

POPULARIZATION COMPONENT – EXPLOITATION

EXPLOITATION 3 – GENERALIZATION TOOLKIT FOR COHABITATION ISSUES

CONTEXT

GENERAL CONTEXT

Cohabitation issues are a major obstacle to biodiversity preservation and species protection. Most humans are unwilling to be involved in protecting a species they have issues cohabitating with. Many failures in reintroduction programs are due to human malevolent or negligent interactions with a species that inhabitants consider a pest (see for example work of Mäekivi, Kiisel and Magnus, in References and links section).

Some of these issues are factual and would need material responses – like acts of aggression or material destruction – but some of them are not. They are either emotional, symbolic or both, and can be addressed through a semiotic perspective, in order to reduce the global cohabitation issues between humans and other species.

INSIDE THE PROJECT

The methodology proposed in Workpackage 2 has shown that solutions proposed for cohabitation issues have to address all three kinds of semiotic relationships, and that forgetting about emotional or symbolic relationships while focusing only on the material aspect of the problem is not a sustainable and reliable way to proceed. The results added by Workpackage 3 will allow a better generalization of this solving material.

BACKGROUND AND ISSUES

BACKGROUND

The previous study on rats (Delahaye, 2021) did not provide comparative data and was therefore not relevant to propose generalization good practices. The Workpackage 3 provided such comparative data in Tartu and Paris, regarding crows' behaviour observations. These results (see Deliverable 23) were combined with the previous exploitation documents (see Documents EX1 and EX2) to provide the following material

ISSUES AND QUESTIONS

The toolkit can be difficult to apply in areas where multiple data sets are missing. But referring to Document EX1 can indicate how to create such data sets if they are needed.

PRACTICAL ASPECT

RESULTS GATHERED BY THE PROJECT AND RECOMMENDATIONS FOR EXPLOITATION AND IMPLEMENTATION

Each milestone has gathered results useful for a different aspect of the generalization and implementation of the methodology.

MILESTONE 1 – MAPPING FROM PRE-EXISTING DATA AND TARGETING THE MISSING DATA

An accurate and relevant mapping of the cohabitation situation can be obtained by answering three sets of questions.

The first set of questions aims to map the factual biological and behavioural situation of the species currently studied. These questions can be classified as such:

- **Questions about the species per se:** What is the health of the population? Are the individuals numerous enough? Are they able to act in the different aspects of all their natural behaviour? Are there immediate dangers that can be spotted easily (population declining, toxic environment or alimantation, inability to nest or reproduce, conflict with other species)?
- **Questions about the ecosystem:** Are there areas where they are located or are they spread? What are the other species that must be taken into account when studying the situation (because they are preys or predators, or trying to occupy the same ecological niche, or they are endangered or invasive and measures taken about them will affect the studied species)?

The second set of questions aims to map the symbolic values implicated in the cohabitation situation. These questions can be classified as such:

- **Questions about symbols that inhabitants may be awarded of:** What roles play the studied species for the inhabitants? Is the studied species a particular symbol of something important in the culture of inhabitants (deity avatar or messengers, emblem of an invader etc.)? Are there myths, legends, folklore, popular stories etc. revolving around the studied species?
- **Questions about symbols that inhabitants may be non-awarded of:** Do the inhabitants and the species have an important common history (hunting, diseases transmitted, animal-emblem etc.)? How is the studied species described? Is this description coherent with factual data about the biology or the behaviour of the species? Are there myths, legends, folklore, popular stories etc. revolving around the studied species? (This last question belongs to both categories)

The third set of questions aims to map the emotional values implicated in the cohabitation situation. These questions can be classified as such:

- **Questions about individual emotions:** How are the inhabitants feeling about the species? What kind of vocabulary, linked to which emotions or concepts, are they using to describe them? Are the inhabitants expressing particular values about the species (spiritual value, aesthetic value, memorial value etc.)?
- **Questions about collective emotions:** How are the inhabitants feeling about the species? (This first question belongs to both categories) What roles do the inhabitants think they play for the species? Are the inhabitants expressing particular values about the species (spiritual value, aesthetic value, memorial value etc.)? (This last question belongs to both categories)

Most of the time, these questions can be solved by using pre-existing data that were simply not used together. In case of missing data to answer all the questions, programs of data collection (by survey, field observations or interviews) can be set up. In case of limited resources, a collection method that will allow answering the biggest number of unsolved questions and/or that addresses questions of a category poorer in data than the others should be preferred.

MILESTONE 2 – EVALUATING THE COHABITATION FROM THE INHABITANTS' POINT OF VIEW

Solutions to cohabitation issues need, in order to be relevant, to take into account three different aspects of interspecies cohabitation.

The first aspect is the materiality of the relationship between the studied species and inhabitants. Two different situations can be present in this aspect:

- **Ecologically normal behaviour that can be interpreted as nuisance or aggression:** In this situation, it is important to act before the semiotic value of the species becomes too negatively loaded. First, it is important to work on evidence-based solutions (such as (Lequitte-Charransol & Jiguet, 2021) to reduce the nuisances. Second, it is important to sensitize the inhabitants to the normal behaviour of the species in order to avoid the spontaneous creation of negative narratives.
- **Pathological behaviour:** In this situation, it is important to understand what is at the root of the pathological behaviour (often, a dysfunctional environment due to human influence). This origin must be addressed as soon as clearly identified when it is possible. In any case, it is important to also propose narratives to inhabitants that trigger their empathy and help them to be tolerant towards a species that is “human-sick”.

The second aspect is the emotions involved in the cohabitation situation. Two different situations can coexist:

- **Emotions are mainly positive:** They can be used as an entry point to sensitize people to the different issues the studied species are facing, to help them face a difficult cohabitation situation (nuisances, aggressions etc.), or to propose a switch in the relationship (if empathy is strong but the species is badly symbolically perceived).
- **Emotions are mainly negative:** Fear and disgust are the two main negative emotions inhabitants can have towards a species. In these situations, as explained by the concept of “resistance of the semiotic link” (see Document P1), it is not useful or relevant to introduce facts and pieces of evidence to the people, the problem must be addressed by another entry point. In this case, the symbolical one, by proposing another narrative loaded with positive symbolical values (altruism, intelligence etc.) can be relevant.

The third aspect is the symbolic values people are attributing to the studied species. Two different situations can be present, and they are in general mutually exclusive:

- **Cultures where the species gathers strong symbolical values:** If the values are positive, they can be strong tools to help improve cohabitation and to obtain tolerance and patience from inhabitants when trying to solve potential material issues. If the values are negative, they should be addressed before or in the meantime trying to solve a cohabitation issue, otherwise pieces of evidence will be rejected.
- **Cultures where the species is not specially loaded with symbolical values:** Positive narratives can be proposed to help cohabitation, especially if they are giving explanations for some factual and problematic behaviours (ex: intelligence being the cause of making a mess with trash bins by being able to open them) or if they are balancing negative emotions (ex: rats can indeed appear disgusting, but they are main test subject in labs, and we owe them a lot regarding our health and medicine).

Based on the results of the different aspects, semiotic solutions can be implemented through the method the most relevant, as described in Document DM2.

MILESTONE 3 – TAKING INTO ACCOUNT BEHAVIOURAL AND ECOLOGICAL VARIABILITIES IN TARGET SPECIES

Behaviour and ecological parameters of a target species can be variable. This is even truer when trying to generalize to different species, that have strong common points (same behaviour, same ecosystemic role, same ecological niche etc.). Two categories of possible generalizations appear.

The first one is a generalization process that doesn’t require a lot of supplementary data, communication effort or human-animal mediation. It is then called “low maintenance generalization”:

- **Taxonomy variations:** When trying to generalize results, differences in taxonomy can be less relevant than differences in interactions. In this case, the four species studied are very close but still considered as different species. Nevertheless, differences are more important between two very close ones – considered as two subspecies of the same species only a few years ago – interacting with different environments and human cultures, than between species living in the same city but more diverse phylogenetically speaking.
- **Seasonal variations:** Generalization must take into account the variability of behaviours through the year, but these behaviours are quite strongly predictable, both in time – they follow some natural indicators of temperature, amount of light etc. – and in nature – behaviour observed in a species of a family can be generalized to another species of the same family or with the same functioning.

The second one is the generalization process which will require an important quantity of supplementary material or a strong vigilance from the stakeholders in communication and/or mediation with the inhabitants. It is then called “high maintenance generalization”:

- **Cultural variations:** The major factor a generalization process must take into account is the human culture with which the species interact. Since ethology is not under many variations from one place to another, it is mostly the human culture that will indicate the kind of interactions the species have with inhabitants, the kind of nuisances they created – or which are the nuisances perceived as such – but also the kind of solutions that are relevant and how they can be implemented.
- **Emergency level variations:** In case of an attempt to generalize a semiotic solution that was successful in an area of low conflict or aggression to an area with higher conflict or aggression, it must also be taken into account that the targeted species will need an adaptation time – especially in the case of corvids, or other species with life-long memory – and that aggressive, cautious or defence behaviours can remain for one or two generations time. Inhabitants should be very well sensitised to this aspect, in order to prevent a regrow of the conflict.

DISCUSSION

The purpose of these different aspects is to be able to take into account all the different major aspects of the cohabitation that are subject to drastic changes. These aspects have a high influence on how the cohabitation is built, and consequently on how it is mapped, diagnosed or solved.

Nevertheless, it is important to precise that, since some aspects can be so different from one case to another, it is possible that some parts of these aspects are not listed here, simply because they did not appear in this case study, and remain today unknown and non-predictable.

GENERAL PROJECT – CURRENT STATE OF PLAY

CURRENT STATE OF PLAY

These results are an important part of Workpackage 3, as they can be seen as the practical material produced by the WP3 that can be used outside of the project. Combined with Deliverable D23, these results are the final production of case-study 3, and consequently of the project.

PROPOSITIONS FOR OTHER ASPECTS OF THE PROJECT

ACADEMIC ASPECTS

This material, as well as DM3 and COM5, are interesting for partners willing to their own diagnosis, solutions and dissemination regarding their local cohabitation issues.

RESEARCH ASPECTS

These results are useful for further research, as they are pointing out clearly which aspects should be investigated more, or could lead to substantial changes in methodology.

NEXT STEPS

These results are closing Workpackage 3, leading to the Milestone 3 report and the project's final report.

ANNEXES

REFERENCES AND LINKS

REFERENCES

Delahaye, P. (2021). Rats, Mice and Humans. *Linguistic Frontiers*, 4(1), 44–52. <https://doi.org/10.2478/lf-2021-0004>

Lequitte-Charransol, P., & Jiguet, F. (2021). Restricted mowing reduces grass uprooting by urban crows. *European Journal of Wildlife Research*, 67(3), 59. <https://doi.org/10.1007/s10344-021-01504-3>

LINKS TO WEBSITES AND DOCUMENTS

Report about European Mink Reintroduction: https://skytte.ut.ee/sites/default/files/2022-05/naaritsa_taaasustamise_uuring.pdf