

WORKPACKAGE 1 – BIODIVERSITY AND PERCEPTION

DELIVERABLE 4 – COMPARATIVE ANALYSIS OF PREVIOUS RESULTS

CONTEXT

GENERAL CONTEXT

Biodiversity and human perception are two important aspects of urban interspecies cohabitation. But they are not often studying together, and the impact each one has on the other is not well known.

Yet, in context of urban biodiversity, it is crucial to compare and confront biodiversity's data with human perception, to understand how these two aspects interact. Taking these multiple aspects into account is allowing a more detailed and precise overview of a complex semiotical situation. Considering humans and liminal animals as part of a common semiosphere, these different kinds of information are different reading grids, all necessary to understand how individuals construct their semiosis and how they are part of this semiosphere.

In this project, the world “semiosphere” is used in the sense described by Hoffmeyer “a sphere just like the atmosphere, the hydrosphere and the biosphere” (Hoffmeyer 1997).

INSIDE THE PROJECT

This project partially followed the methodology set for a previous study (Delahaye 2021) of another urban species (*Rattus norvegicus*) in another urban environment (Paris, France). This study showed that it is possible to learn a lot of things about relationship between humans and liminals by comparing semiotic representations to factual data.

The present step is focused on gathering results of previous steps, about biodiversity's data and semiotic representations on corvids, and producing a comparative analysis that sums up these results.

RESEARCH QUESTION AND HYPOTHESIS

QUESTION AND SUBQUESTION

This deliverable is part of the Case study 1, aiming to study the relationship between biodiversity and perception of such biodiversity on different semiotic levels. The main question of this Case study is: What are the roles of liminal species in a human city?

The comparative analysis based of Deliverables 1, 2 and 3 aims more specifically to answer to the question: How the different aspects, or roles, of liminal species coexist in a human city?

HYPOTHESIS OF THIS STEP

The hypothesis of this step is closely related to the general hypothesis of Milestone 1. By producing a comparative analysis of different data and results from Deliverables 1 to 3, it is possible to produce a first-step map of the urban cohabitation between humans and liminals, especially corvids, in Tartu. This first map could

be seen as the background of a geographical map, delimiting areas of peaceful cohabitation, neutral coexistence, conflicts and paradoxes.

METHODOLOGY

METHODOLOGICAL CHOICES

This step will use previous Deliverables (1, 2 and 3) to investigate different aspects of cohabitation with the context of other aspects, whereas previous Deliverables tried to focus on single aspect, excluding more or less other, in order to gather a maximum of data.

Since the redaction of Deliverable 1, the French team of Bioveins (see more about the project in the References and links section) send their results. They are difficult to exploit due to an uncommon way to transcribe geographical data of observations (see details in Document section), but have been taken into account as much as possible here

In this Deliverable, the comparative approach is preferred, in order to draw semiotic links and relationships between aspects.

ISSUES AND PROBLEM SOLVING

Deliverables 1, 2 and 3 are dealing with very different kinds of data, which can complexify the analysis. In order to validate an interpretation of raw results, data from Workpackage 3 were also used. These data are still very patchy, but they can be an interesting addition to a comparative work.

POINTS OF VIGILANCE

This methodology only allows a first overview of semiotic links. The results obtained through this methodology must be seen as mandatory to understand the global semiosphere studied, but not sufficient. A more global methodology is necessary to allow a more complete mapping. This will be described in Milestone 1.

Consequently, any propositions of results' exploitation (as detailed in Exploitation 1) must be weighted and nuanced by the results of the two other aspects of the projects.

RESULTS

RAW RESULTS

ABOUT COMPARATIVE ANALYSIS OF BIODIVERSITY'S DATA AND CITIZEN SCIENCE DATA

The two sets of results are coherent between each other about the geographical repartition of the species. Variations in number, depending on the years, are also quite similar in scientific biodiversity's data (see link in the References and link section) and citizen science data (also see link and report in the References and link section), but only in the situation of quite closely monitored program.

In the situation of open and accessible to general public database, a gap appears between the number of individuals registered by scientific biodiversity's data and citizen science data. The "remarkable" bias (see Deliverable 2) seems here to weigh heavily in citizen science results. A similar observation is not seen in citizen science closely monitored program, showing that a good and pedagogical methodology explanation can be sufficient to counter this bias.

These results can be considered as elements about the "materiality" of the corvids' situation in Tartu.

ABOUT COMPARATIVE ANALYSIS OF BIODIVERSITY'S DATA AND ELEMENTS OF HUMAN'S PERCEPTION OF THE SPECIES

At first, these two sets of data also seem coherent between each other. The impressions and expressions about the flocks, describing them as massive and present everywhere in the city are not very far of what biodiversity's data is attesting. Corvids are indeed numerous in Tartu, producing impressive group movements on a regular basis, especially at night, and their repartition in the city is quite homogenous, if we accept variations (not the same concentration at the same place between day and night, between seasons etc. but these population's movement create an impression that they are everywhere).

A gap yet appears when we are looking more precisely at the consequences of the cohabitation. The vocabulary used to describe corvids (either in literary purpose or to just complain about them) is usually negative and morbid. A part of this morbidity is not necessarily negative per se, as it is part of a gothic aesthetic that is, in itself, viewed as a quite positive thing, an element of identity. But the virulence of these complains does not seem to match with what is registered on the field. Aggressive behaviours, more than rare, are anecdotal. If flocks can be noisy in some places or at some hour of the evenings, the complains about this noise seem to be exaggerated. The experimental work conducted in order to test noise repellents (see the report on the Links section) showed that (beside to be ineffective) repellents were in fact noisier than the corvids, and that most of the inhabitants, either preferred the corvids' noise to the repellents' noise or were not really bothered by the noise in first place. It appears that there is a gap between "the idea of corvids" and the real behaviour of corvids.

These results can be considered as elements about the "symbolical value" of the corvids' situation in Tartu.

ABOUT CITIZEN SCIENCE DATA AND ELEMENTS OF HUMAN'S PERCEPTION OF THE SPECIES

Citizen science data show a strange dynamic with textual evidence of human's perception of the species. Corvids' registration certainly suffers from the "remarkable" bias, which seems odd considering the complains, on the contrary, seem too numerous, important and "dramatic" when compared to the biological behaviour and the actual evidences regarding this aspect.

In citizen science data, corvids are probably seen as so common in the city that they are not even registered when observed. In textual data, corvids are on the contrary seen as very present, very noisy, very "existing". The two sets of data are probably talking, in fact, about the perception and relationship of different categories of people, that do not share the same emotional reaction to the species.

These results can be considered consequently as elements about the "emotional value" of the corvids' situation in Tartu.

INTERPRETATION

LINK BETWEEN ELEMENTS OF "MATERIALITY" AND ELEMENTS OF "SYMBOLICAL VALUE"

It appears that the gap between an "ideal corvid" and the biological reality of the species could be part of explanation of why corvids' observations are so sensitive to remarkable bias. The symbolical value of the species impacts the way inhabitants perceive, register and react to the materiality of the species. Three elements of mapping can be pointed out:

- Corvids are perceived as a prolific and almost overpopulating species, therefore they are poorly registered through citizen science's programs, because the general public sees no point to do so.
- Corvids are perceived as a source of nuisances, even if experimentations done on this aspect show that these nuisances are minimal (they are less noisy than repellents used against them), and even if

these nuisances are in fact a complete natural part of their social behaviour (no “pathological” behaviour is really registered, like attacking humans).

- The homogenous presence of the species in the city conducts inhabitants to consider them as “objects parts of the city” (it shows especially when studying how the birds are described as ingredients of the city atmosphere, closely linked to the buildings they live in), rather than actual animals being part of biodiversity (probably explaining their underrepresentation in the biodiversity’s watch database).

LINK BETWEEN ELEMENTS OF “MATERIALITY” AND ELEMENTS OF “EMOTIONAL VALUE”

Elements introduced before are probably enforced by another kind of gap, rooting in the emotional value corvids seem to have, at least for part of the inhabitants. The importance of the remarkable bias is apparently contradictory with the importance given to the nuisances. This apparent paradox can be explained by two other mapping elements:

- Underrepresentation of biological individuals in citizen science database and overrepresentation of complains about normal biological behaviours are in fact coherent when considering that corvids are seen by part of inhabitants as “objects of the city”: as objects, they are not registered like other living species, but they are also not supposed to create nuisances for inhabitants.
- Underrepresentation of biological individuals in citizen science database is also relevant for part of inhabitants that give a positive emotional value to corvids, as this positive emotional value is also closely related to the concept of “objects of the city”. This positive emotional value is visible in the commitment inhabitants have with the particular aesthetic of their city, which corvids are an element of.

LINK BETWEEN ELEMENTS OF “SYMBOLICAL VALUE” AND ELEMENTS OF “EMOTIONAL VALUE”

During the study on rats in Paris, the materiality of species was also very different of the other aspects, and a gap was occurring between the symbolical value of the species and the emotional value, with an important part of participants to the study agreeing on rats being nuisances but having empathy for them and not willing that any harm was done to them. In the current project, symbolical values and emotional values seem more congruent to each other. Differences observed are more likely the sign of two different strong categories of inhabitants, having different kinds of emotional and symbolical perceptions of the corvids, but cohabiting in the same city:

- A Reification profile: inhabitants with this profile are perceiving corvids as “objects parts of the city” mostly due to their omnipresence. As urban objects, corvids are not supposed to bother them, and they are consequently very sensitive to nuisances, or what is perceived as nuisances. These people can completely, on another hand, be birds’ enthusiasts regarding other species. If so, they can feed citizen science database while being subjects to the remarkable bias.
- A Sublimation profile: inhabitants with this profile are perceiving corvids as “objects parts of the city” mostly due to their contribution to the gothic aesthetic of Tartu. As atmosphere creators, corvids are perceived with a positive emotional value, including regarding aspects that can be seen as nuisances for the other profile, especially omnipresence and noises. If these people can also be birds’ enthusiasts, they are still probably subjects to the remarkable bias, as they are still perceiving corvids as urban objects.

Of course, other profiles of inhabitants are possible, but these two are probably the ones with the most important influence on data.

MILESTONE 1 – PROGRESS REPORT

IMPACT OF RESULTS

These results allow a first understanding of the shape, elements and dynamics of the semiosphere in Tartu, regarding the interspecies relationship. With these results, we have a concrete, diverse and multilevel view of the current state of biodiversity regarding corvids and of the way they are perceived by inhabitants.

This description state is crucial, but it is not exhaustive and can be improved by further steps, and more precisely in Workpackage 2, for human perception, and in Workpackage 3, for biodiversity and corvids behaviour.

ISSUES, PROBLEMS OR LACKING

Three main issues are remaining, that probably can be solved in next Work packages, and should be taken into account during the next steps:

- Lacking in behaviour's knowledge: corvids in the city are not very well studied apart from the nuisances' evaluation. The lack of markings (through leg rings for example) is making difficult to follow them through the year. Hopefully, elements from Workpackage 3 will improve this issue.
- Language problems in textual material: the textual material is clearly underexploited in this study due to language barrier. Survey and interviews in Workpackage 2 may help to gather more complementary resources.
- Issues with citizen science database: the main citizen science database has issues that were detailed in Deliverable 2. These issues were taken into account as much as possible, but can still be improved by elements of Workpackage 2 regarding their use by the general public.

NEXT STEPS

The next step of this Workpackage is the description of a sensitization plan, regarding the different aspects detailed in this Milestone. A theoretical part will be described in Deliverable 5, in an attempt to produce a theoretical basis that could be reuse in another city. A more practical document will be created in Exploitation 1, to be concretely useful in Tartu and to take into account the particularities of this city, its aesthetics and its inhabitants.

GENERAL PROJECT – CURRENT STATE OF PLAY

IMPACT OF RESULTS

These results are an important milestone in the project, as they allow us to map the current state of the semiosphere in Tartu between human inhabitants and different species of corvids. This mapping could be seen as the background of a map, large parts of different fields (material field, symbolical field, emotional field) on which more specific links, objects or interactions can be superposed (which will be the main goals of the next milestones).

PROPOSITIONS FOR OTHER ASPECTS OF THE PROJECT

ACADEMIC ASPECTS

The results are not yet organized enough to be proposed as a scientific publication in the frame of a proper article. But they are rich and congruent enough to be proposed as parts of communications in scientific events. A proposition of communication for a conference is submitted based on these results (see document C1). A

discussion is also running with the French Society of Zoosemiotics (see link in the References and links section, in French) in order to propose a global presentation, introducing these results in particular, the project in general and the Department of Semiotics of Tartu University to French scholars of the society (see document I1).

POPULARIZATION ASPECTS

The potential introduction of these results to the French Society of Zoosemiotics can also be twined with a conference for general public (as this kind of event is already organized by the society). Results can also be exploited to create methodology guidelines for general public (see document DM1), as the difference between open citizen science database and closely monitored citizen science program already shows that general public is completely able to provide complete and reliable data as soon as time and material are involved into explaining methodology in a pedagogical way.

NEXT STEPS

There are two paths of next steps:

- Ending Workpackage 1: The report of Milestone 1 should be started, in order to give an overview of this Workpackage and detailed global research questions, hypothesis and results since the beginning of the project.
- Starting Workpackage 2: These results are going to be used to shape more precisely the goals, the methodology and the target of the interviews, as well as to design the items and questions of the survey.

ANNEXES

REFERENCES AND LINKS

REFERENCES

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

Hoffmeyer, Jesper. 1997. *Signs of Meaning in the Universe*. Indiana University Press.

LINKS TO WEBSITES AND DOCUMENTS

Citizen science data base (calibrated for Tartu city only): <https://elurikkus.ee/regions/Linnad/Tartu%2520linn>

Citizen science program Suvine aialinnupäevik: <https://www.eoy.ee/aed/>

Citizen science program Suvine aialinnupäevik 2020 report:

https://www.eoy.ee/aed/content/materjalid/aialinnupaevik_2020.pdf

Monitoring of crows in Tartu report: https://tartu.ee/sites/default/files/research_import/2018-01/Vareslaste%20monitooring%20Tartus_l%C3%B5pparuanne%2C%20leping%20M-030.pdf

Project Bioveins: <http://www.bioveins.eu/>

Société Française de Zoosémiotique: <https://societefrancaisedezoosémiotique.fr/>

ACKNOWLEDGEMENTS

François Chiron and Nicolas Deguines for providing the additional data used from the Bioveins project.

DOCUMENTS

Data from Bioveins project (Excel file – 23/02/2022)