WORKPACKAGE 3 – INTELLIGENCE AND ADAPTATION

DELIVERABLE 13 – FIELD REPORT FOR TARTU, WINTER

CONTEXT

GENERAL CONTEXT

Solutions for cohabitation between species, especially between humans and other animals, are not easy to generalize successfully. A lot of factors must be taken into account, from ethological point of view, from anthropological point of view but also from semiotic point of view. One of the least taken into account aspect is probably the animals' agency.

We know that animals of the same species don't communicate, behave or interact in the same way in different places (McGowan 2001; Freeberg 2012), sometimes even leading to geographical cultural norms (Whiten, Horner, de Waal 2005). Again, the particularly complex cognitive abilities of corvids (Fleming 2010) make them very interesting subjects for case-study about animal's agency.

INSIDE THE PROJECT

As the project aims to propose semiotic solutions for cohabitation that could be generalized, different aspects have to be taken into account, and this case study aims to address the question of animal agency. By studying the behaviour, habits, geographical and cultural norms of corvids, this step aims to map more precisely the way corvids adapt, understand and create semiosis in their environment, in order to understand on which points a generalization of solutions would have to focus.

RESEARCH QUESTION AND HYPOTHESIS

QUESTION AND SUBQUESTION

This deliverable is part of the Case study 3, aiming to study the relationship between the agency of some liminal species, like corvids, and the generalization of semiotic solutions for a better cohabitation of species in cities. The main question of this Case study is: How can we generalize semiotic solutions for human/animal cohabitation in different environments/cities?

This field report is a part of a field work distributed during all the length of the project. This field work aims more precisely to answer the question: What elements of behaviour should be acknowledged when trying to generalize a semiotic solution?

HYPOTHESIS OF THIS STEP

The general hypothesis of this Case study is that some species are particularly well-adapted to human contact, and their behaviour can be different depending on behaviour and culture of humans they live with. Their adaptability and intelligence must be taken into account when exporting urbanism solutions to another country, culture or climate.

The hypothesis of this collection of steps (from Deliverable 12 to Deliverable 19) is that some particular behaviours, having an influence on human beings, pets or infrastructures, must be taken into account to

generalize solutions for cohabitation. But these behaviours can change during time of the year and city of living. Pointing out these changes is important to understand how to create generalizable solutions, but also how to take into account animal's agency.

METHODOLOGY

METHODOLOGICAL CHOICES

Spots remained the same than for autumn observations (around Uus 55 and longing the Emajõgi river from Pikk and Pärna streets crossing to Kaarsild bridge).

For winter season, a regular observation period was set up (from 7th December to 10th December), with some additional observations when an interesting event or behaviour would happen. All observations are gathered in a Field Diary (see Figure 1 for a sample of Field Diary). Field Diary is part of the section Previous documents attached. For each observation, was noted:

- Number of the entry, in order to spot any missing entry in case of format change
- Date (in YYYY/MM/DD format for a better archive management) and time (as precisely as possible)
- Weather (for influence on specimens but also on pictures) and temperature (as precisely as possible)
- Place (in the localisation is not a specific address, all information useful to find the localisation were noted)
- Number of specimens (or at least an estimation, in case of a big flock or if they are in movement making difficult to count them)
- Any useful observation: behaviour, attitude, other species present, signs of stress or calm, presence of humans etc.
- If pictures or videos could be taken, the number of the picture or rush where the observation can be seen (see Figures 2 and 3 for examples of interesting observations caught in tape)

All the photo and video were copied on an external hard drive and named in way that could allow anyone to easily find the material needed (see Table 1 for the nomenclature). All these files are stored without any cosmetic treatment, cut in the tape or modification, according to the Data Management Plan, validated by the grants' office.

ISSUES AND PROBLEM SOLVING

Snow arrived pretty early and heavily this year, with an important drop of temperature (lower registered in December in Uus tänav was -26C°), making field observations difficult for two reasons:

- Difficulty to due observations due to the cold: solved by using indoor spots and doing shorter outdoor observations.
- Impossibility to take pictures: the camera has a button that can be pressed for recording video, but a touch screen is used for taking pictures. Due to the necessity of wearing gloves to avoid frostbites, almost only videos were taken during outdoor sessions.

These weather circumstances were nevertheless particularly important to record, as it certainly affects heavily behaviour of liminal species. After taking advice from Nelly Mäekivi (Department of Semiotics, Tartu University) about the usual pace of winter in Tartu, it was decided to make winter observations earlier than intended (it was initially set for January) in order to not miss what could be the harsher part of winter.

POINTS OF VIGILANCE

These observations were done at the first beginning of the winter, and must be completed if significant differences with other winter months appear.

RESULTS

RAW RESULTS

A much clearer distinction between “feeding areas” and “resting areas” seem to appear, with feeding areas in the centre of Tartu (where the human activity makes finding food easier, by dropping it or melting snow with cars or heavy pedestrian traffic) and resting areas in the suburbs (heavily covered by snow).

Patterns of cohabitation (see Deliverable D12) seem to evolve in these conditions, with a lot of aggressive behaviours against any other species in feeding areas, and no sign of stress at all against any other species in resting areas.

INTERPRETATION

Patterns of cohabitation seem to be very sensitive to environmental conditions, with some drastic changes in only few weeks (but 20 degrees and 15 centimetres of snow apart). These patterns should be monitored during the rest of the year, as they are obviously keys for behaviours understanding.

These patterns should then be absent or almost in Paris, where winter is much warmer and environmental conditions are not putting a similar pressure on corvids populations.

MILESTONE 1 – PROGRESS REPORT

IMPACT OF RESULTS

An important key of behaviour interpretation has probably been identified. Further observations should monitor this aspect in order to validate the hypothesis.

ISSUES, PROBLEMS OR LACKING

As observations were shorter than intended, a completion session might be necessary during winter 2022-2023, in order to obtain more accurate description.

NEXT STEPS

Next step of field observations should be in Tartu, in April 2022.

GENERAL PROJECT – CURRENT STATE OF PLAY

IMPACT OF RESULTS

The impact of the results is not yet very relevant, but the possible identification of an interpretation key may be quite important for the rest of the project, especially in spring with the nesting season.

PROPOSITIONS FOR OTHER ASPECTS OF THE PROJECT

ACADEMIC ASPECTS

It is too early to talk about academic use of these results, but the visual material can be used as pleasant way to illustrate other results of the projection (especially in Workpackage 1) at conferences (see document C1), with international partners (see document I1) or in a paper (see document P1).

POPULARIZATION ASPECTS

During the observations some particular cases (like the one in Figure 3) occurred. If it is difficult to see how to exploit them scientifically yet, they are making good narratives, that could be used in communication or dissemination aspects, especially through video (as it is expected in step COM2).

NEXT STEPS

The visual material will be added to the blog. Video material will be prepared for a potential popularization video/short movie.

ANNEXES

REFERENCES

Fleming, Susan. 2010. « A Murder of Crows ». *Nature*.

Freeberg, Todd M. 2012. « Geographic Variation in Note Composition and Use of Chick-a-Dee Calls of Carolina Chickadees (Poecile Carolinensis): Geographic Variation in Chick-a-Dee Calls ». *Ethology* 118 (6): 555-65. https://doi.org/10.1111/j.1439-0310.2012.02042.x.

McGowan, Kevin J. 2001. « Demographic and Behavioral Comparisons of Suburban and Rural American Crows ». In *Avian Ecology and Conservation in an Urbanizing World*, édité par John M. Marzluff, Reed Bowman, et Roarke Donnelly, 365-81. Boston, MA: Springer US. https://doi.org/10.1007/978-1-4615-1531-9_17.

Whiten, Andrew, Victoria Horner, et Frans B. M. de Waal. 2005. « Conformity to Cultural Norms of Tool Use in Chimpanzees ». *Nature* 437 (7059): 737-40. https://doi.org/10.1038/nature04047.

ACKNOWLEDGEMENTS

Nelly Mäekivi for enlightenment about local climate and weather expectations for observations.

DOCUMENTS

PREVIOUS DOCUMENTS ATTACHED

Field diary (PDF version – 21/01/2022)

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

TABLES AND FIGURES

Nomenclature of the files				
Field observations format: CITY_SEASON_DATE_NATUREnumber				
City of observation	**Season of observation**	**Date of observation**	**Nature of file**	**Number**
P: Paris T: Tartu	A: Autumn SM: Summer SP: Spring W: Winter	Format YYYYMMDD	P: Picture R: Video rush	From 01 to 99, restarted in each folder

Table 1 - Nomenclature of the files for field observations

Weaver: Snowy – -3C°
Place: Uus 55
Number: 2 (*Corvus cornix* & *Coloeus monedula*)
Observation: The crow (maybe the same than the one from 17th November) finally broke a part of the feeder, but did not eat everything on the spot. The jackdaw and the crow chase each other to eat the remaining for maybe four minutes (see pictures P01 to P07 and rushs R01 to R03).

Entry n°: 25
Date & time: 2021/12/01 – 9:41
Weaver: Snowy – -9C°
Place: Uus 55
Number: 2 (*Corvus frugilegus* & *Corvus cornix*)
Observation: Peacefully cohabited in the same tree for maybe twenty minutes without any sign of stress (see pictures P01 to P03).

Entry n°: 26
Date & time: 2021/12/01 – 15:33
Weaver: Snowy - -5C°
Place: Uus 55
Number: 2
Observation: Probably a pair, harassing and chasing a raptor, apparently a buzzard, probably an Accipiter nisus. They harassed the bird in the tree and followed it when it flew away (too quick to take a picture).

Entry n°: 27
Date & time: 2021/12/07 – From 10:27 to 14:01
Weaver: Wind and frost – -22C°
Place: Uus 55
Number: Probably around twenty
Observation: Were first a small number (8) in the tree, spread between different branches (see pictures P01 and P02 and rushs R01 and R03), one of them was grooming itself (see pictures P03 and rush R02). 45 minutes later they started gathering (see picture P04), probably due to the cold or to the presence of one, maybe two *Corvus frugilegus* (see pictures P05 and P06). Yet, everyone remained very calm and free of any evident sign of stress. Half an hour later, they grew in number and were even more gathered (see pictures P07 and P08). An hour later, they were almost all on the same group of branches (see pictures P10) excepted two, one on a exterior branch (see pictures P09, P11 and P12) and one on the trunk (see pictures P13 and P14)

Entry n°: 25
Date & time: 2021/12/08 – From 11:10 to 12:55
Weaver: Snowy – -14C°
Place: From Uus 55 to Emajõgi, to Reakoja plats, to Tartu Keskpark, to Ülejõe park, to Uus 55
Number: Cannot be count due to constant moving
Observation: Corvids were difficult to find at first, the only bird sound was from a *Passer domesticus* (see rush R01), first *Corvus cornix* specimens were found around Pikk 60 at 11:23 (see rush R02). Due to the partial frost of Emajõgi (R17), *Anas platyrhynchos* can be seen in the small unfrozen parts, in the middle of the river (see rushs R03, R04 and R18), sometimes joined by *Columba livia* (R04 and R18) and more rarely by *Corvus cornix* (R05). A probable pair was spotted on Fortuna 11 (R06) and another one on Narva mnt 2 (R07). Then three inidviduals were spotted on Reakoja plats (R08 and R09). On Reakoja plats, a group of *Passer domesticus* was spotted in the Christmas decoration installed for the Christmas village (R10 and R11). Later, a lonely individual was spotted, apparently eating something near a warm place (R12). At the exit of Tartu Keskpark, a *Coloeus monedula* hit my leg and lost its food (R13). He was visibly afraid of me, but did not want to lose it and came as close as 30 cm. I slowly stepped back, it grabbed the piece and flew away. Next there, around Riia 1, a group of *Columba livia* was foraging food on a unsnowy ground, joined by three *Corvus cornix*. There was no direct aggression, but regular and small

Figure 1 - Sample of field observations diary - Winter, Tartu

Figure 2 - Picture T_W_211207_P07 of collective resting behaviour in suburb area

Figure 3 - Video rush T_W_211208_R13 (0'38) of a frightened but bold *Coloeus monedula* trying to pick up back the food lost when it hit my leg