

# WORKPACKAGE 2 – SYMBOLICAL AND FACTUAL NUISANCES

## DELIVERABLE 11 – COMPARATIVE ANALYSIS OF FIRST-HAND DATA

### CONTEXT

#### GENERAL CONTEXT

Nuisances are a main aspect of human-animal interactions, especially in cities, seen as the human habitat by default, where animal presence is less tolerated. During our recent research on rats in Paris (Delahaye, 2021), we realised that some of the nuisances were completely overestimated and were in fact more psychological than factual (like in catering), while others were completely unknown to the wide public but really expensive to manage for professionals (automotive mostly). However, nuisances do exist and must be addressed.

#### INSIDE THE PROJECT

This project partially follows 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 the relationship between humans and liminals can be complex, and that several layers of semiotic links can coexist, sometimes even being contradictory.

### RESEARCH QUESTION AND HYPOTHESIS

#### QUESTION AND SUBQUESTION

This deliverable is part of Case study 2, aiming to study the gaps and paradoxes between factual nuisances and perception of such nuisances, probably symbolical nuisances. The main question of this Case study is: How can we address the nuisances some liminal species are causing to humans?

The comparative analysis aims more specifically to answer the question: What information is emerging from the comparative analysis of data gathered by the survey and data gathered by the interviews?

#### HYPOTHESIS OF THIS STEP

The general hypothesis of this step is that most of the perceived nuisances are in fact symbolic nuisances. Factual nuisances do exist but they are not where we think they are. To improve human/animal cohabitation, a meticulous analysis of both factual and symbolic interactions is needed.

This precise step hypothesises that, based on the previous results of Workpackage 1 (see document M1), there is probably a gap between the perceived nuisances and the factual ones. Comparing data about inhabitants' feelings, perceptions and experiences with data gathered by specialists and professionals should allow us to spot gaps and paradoxes in this situation.

## METHODOLOGY

### METHODOLOGICAL CHOICES

The comparative analysis was done regarding two sets of materials:

- a quantitative one: two versions (English and Estonian) of the same online survey (n=179) (for raw data see the Documents section).
- a qualitative one: interviews with professionals following the guidelines introduced in Deliverable 7 (n=4) (for transcriptions see the Documents section).

The comparative analysis is following the methodology already used in Paris study, in order to nuance or confront some results of the survey to the information given by the interviewees, and to look at the perception of the global sample regarding precise points introduced in the interviews.

### ISSUES AND PROBLEM-SOLVING

It was not possible to reach people with completely unrelated jobs that could be impacted by crows as pests for interviews. No participant in the survey left his contact to be interviewed, as had been the case for the study in Paris (Delahaye, 2021).

After first giving his agreement to interview, no news was given by one participant. As he had been interviewed for the project before, data from this previous interview were used, but it was not recorded.

The number of answers to the survey, despite all the efforts, was still quite low, and the potential for generalization of the survey is limited.

Some answers in the Estonian version could have been delicate to interpret with only an automatic translation tool. Their translation was done for the project by Ott Puumeister (Philosophy and Semiotics Department).

### POINTS OF VIGILANCE

Due to the variety of situations, especially linguistic mastering, different formats were used for the interviews.

The data of one interview are considered fragile and were put away when not matching the answers of the other participants to not create a false-positive.

Due to the low number of answers to the survey, some points must be interpreted carefully:

- Rare or exceptional answers can easily be over-representative and influence the average number.
- In case of distinct answers by categories (age, sex, profession, place of residence), the adjustment of the number can be difficult

## RESULTS

### RAW RESULTS

#### THE GLOBAL SAMPLE

The survey sample has more female than male participants, this proportion is the opposite in the interviews. In both cases, this does not seem to be a problem since answers differ not significantly between males and females.

For the survey, no age group appears to give answers significantly different from the other age groups, contrary to what was observed in Paris with rats.

In the surveys, no major differences were found between the Estonian sample and the English one. The two samples behaved more or less in the same way, with few exceptions that were detailed. The interviews show consistency between the answers from the Estonian participants and the French participant.

The sample of the survey is probably more educated than the average of the population, with an average level setting at Bachelor level or a bit more, and can be consequently more sensitized to biodiversity issues. This explains probably why an important number of participants listed their cats as potential pests or the quite good results of the metacognition items. For the interviews, since it was not possible to reach people with completely unrelated jobs that could be impacted by crows as pests, the sample is also very educated and sensitized to biodiversity.

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## KNOWLEDGE AND METACOGNITION

The metacognition of the group responding to the survey is quite good. Participants were more often right than wrong, and did not hesitate to choose a neutral answer when they were not sure enough. Less than 10% of all answers in both samples are errors (around 9% in the Estonian sample and around 4.5% in the English sample). If the Estonian sample seems to commit more errors, it is in fact due to the choice made by the English sample to massively select the “not sure enough” answer (more than 27% of all answers in the English sample but only 9% in the Estonian sample).

Two different strategies of metacognition seemed to appear: the Estonian sample was probably more confident in its ability to identify species correctly and therefore choose more often to answer, making a bit more mistakes (but it has, in the end, a better ratio of errors/good answers than the English sample); whereas the English sample was probably less confident in its ability and choose more massively to not guess.

The small difference in education level is not explaining the difference seen in recognition results, as the species where both groups had difficulty is much more present in Estonia. It could explain the metacognition result (more educated people could be more confident) but the difference seems too small to explain such a gap.

The hypothesis chosen is that it could be a cultural difference, with a population more interested in nature, which will then feel more confident when assigned to a related task.

Due to the kind of jobs they have, participants in interviews had all simultaneously good scientific knowledge of the species and very accurate metacognition (explaining for example very clearly what they don't know or don't have enough data to have an opinion about).

To expand the knowledge regarding these species, important data are gathered through inhabitants (an Estonian interviewee gave the example of the eElukirrus database, the French one of the website for Paris crow monitoring, both in the Links and references section). Citizen science programs are pointed out as precious by researchers for the studying of these species. All participants insisted on the importance of citizen science to create a bond between inhabitants and the species, through a mix of knowledge, narration, and empathy. All three aspects seem not splittable.

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## MATERIAL ASPECT

Nuisances seemed, again, to be more a matter of psychological disturbances than real nuisances.

If an important part of the participants in the survey has heard about or has seen extermination campaigns, very few are reporting major nuisances (like a shop having to close or a person falling ill). Some property

damages are, nevertheless, reported. Looking at the perceived impacted professions, most of them should be in the fields of gardening and cleaning or activities linked to having a good public image (restaurants, bars, tourists activities).

It then makes sense that very few participants consider corvids as the pest, since most of the damages and nuisances appeared to be very mild.

In the interviews also, the nuisances are factually mild, and the more severe cases seem overly exaggerated or even fictional (the French quoted a blog article describing a crow attacking fiercely a baby in his crib in a park, an event of which no trace of existence could be found). Yet, two participants have received requests from an official instance (city government for example) to explore and experiment with ways to solve material nuisances (noise and garden damages). This aspect is treated below in the “Problem-Solving section”.

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### EMOTIONAL ASPECT

Most of the participants in the survey are showing signs of empathy, believing that these species should be left alone, even for a small part who admits to be frightened by them. When no sign of clear empathy is shown, participants are mostly adopting a neutral and tolerant position regarding the species. This tolerant or respectful position is the one most commonly found in the interviewees who, by their jobs, are probably more inclined to advocate for general cohabitation than for targeted empathy.

An important number of answers is expressing the different kinds of pleasures that participants feel when being in contact (mostly visual) with the crows. Intellectual pleasure (watching the behaviour of an intelligent species), aesthetic pleasure (watching graceful birds that are pleasant to see) and emotional pleasure (feeling joy in the presence of the birds) are all attested by the participants.

Very few emotionally negative experiences are related, especially regarding aggression (this aspect is interesting given the fact that some small groups of inhabitants are focusing mainly on this aspect to request pest control toward the crows).

In general, crows appear to be linked mostly with positive emotions in inhabitants, whereas negative emotions are mild, and closer to annoyance than to fear or disgust. Most of the inhabitants simply seem to enjoy quietly or tolerate their presence. Real hostility, even if very loud and publicly shared, appears to be an overdramatized exception rather than a wild-spread tendency. For the interviewees, the benefits perceived by humans are close to the ones predicted by the biophilia hypothesis (Wilson, 1994) in which humans take intellectual, aesthetic and emotional pleasure in observing and living with other living species. In the special case of corvids, this pleasure seems amplified by a form of fascination and tenderness regarding their intelligence (“birds [are offered] an easy opportunity to find [...] entertaining things to discover and have fun with (trash, gardening tools, childrens toys)”).

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### SYMBOLIC ASPECT

Crows clearly benefit from an interestingly good reputation, which is a major difference from the previous study in Paris. Mostly, and without big surprise, they are seen for what they indeed are: intelligent and social species. As being probably less cute or lovable than other liminal species (like foxes or hedgehogs), they benefit from the interest participants of the survey find directly in the observation of their intelligent behaviour. This aspect is confirmed in the interview by two participants that testify of the interest people are finding in citizen science programs or popularization magazines about animals.

Participants of the survey opposed strongly to adjectives that have yet been the reality of how crows were once perceived: carriers of diseases (probably linked to the symbol of death by their presence in public executions places, this aspect has been factually tested and debunked by the French interviewee), destructive and aggressive (probably pushed in this narrative by the success of the film of Hitchcock *The Birds*) and ugly.

The aesthetic aspect is strangely strongly present when participants were asked to match adjectives with the birds, but not that much when participants were asked about their personal feelings and reactions in a situation when they are in contact with the birds. It is possible that, as was the case with the rats in Paris, a gap exists in the mind of inhabitants between the symbolical crow and the material crow that participants encounter in their daily life. This aspect was not found in interviewees' answers, but at least two of them have been very clear about liking any kind of animal anyway, so it should not be interpreted as a sign of a less positive opinion, but more probably as one of more equalitarian position.

The noisy aspect is also interesting, because it is one of the very few cases where answers are contradictory, with an important number of participants thinking that crows are indeed noisy birds, when an even more important number prefer to say that it is probably not true for all of them. This slightly inconsistent item could be related to another one which is also one of the very rare contradictory sets of answers, the shy aspect. Participants had probably observed birds staying or walking away from them, but had also heard some crows being very noisy, and these two aspects of the crow's behaviour may seem inconsistent and confusing to participants. This aspect of nuisances was apparently important enough so a study was requested about that by one of the interviewees.

The interviewees also pointed out that, if crows are not perceived as a threat to biodiversity, they are also difficult to be seen as part of it by inhabitants, mostly because they are "too common" and consequently not very attractive for citizen science programs.

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## PROBLEM-SOLVING

Regarding the ones for which solutions could be found (aggressions, grass damages), the issues are persisting only due to a reluctance of stakeholders to adopt the given solutions. Regarding the one for which a solution could not be found (noise), it appears that the proposed solutions (noise repellents) were in fact a bigger nuisance than the original behaviour.

Cohabitation in this situation seems much less delicate and complicated than it was with the situation of rats in Paris (Delahaye, 2021). Despite a heavy symbolical history, crows appear to be a much more consensual species than rats and mice. Most of the remaining cohabitation issues could apparently be solved in two ways:

- Adopting the solutions found to reduce material nuisances (proper waste and grass management, catch-and-release methods to stop aggressive behaviour).
- Proposing sensitization focused on new narration, scientific knowledge sharing and empathy to help inhabitants develop a more tolerant attitude and appeased point of view.

As small groups of humans are also showing a more hostile behaviour, it appeared more and more important to combine different aspects:

- Scientific aspects to expose facts and fight false ideas and beliefs about these species (like aggressiveness toward humans or pets)
- Narration aspects to give people explanations that make sense to them and that allow them to understand the species as part of a system and not as a simple and isolated nuisance that you could make fade away by lethal methods (like how most of the messy issues are, in fact, waste management issues from the human part that are then exploited by crows, but which could be solved by better management, beneficial also for inhabitants)
- Emotional aspects to develop empathy and help people to adopt a more tolerant and appeased behaviour toward the species (like understanding aggressive behaviour as a protective behaviour and a sign of attachment toward their younglings).

## INTERPRETATION

### COHABITATION, BENEFITS AND NUISANCES

Cohabitation is mostly going smoothly between corvids and humans in the sample studied. A very small part of inhabitants seems to hold a very hostile position towards these species. This position is mainly:

- **overdramatic:** Nuisances attributed to the corvids are not matching the field observations, nor the experience of the inhabitants sample, nor the expertise of the interviewees, and are holding narration tropes (like babies being attacked in their cribs) that are commonly found in a lot of discourses in favour of lethal methods towards species (like against wolves, foxes etc.)(Jiguet, 2020).
- **vocal:** several experimentations or research were requested based on complaints, but most inhabitants don't seem to care, some of them even finding the proposed solution more bothering than the original nuisances (like in the case of noise repellents).
- **minority:** the general results show that the global population has no major issue with corvids and is willing that they will be left alone

Benefits for the population are mostly in the spectrum of biophilia: people are enjoying their presence, finding it aesthetic, interesting (especially when they are displaying behaviours considered as “smart”) and a sign of life.

Other benefits, like the regulation of insects, are less clear, mainly due to the fact that crows are profiting from any opportunity or mistake from humans to obtain easier food, especially through the failures of waste management. Nevertheless, the French interviewee explained that this opportunistic behaviour is particularly important in young crows, the experimented pairs being able to feed on insects and plants. During the first lockdown due to the Covid pandemic in Paris, many young crows flew away, since the empty trashcans were not able to feed them anymore, but the pairs remained, perfectly healthy, eating insects, pigeon chicks and maybe rats (the behaviour was only seen once, by a non-academic witness, so it should be interpreted with a lot of caution). Corvids will probably be able to play a much more important regulatory role in cities if waste and trash management was more rigorous.

Nuisances reported are mild and can be mostly classified into three categories:

- **noise:** Corvids' vocalisations can indeed be loud, especially during the nesting season when they are defending their nest. Most of the time, this behaviour is temporary and does not seem to bother severely inhabitants, since they are even attesting that noise repellents are noisier than the crows.
- **droppings:** This is the nuisance that appears to bother people the most. Most of the time, they complain about what happens to their car, and not to themselves. Probably better urbanism management could improve this aspect.
- **problematic feeding behaviours:** In Tartu, only foraging in trash bins is problematic. Crows have learned how to empty trash cans, even with a quite complex aperture, if there is no lid or if the lid is not closed properly. Stricter trash management could be necessary for areas with dense populations or during autumn, when this behaviour seems to be the most present. In Paris, feeding behaviours also create damages to grass and gardens. Solutions were found (Lequitte-Charransol & Jiguet, 2021) but need to be applied.

Other rarer nuisances can be recorded. Aggressive behaviours, if very rare, can be observed during nesting seasons. Solutions have been tested successfully in France (see document I2) to solve this behaviour in individuals displaying it. An event occurred during December 2022 that could lead to more important damages, when crows apparently created disturbances in the public transport network of Helsinki by placing frozen bits of food inside the railways (see article in the Link section), probably for the same reason crows in Japan

appears to use cars to crack nuts (Nihei & Higuchi, 2002). This is, at the moment, completely anecdotal, but a monitoring of the situation could be interesting.

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### SEMIOTIC RELATIONSHIPS IN A LIMINAL SITUATION

The different kinds of relationships seem quite well-balanced in the current situation:

- **Materiality:** Inhabitants seem generally well-informed, but more importantly are also willing to be. Involvement in citizen science programs is stable or rising. People who are not well-informed seem to be aware of that (the metacognition is quite good and used carefully) and not holding or creating false assumptions. Nuisances described are factually documented, but are described most of the time as mild as they really are.
- **Emotional aspect:** Inhabitants seem most of the time benevolent towards the species. They can be bothered by some nuisances, but are most of the time not willing any harm to them. The pleasure they found is the presence of birds (biophilia) is often described and seems important to people.
- **Symbolic aspect:** The values given by people to the species are consistent with both the materiality of their behaviour (“intelligent, smart”, “social”) and their own emotions towards them (“pretty, elegant”, “playful”) with a strong dismiss of values not supported by material pieces of evidence (“aggressive”, “carrier of diseases”) or by the emotional relationship of the inhabitants (“ugly, sinister”).

The hostile minority could be seen as the exact opposite of the general situation, since it is talking about events or behaviours that could not have happened, supported by a strong emotional disgust or aggressivity and negative symbolic aspect (using words such as “pest”, “destructive”, “aggressive”, “dangerous” etc.). But even if it is very vocal, it should be strongly stressed that this position is a very small minority.

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### INITIATIVES, IMPROVEMENT AND PROBLEM-SOLVING

Different initiatives are introduced by interviewees in order to maintain or improve the link between inhabitants and corvids. Sensitization and promotion of citizen science programs are the most common, but not necessarily the most powerful. Alternatively, initiatives narration-focused (like the creation of short popularization movies or comics) should be very powerful ones, but should also be careful to stick with the reality of the species and their behaviour.

If cohabitation is going rather smoothly, there are still ways of improvement. Better waste and trash management could simultaneously solve the issues resulting from foraging behaviours, and improve the role of corvids as regulators. Better consideration of urban plan (with avoiding the creation of parking spots near parks and gardens) could reduce the frustration caused by droppings of corvids but also of other large and medium-sized birds (gulls, seagulls, sparrows, doves, pigeons etc.). These improvements are important even if the situation is less delicate than with rats, for two reasons. The first is to try to improve cohabitation with the small portion of inhabitants who are displaying hostile behaviour, or at least to prevent the contamination of the favourable or neutral population by the narrative of the hostile minority. The second is to help maintain a good relationship between inhabitants and these liminals, which can become the anchor point of other cohabitation works or improvements.

Solutions found to specific issues (like aggression or garden damages) should be put forward and always preferred to lethal or coercive solutions. Given the global attitudes towards corvids, it could be useful to sensitize the populations to the existence of such solutions, so they could pressure their local government into adopting the most empathic and ecological solution instead of the most drastic and quick one. The interestingly good reputation crows benefit from could surely encourage people to request less lethal or coercive solutions, even if it takes a bit longer to be visibly efficient.

## MILESTONE 2 – PROGRESS REPORT

## IMPACT OF RESULTS

These results allow a more complete understanding of the shape, elements and dynamics of the semiosphere in Tartu, regarding the interspecies relationship and especially the human point of view. With these results, we have a more concrete view of the cohabitation issues focused on corvids and the way they are perceived by inhabitants.

This description state is an improvement from Workpackage 1, but it is still not exhaustive and can be improved in Workpackage 3, for biodiversity and corvids behaviour.

## ISSUES, PROBLEMS OR LACKING

Two major issues were identified, as well in the survey as in the set of interviews, and they are closely entwined:

- **non-response issue:** it was difficult to gather a sufficient sample, both for the survey and the set of interviews. Consequently, both samples are smaller than expected and more vulnerable to statistical biases.
- **representativity issue:** due to an important non-response issue, both samples have representativity issues. These issues were acknowledged and taken into account as much as possible but they lead anyways to fragile results that made the study more suitable as a pilot study than a replication study.

## NEXT STEPS

The next step of this Workpackage is the description of a dissemination plan, regarding the different aspects detailed in this Milestone. A detailed plan will be created in Dissemination 2, in order to show how the results, especially the ones focused on Tartu, can be immediately useful in the city. A more general document will be created in Exploitation 2, to be concretely useful for stakeholders of other cities who would like to diagnose similar cohabitation issues in their own cities and cultures.

## GENERAL PROJECT – CURRENT STATE OF PLAY

## IMPACT OF RESULTS

These results are an important milestone in the project, as they allow us to map more precisely the human aspect of the semiosphere, in Tartu and comparative cities. This mapping could be seen as the roads part of a map, with human perception connecting different aspects, experiences, feelings and beliefs from different parts of the map.

## 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 C2). A discussion is also running with the GIECO-IBPC (see link in the Links and references section), in order to propose a collaborative report, that will take these data into account (see document I3).



## POPULARIZATION ASPECTS

Results can be exploited to create methodology guidelines for presentations and conferences for the general public (see document DM2), as the results provide entry points to the interest of inhabitants.

## NEXT STEPS

There are two parts of next steps:

- Ending Workpackage 2: The report of Milestone 2 should be started, in order to give an overview of this Workpackage and detailed global research questions, hypotheses and results since the beginning of the project.
- Starting Workpackage 3: This work package is technically started since the beginning of the project, but only for the observations and description parts. The analysis work should now begin.

## ANNEXES

## LINKS AND REFERENCES

## LINKS

GIECO-IPBC: <https://www.ipbc.science/>

Estonian database: <https://elurikkus.ee/regions/Linnad/Tartu%2520linn>

Paris database: [www.corneilles-paris.fr](http://www.corneilles-paris.fr)

Article about the public transport issues in Helsinki: <https://www.hs.fi/kaupunki/helsinki/art-2000009269363.html>

## REFERENCES

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DOCUMENTS

Transcription of the interview of Veljo Runnel (docx version – 03/11/2022)

Transcription of the interview of Piret Pappel (docx version – 16/11/2022)

Raw data for the Estonian version (xls version – 23/11/2022)

Raw data for the English version (xls version – 23/11/2022)