International Ethological Conference, Australasian Society for the Study of Animal Behaviour, Australasian Evolution Society, and Australasia, New Zealand and Africa Region of Applied Ethology), 9 - 14 August, 2015, Cairns, Australia. Behaviour-2015ABSTRACTS: abstract n° 666, p. 206, http://www.behaviour2015.org/assets/Behaviour-2015/Behaviour-2015ABSTRACTS.pdf
3. de Mori B., Normando S., Bordignoni F., Hofer H., Avesani C., Biasetti P., Rehse T., Kotze A., HOW CAN ETHICAL STOCKMANSHIP IN CAPTIVE WILD ANIMALS SUPPORT CONSERVATION POLICIES? Poster presented at the 70th Waza Annual Conference and Technical Congress, Al Ain, Uae 11-15 October 2015
4. Ferrante L., Samuels W.E., Normando S., Florio D., Bordignon F., Meers L., de Mori B., 2016. PRELIMINARY DATA ON CONSERVATION MINDEDNESS IN SAFARI PARK'S VISITORS. VII Convegno Nazionale della Ricerca nei Parchi, Parco Natura Viva, Bussolengo (VR), 1-4 ottobre 2016 – oral presentation.
5. Stagni E. M., Normando S., Florio D., de Mori B. (2016). BEHAVIOURAL EFFECTS OF TRUNK AND ROCK ENRICHMENT ON CAPTIVE AFRICAN ELEPHANTS. VII Convegno Nazionale della Ricerca nei Parchi, Parco Natura Viva, Bussolengo (VR), 1-4 ottobre 2016 - Poster
6. Ferrante L., Samuels W.E., Normando S., Florio D., Bordignon F., Meers L., de Mori B. (2017). WHAT DO ITALIAN VISITORS THINK ABOUT ZOOS? Poster presented at European Zoo Educators Conference (EZE), Parque Zoologique de Paris, Parigi (France), 13-16 marzo 2017. Proceedings
7. Ferrante L., Normando S., Florio D., De Mori B. (2017). LET THE EXPERTS SPEAK: PRELIMINARY DATA OF A SURVEY THAT PROMOTES CONSERVATION AND KNOWLEDGE OF *TESTUDINES*. VIII Convegno Nazionale della Ricerca nei Parchi, Parco Natura Viva, Bussolengo (VR) – 28, 29, 30 settembre - 1 ottobre 2017 – oral presentation.
8. de Mori B., Ferrante L., Florio D., Spiezio C., Gili C., Avesani Zaborra C., Normando S. (2017). THE IMPORTANCE OF THE ETHICAL REVIEW PROCESS IN CONSERVATION WELFARE ISSUES IN ITALY. VIII Convegno Nazionale della Ricerca nei Parchi, Parco Natura Viva, Bussolengo (VR) – 28, 29, 30 settembre - 1 ottobre 2017 – oral presentation.
9. Pollastri I., Ferrante L., Normando S., Florio D., Macchi E., Isaja V., de Mori B. (2017). PRELIMINARY DATA ON A NEW A PROTOCOL THAT INVESTIGATES ANIMAL-VISITOR INTERACTIONS IN ZOOS. VIII Convegno Nazionale della Ricerca nei Parchi, Parco Natura Viva, Bussolengo (VR) – 28, 29, 30 settembre - 1 ottobre 2017 - poster.
10. Ferrante L., Normando S., Florio D., de Mori B. (2018). ETHICS AND INCLUSIVE CONSERVATION: A BOTTOM-UP APPROACH TO PROMOTING CONSERVATION FOR TESTUDINES IN ITALY. EAZA Conservation Forum, Tallinn, Estonia, 22-25 May 2018, Poster
11. de Mori B., Ferrante L., Vogt G., Normando S., Florio D. (2018). THE IMPORTANCE OF THE ETHICAL REVIEW PROCESS (ERP) IN CONSERVATION. 5th European Congress of Conservation Biology, Jyväskylä, Finland, 12-15 June 2018, oral presentation, DOI: 10.17011/conference/eccb2018/108151, https://peerageofscience.org/conference/eccb2018/108151/
12. Sergi V., Normando S., Contiero B., Stagni E., Vogt G., Gelli D., De Mori B. (2018). CORRELATION BETWEEN FREE CHOICE PROFILING SCORES AND QUANTITATIVE ASSESSMENT OF ELEPHANT BEHAVIOUR. Proceedings of The

First Annual Meeting of the Congress of Veterinary Behavioural Medicine and Animal Welfare (ECVBMAW), Berlin, Germany, 27-30 September 2018, poster, pp. 186-187.

13. De Mori B., Ferrante L., Florio D., Pollastri I., Macchi E., Isaia V., Normando S. (2018). ANIMAL-VISITOR INTERACTION IN ZOOS: AN ASSESSMENT PROTOCOL DEALING WITH DIFFERENT EDUCATIONAL, ETHICAL AND ANIMAL WELFARE ASPECTS. Proceedings of The First Annual Meeting of the Congress of Veterinary Behavioural Medicine and Animal Welfare (ECVBMAW), Berlin, Germany, 27-30 September 2018, oral presentation, pp. 89-90
14. Normando S., Stagni E., Sergi V., Bettin E., Sgarbossa A., Mazzola A., Bordignon F., Kotze A., Vogt G., Ramsay K. A., Contiero B., Ferrante L., Florio D., Gelli D., de Mori B. (2018). ARE SEMI-CAPTIVE AFRICAN ELEPHANTS DIFFERENT FROM THEIR ZOO COUNTERPARTS? IX Convegno Nazionale della Ricerca nei Parchi, Parco Natura Viva, Bussolengo (VR), 4-7 October 2018 - poster, Proceedings p. 56.
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16. Pollastri I., Normando S., Florio D., Ferrante L., Bandoli F., Macchi E., de Mori B., 2019. ANIMAL–VISITOR INTERACTION PROTOCOL (AVIP) ON *LEMUR CATTA* WALK-IN ENCLOSURE AT PISTOIA ZOO (ITALY). EAZA Animal Welfare Forum, 24-26 March 2020, Apenheul Primate Park, The Netherlands, accepted for oral presentation.

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