

WORKPACKAGE 2 – SYMBOLICAL AND FACTUAL NUISANCES

MILESTONE 2 – COMPARATIVE ANALYSING

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 will partially follow 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 the relationship between humans and liminals by comparing semiotic representations to factual data.

The second step of the project was, consequently, to gather and organize new first-hand data and semiotic representations, to comparatively analyse them and to compare them with the results of Workpackage 1.

RESEARCH QUESTION AND HYPOTHESIS

QUESTION AND SUBQUESTIONS

The Case study 2 is aiming to study the gaps and paradoxes between factual nuisances and the 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?

During this workpackage, sub-questions are used to work toward answering the main question. These sub-questions were:

- With inputs of Workpackage 1, how to conceive a survey able to make emerge gaps and paradoxes in nuisances caused by liminals to inhabitants of Tartu? (Deliverable D6).
- With inputs of Workpackage 1, how to conceive a set of interviews able to make emerge gaps and paradoxes in nuisances caused by liminals to inhabitants and professionals of Tartu? (Deliverable D7)
- How to create good response conditions for relevant exploitation of the survey? (Deliverable D8)
- What information is emerging from the data gathered by the interviews? (Deliverable D9)
- What information is emerging from the data gathered by the survey? (Deliverable D10)
- What information is emerging from the comparative analysis of data gathered by the survey and data gathered by the interviews? (Deliverable 11)

HYPOTHESIS

The general hypothesis of the project is that liminal species and humans have a strong semiotic relationship, built during our years of coexistence (Marzluff and Neatherlin 2006). By understanding where the tension in this relationship is, and how it can be improved, we can improve global human/animal interaction in cities. This improvement is not only a nice idealistic aim, but it is also, more and more, a necessity, as cities tend to expand and biodiversity to decline.

The main hypothesis of this workpackage was 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.

METHODOLOGY

METHODOLOGICAL CHOICES

Questions in Deliverable 6 were mostly inspired by the survey created for the work with rats in Paris, as these questions were able to make emerge the “pet effect” and the “Ratatouille effect”. Modifications and innovations are directly linked to inputs of Workpackage 1, especially regarding the behavioural profiles and the relationship to the city’s aesthetic. The survey clearly aims to gather data for aspects that were found fragile or incomplete after Workpackage 1.

Data for socio-demographic classification were limited to genre, age, size of the city of residence, level of studies and if the person has a profession impacted by liminals or not.

The survey was created through LimeSurvey, as the tool is proposed by the university’s IT Department.

The main part of the distribution (Deliverable 8) was done through social media. Even if their audience is not strictly representative of the general population, the necessity to gather enough answers in a limited time and budget (see document COM3) made their use a quite relevant one. It also allowed to distribute it to various public, and consequently in both languages, quite easily.

Another part of the distribution was done through newsletters, blogs and specialized journals.

The survey interpretation (Deliverable 10) followed the methodology of the previous study in Paris, with the possibility of taking into account the metacognitive aspect of the participants’ answers.

Answers were first read in groups, and then separated by categories (age, sex, profession, place of residence), to see if significant differences appear.

The recruitment of participants for interviews (Deliverable 7) follows the methodology used for the work with rats in Paris, as these interviews were able to make emerge the gap between believed nuances and factual nuisances. Modifications and innovations are both linked to the inputs of Workpackage 1 – especially regarding the behavioural profiles and the relationship to the city’s aesthetic – and the lack of the previous work – especially about metacognition data.

The interviewees chosen (Deliverable 9) were:

- Frédéric Jiguet, research director, National Natural History Museum, France – Non-recorded interview but elements were included in the meeting report (see document I2)
- Veljo Runnel, research in charge of citizen science programs, National Natural History Museum, Estonia – Sound-only recorded interview (raw material stored in external hard drive, transcription of the interview in Documents section)

- Piret Pappel (answering for her whole team), journal editor, Eesti Loodus, Estonia – Written interview (see Documents section)
- Marko Mägi, research and crows monitoring specialist, National Natural History Museum, Estonia – Non-recorded interview

The comparative analysis (Deliverable 11) was done regarding two sets of materials:

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

The comparative analysis followed 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

Four major issues occurred: the comparative aspect of the study, the linguistic limitation, being the cause of the distribution limitation, and the non-response issue:

- **Comparative aspect:** the comparative aspect of the study makes it mandatory to have a survey able to take into account different kinds of geographical profiles, and to propose different versions of the survey to these different profiles. Rather than creating multiple surveys, that can lose the general public in various links, it was decided to use the logical links of the survey in order to create different “paths” inside the same survey.
- **Linguistic limitations:** the initial survey was created in English. But as the study is mainly focused on Tartu, it seemed important to also have an Estonian version. Automatic translation enabled to propose such a version, as sentences are very short and simple. A revision and correction of this version was done by Ott Puumeister (Philosophy and Semiotics Department). A link directing to the other version of the survey was included on every first page. This issue was also present during the interviews, as most of the interviews were conducted in English, reducing necessarily the variety – and potentially the representativity – of the sample. In the survey results, 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 also by Ott Puumeister.
- **Distribution limitation:** For the Estonian survey, the distribution was difficult due to the lack of social network in the general audience of native speakers. The university was helpful for distribution in Estonian, but it was more difficult to reach the general audience through its medium.
- **Non-response issue:** For the interviews, it was not possible to reach people with completely unrelated jobs that could be impacted by crows as pests. No participant in the survey left his contact to be interviewed, as had been the case for the study in Paris. 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. In the survey, the number of answers, despite all the efforts, is still quite low, and the potential for generalization of the survey is limited.

POINTS OF VIGILANCE

To respect the Data Management Plan (see Documents section), no identifying data was included in the survey.

The tool used to create the survey should ensure that no third party has access to the data and that everything is managed by the University of Tartu. Precise technical issues will be investigated with the IT Department.

To respect this plan regarding the interview part, consent of the participant was clearly gathered for recording (see also Documents section), and any identifying data will be stored on the external hard drive, with no online connection. Any publication of the interviews will be done only after anonymisation, except if the participant has explicitly consented to be identified, and if this identification serves a useful purpose – like in the situation where the profession or the position of the person is interesting to understand his or her answer.

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

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, 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

INDIVIDUAL RESULTS OF DIFFERENT DELIVERABLES

SURVEY CONCEPTION

The survey was composed of 6 blocks:

- **Your current location:** The first question “You are currently living” will set participants on three different paths:
 - o Inhabitants of **Tartu**: Question will be asked about how long they have been in Tartu.
 - o Inhabitants of **other cities in Estonia or Europe**: Question will be asked about the city and country of residence.
 - o Inhabitants **outside of Europe**: The survey ends here for these participants, but they can leave their contact if they are interested in participating in further project steps.
- **Who you are:** Classical section with gender, age, level of education, and size of the city of residence. Two questions more specific will be asked about the kind of pets participants have or had, and about jobs related to the topic of the survey.
- **About liminal species:** A short group of questions about the liminal species the participants are used to see in their environment, which ones they consider as pests or not, and what kind of measures have been taken by their city government.
- **Let’s talk more about corvids:** This section has four metacognitive questions in order to evaluate the potential gap between what inhabitants think they know about corvids and what they know really. It includes questions about their personal feelings regarding these species and what kind of adjectives they would apply to them.
- **Corvids, city and humans:** A short section about their beliefs regarding the nuisances caused by corvids and their own personal behaviour regarding them in their day-to-day life.
- **End of the survey:** A text-only section in order to give contact and link to the website for any inquiry the participants could have.

The set of questions was able to gather first-hand data on both the emotional and symbolic relationships inhabitants have with corvids.

Questions have been set to be able to identify a potential “pet effect” in the results, as well as more classical gender or age effects.

Metacognition questions have been implemented to solve the lack of data on this aspect that appears in Paris' study results.

INTERVIEWS CONCEPTION

Interviews used a semi-guided methodology, to avoid influence on the answers of the participants, but also encourage those who might not be familiar with interviews to talk more and develop their thoughts and opinions.

Mandatory questions were:

- Could you explain what your job is and how corvids can have an impact on it?
- Could you tell me more about the impact of corvids in your work, and give me a few examples?
- How do you, yourself, feel about these species, both from a professional and a more personal point of view?
- Some people think they are a pest, what do you think of this first opinion?
- Some other people think they participate in the ambience and aesthetic of the city, what do you think of this second opinion?
- How would you like to see the current situation evolving in a few years and why?
- Is there any other aspect not covered by this interview you would like to talk about?

The semi-guided structure of the interviews was chosen to prevent the important size variation between interviews that occurred in the Paris study. It allowed the gathering of both emotional, factual, negative and positive opinions without influencing the participants.

SURVEY DIFFUSION

The number of answers in English is disproportionate in comparison to the number of answers in Estonian, but this important difference was expected due to the large number of English speakers and the rarity of Estonian speakers.

Almost a third of the answers are only partial. This was not expected and will need to be correctly addressed in the analysis of the survey.

In the study made in Paris (Delahaye 2021) the survey gathered 204 answers. The diffusion can be considered less successful, and is an indicator of the impact a strong social network can have on this aspect.

INTERVIEWS' ANALYSIS

BIODIVERSITY & CITIZEN SCIENCE

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.

Yet, important data are gathered through inhabitants (VR give the example of the eElukirrus database, FJ 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.

BENEFITS, NUISANCES AND COHABITATION

The benefits perceived by humans is close to the one 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)”).

The nuisances are factually mild, and the more severe cases seem overly exaggerated or even fictional (FJ 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). 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.

SCIENCE, RESEARCH AND POPULARIZATION

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.

As small groups of humans are also showing 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).

SURVEY'S ANALYSIS

ABOUT THE SAMPLE

Analysing the sample shows that, despite a clearly unbalanced ratio of male and female participants, this should not have a major impact on the other answers: males' and females' differences regarding age groups or education levels were not significant.

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 sample is not polarized and is congruent: there is no apparent contradiction between how different items were answered, and it appears to show a general and consistent tendency.

The sample 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.

ABOUT THE MATERIAL ASPECT

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

If an important part of the participants 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.

ABOUT THE SYMBOLICAL ASPECT

Crows clearly benefit from an interestingly good reputation. 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 find directly in the observation of their intelligent behaviour.

Participants 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), 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.

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 it is possible that these two aspects of the crow's behaviour seem inconsistent and confusing to participants.

ABOUT THE EMOTIONAL ASPECT

Most of the participants are showing signs of empathy, believing that these species should be left alone, even for a small part who admits to being frightened by them. When no sign of clear empathy is shown, participants are mostly adopting a neutral and tolerant position regarding the species.

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, 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 exception rather than a wild-spread tendency.

ABOUT THE METACOGNITION ASPECT

The metacognition of the group 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.

COMPARATIVE ANALYSIS

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 researches 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.

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.

INTERPRETATION OF THE GLOBAL RESULTS

The first-hand data gathered in this workpackage are consistent with the results of Workpackage 1. They show a quite smooth and peaceful cohabitation situation between the different species of corvids and human inhabitants. The three different aspects (material, emotional, symbolic) are consistent within the population in its globality: some mild nuisances are described, but they are quite well-tolerated by inhabitants, who have a generally positive relationship with the species.

This cohabitation does have some minor issues that could be a source of future and more problematic ones if they are not solved or if they increase in frequency or intensity. For most of the issues, solutions exist and were studied by scientists, but they are mostly not applied, mainly due to a lack of political will.

The first-hand data show also that the vast majority of the active complaints regarding corvids are from a very small minority of inhabitants, who holds a completely opposite (but consistent with itself) triad of relationships with the corvids: nuisances reported are exaggerated or dramatized (some of them being completely fictional), using a very negative and expressive vocabulary and they request radical and lethal solutions to these issues.

In this situation, contrary to the one studied in Paris, semiotic solutions should be aimed at improving and preserving the quality of cohabitation rather than solving important nuisances or issues. Corvids, with this interesting mix of factual mild nuisances but overall good reputation among the population, could also become “support species” to sensitize populations to cohabitation with liminals and to raise awareness regarding urban biodiversity and citizen science role.

GENERAL PROJECT – CURRENT STATE OF PLAY

IMPACT OF RESULTS

The results of Workpackage 2 are answering the main question of the case study.

The aspects of the results that show ways for improvement or needs of solutions are requesting data from the species involved, which should be gathered by Workpackage 3.

PROPOSITIONS FOR OTHER ASPECTS OF THE PROJECT

ACADEMIC ASPECTS

Workpackage 2 led to the second paper of the project (see document P2), which is currently waiting for peer-review. Exchanges and interviews needed for the project (especially Deliverables D7, D9 and D11) lead to a meeting with the French National Natural History Museum team (see document I2).

POPULARIZATION ASPECTS

Workpackage 2 showed the major importance of a positive narrative and a good reputation for smooth cohabitation. Further work on popularization (COM4, DM2, EX2) will try to focus on these aspects that were not really addressed by Workpackage 1.

NEXT STEPS

The next steps to end this workpackage are the redaction of a new dissemination plan (DM2) and up-to-date exploitation guidelines (EX2)

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>.
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- Nihei, Yoshiaki, and Hiroyoshi Higuchi. 2002. 'When and Where Did Crows Learn to Use Automobiles as Nutcrackers?' *Tohoku Psychologica Folia* 60: 93–97.

LINKS TO WEBSITES AND DOCUMENTS

English version of the survey: <https://survey.ut.ee/index.php/227672?lang=en>

Estonian version of the survey: <https://survey.ut.ee/index.php/938279?lang=et>

Database results for *Amphimallon majale* in Estonia: <https://elurikkus.ee/bie-hub/species/33446#overview>

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

Paris database: www.corneilles-paris.fr

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DOCUMENTS

Data Management Plan (PDF version – 18/01/2021)

Consent form (PDF version – 20/05/2022)

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)