

WORKPACKAGE 3 – INTELLIGENCE AND ADAPTATION

DELIVERABLE 22 – GENERAL COMPARATIVE REPORT

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 an ethological point of view, from an anthropological point of view but also from a semiotic point of view. One of the least taken into account aspects 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 (Freeberg, 2012; McGowan, 2001), 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 a case study about the animal 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 reports' analysis is a part of the fieldwork distributed during the length of the project. This fieldwork 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 the behaviour and culture of the humans they live with. Their adaptability and intelligence must be taken into account when exporting urbanism solutions to another country, culture or climate.

The precise hypothesis of this step is that some behaviours that need to be acknowledged have patterns that can be seen and recorded, and that are evolving and changing depending on the place, even if species are closely related.

METHODOLOGY

METHODOLOGICAL CHOICES

Observations were done during at least one complete year in two different cities and documented by notes (see Field diary in the Documents section) and recordings. Videos and photos were archived on an external hard drive (see the Documents section for the nomenclature of the files). Special notes were made about:

- change of behaviour, including change in the repartition of species through the global area
- signs of a stress-free attitude in situations than could have been stressful
- aggression behaviours (real aggressions, fake aggressions, threats) towards conspecifics or other species
- unexplained but repetitive behaviours
- exceptional and impressive behaviours

The entire observations were then reviewed in order to extract patterns of behaviours and potential sensitive points for cohabitation.

ISSUES AND PROBLEM-SOLVING

A general issue of the project is that one year is enough to have a complete observation, but probably not enough to have a perfectly representative one. Therefore, some behaviours may still remain unnoticed and undocumented.

Part of the flocks that should have been observed in the comparative city (Paris) was missing, since the Champ de Mars flock disappeared without explanation. Further observations showed that the remaining pair was nevertheless healthy, and had a successful nesting season, so a traumatic cause is not suspected.

POINTS OF VIGILANCE

Data are fragile due to difficulty to find the specimens: in Tartu, because of the moving of the flocks through seasons, in Paris, because of the disappearance of the Champs de Mars flock.

Data in Paris may be different from the norm due to exceptional heat waves that occurred during the observation periods, including a very warm winter (winter was also warmer in Tartu, but difference with previous winter was less significative). Nevertheless, as these events are unfortunately expected to be less and less rare in the future, this data is still relevant.

RESULTS

RAW RESULTS

BY PLACE

PARIS

All the three studied species seem to be very well adapted to the city. No pathological behaviour was observed, and very few sick, injured or deformed individuals were observed. All the ecological behaviour mandatory to a

good functioning of the species seems met (nesting in safe area, foraging with low competition, finding enough food to feed younglings, having spots to gather in big groups etc.).

In this sense, it is safe to say that the city of Paris is a completely ecologically fitted environment for the studied species.

No direct predatory behaviour towards small species was observed from the studied species, cohabitation with imported species seems also to go smoothly (Entry n° 28). Aggressive behaviours towards medium-size birds, like pigeons, were only reported (see Deliverable D16 and Document I2). In general, these predatory behaviours seem to exist on a regular but very rare basis. Behaviour towards large-size birds, especially falcons, were not observed since crows seem to avoid strictly the nesting areas of falcons.

The usual behaviour of crows towards humans is a completely stress-free behaviour, even a demanding one (Entry n°66). They usually tolerate proximity as close as 2 meters (Entry n°29) when they are on the ground, even closer when the individual is walking and passing by without any attention towards them, and up to 20 centimetres in static when food is clearly visible (Entry n°32) and they are in “begging” situation (Entry n°49).

Humans accompanied by dogs do not seem to create any more stress (Entry n°30). Behaviour towards cats could not be observed. In all cases, this stress-free behaviour indicates that cohabitation is generally going well between crows and humans. As crows are able to long-term memory and peer-transmission, malevolent behaviour from humans was not a plausible expectation to explain the almost complete disappearance of the Champs de Mars flock.

Aggressive or intimidating behaviours towards humans have been reported exceptionally during nesting season (see Document I2). Frédéric Jiguet (French National Natural History Museum) described them as easy to manage, rare and not really dangerous. Quite important damages can be found in parks and gardens (Entry n°90), but solutions could be implemented to reduce them (see Document I2). Trash management remains a major issue, since crows are able to open lids or trash bags directly (Entry n°63) and spread the wastes everywhere around.

TARTU

All the three studied species seem to be very well adapted to the city. No pathological behaviour was observed, and very few sick, injured or deformed individuals were observed. All the ecological behaviour mandatory to a good functioning of the species seems met (nesting in safe area, foraging with low competition, finding enough food to feed younglings, having spots to gather in big groups etc.).

In this sense, it is safe to say that the city of Tartu is a completely ecologically fitted environment for the studied species.

No direct predatory behaviour towards small species was observed from the studied species. The behaviour of small birds in their presence (Entry n°13) is a sign that small birds are not expecting predatory behaviour from crows towards them. If such a behaviour exists, it is extremely rare. It is probably more frequent towards eggs or younglings of these small birds, and could be the reason why the ones nesting in the same area than crows are building nests inside trees’ trunks (Entry n°45).

Aggressive behaviours towards medium-size birds, like pigeons, were only observed in a context of important competition for food due to heavy snow (Entry n°25b) or of nesting behaviour (Entry n°41). Most of the time, cohabitation is very peaceful.

Behaviour towards large-size birds, especially gulls, is going from avoidance most of the time, to intimidation attempt in case of food competition, to flight in case of aggression in defense of a nesting area. Crows seem to avoid conflict as much as possible and prefer flight instead of fight. The only systematic aggression towards a

bird larger than them was when encountering a buzzard (Entry n°26): even if it was not displaying any sign of aggression, it was actively chased away by crows. It is possible that the predatory behaviour of this species is considered as much more serious than the one of the gulls, resulting in a “zero tolerance policy” from the crows.

The usual behaviour of crows towards humans is a completely stress-free behaviour. They usually tolerate proximity as close as 2 meters (Entry n°4) is static, even closer when the individual is walking and passing by without any attention towards them, and up to 30 centimetres in static in case of necessity (Entry n°25b).

Humans accompanied by dogs do not seem to create any more stress (Entry n°54). Behaviour towards cats could not be observed. In all cases, this stress-free behaviour indicates that cohabitation is generally going well between crows and humans. As crows are able to long-term memory and peer-transmission (Marzluff et al., 2010), malevolent behaviour from humans would have created much more cautious general behaviour patterns.

Aggressive or intimidating behaviours towards humans have been reported exceptionally during nesting season (Entry n°46). Marko Mägi (National Natural History Museum) describes them as a “matter of personality”, meaning that, even in a stressful situation during nesting season, aggressive behaviour is not a standard answer: only some individuals will resolve to that extremity.

No important degradations have been observed towards city infrastructures. Degradations of gardens and plants were observed as very mild, an information confirmed by Lauri Laanisto (National Natural History Museum).

The main issues with crows remain the droppings and the waste management issue they create by foraging in trash bins. This last behaviour seems to be more intense during autumn (Entry n°70). As it is a period when the ground is not frozen, this behaviour could probably be solved by a better trash management (they seem to be able to open trash bins lids, but only when they are already a bit overfull, for example) without damage for the individuals: it can be considered, during this season, as an opportunistic behaviour, not a mandatory one.

BY SEASON

SPRING

Nesting season is starting approximatively one month earlier in Paris than in Tartu. Different dynamics can be observed, since pairs in Paris will start to defend more actively the territory they occupy during the rest of the year (by example chasing away young adults living in flock in the area), whereas crows in Tartu will completely change of spot in the city (their major autumn spot is an nesting area for gulls, and they are found in number in Raadi cemetery, quite empty of them the rest of the year).

In the end of spring, occasional aggressive behaviours can appear for pairs who lay their eggs early if a chick falls of the nest.

SUMMER

Heat waves are more and more present in every area of Europe. Corvids seem to adapt without much difficulties for the moment, choosing fresh spots and taking advantages of human tools to cool themselves (Entry n°49).

Aggressive behaviours are at their pick, since younglings are testing their wings and can easily fall of the nest and stay on the ground without knowing how to react. In both cities, this kind of behaviours remain exceptional.

AUTUMN

Gathering food and stocking fat for the winter, crows are coming back to a more stress-free behaviour. In Tartu, they are coming back in their usual spot. In Paris, it is the time of the year they can be the most destructive with grass and gardens, since they are looking for specific larvae that bury themselves underground to pass winter, and are very actively plucking the grass and carving the soil.

WINTER

In both cities, crows are not migrating to pass winter. It is probably the season during when their behaviour is the most different.

In Paris, no clearly particular difference in behaviour can be observed between autumn and winter, except for the foraging of larvae that seems to be dependant of the life cycle of the insect.

In Tartu, the feeding behaviour is completely changed from the moment the snow becomes wide enough or if the soil freezes (which usually happened more or less at the same time). They start to rely mostly on human waste to feed, showing clear distinction between their resting area (when they settled back in autumn) and their feeding area (usually next to major human activity points, like shopping mall).

INTERPRETATION

ETHOLOGY

There are few differences between the two species in general behaviour, comparison remains relevant. In both cities, species seemed to be well adapted to the urban environment. They find a way to feed, nest, and rise healthy younglings.

INTERACTIONS WITH OTHER SPECIES

In both cities, corvids have been observed to have some occasional and opportunistic predatory behaviour towards, either themselves (in Tartu, during nesting season, *C. cornix* can attack *C. monedula*) or other birds' species (in Paris, gardeners have witnessed attacks of *C. corone* towards different species, from small chicks to big pigeons if they are in a group). Aggression between individuals of the same species has been observed.

In all situations, aggressions seem to be anecdotal in the urban environment where food is easily available. "Demonstrative" aggressions can occur during nesting, either against conspecifics, other corvids or other birds, seagulls and gulls in particular. Very rarely, larger prey birds (in particular falcons) can interact with crows and will be systematically chased away if crows are in pairs or group.

INTERACTIONS WITH HUMANS

In both cities, crows are well tolerated by humans. The aggressions, in both directions, are very rare. In France, some minor part of the population seems to be particularly hostile for emotional and symbolic reasons (see Document I3, M2 and EX2).

Most of the time, humans see crows as an interesting species, with individual moods and personalities, and are feeling sympathy towards them. Informal discussions started during observations show that the inhabitants are also willing to learn about the species and their behaviour.

Crows have a quite confident and stress-free attitude towards humans. They are perceived as food providers, especially in Paris, where crows are bold enough to approach humans to beg for food as close as 20 cm. Crows in Tartu are more cautious, even if no aggressive behaviours from inhabitants could explain this difference. The most probable explanation is that in Paris, crows are in contact with an important number of tourists,

especially during summertime, and bold behaviours can be seen as cute or more susceptible to provoke empathy, and would result in more feeding. This kind of behaviour could then have been selected by the very touristic environment. It is sometimes observed in Tartu during winter time if temperatures drop drastically (minus 20C° or less) and an heavy amount of snow is making finding food difficult, even in trash cans (since everything tends to freeze quickly).

INTERACTIONS WITH CITY INFRASTRUCTURES

Different strategies of environment interaction seemed to be used between the two cities:

- In Tartu, corvids are moving from spot to spot. In summer, the departure from the nesting areas to be back into the areas where they are feeding in resting during the rest of the year is a clear sign of seasonal strategy (from an area rich in nesting and hiding spots to an area rich in easily accessible food).
- In Paris, pairs of experienced adults own a territory and won't move from it. Younglings and young unexperimented adults are living together in large flocks in places with a lot of accessible food.

Besides that, no real damages (inhabitants complain about droppings on their cars or public equipment, but this can't count as permanent damages) are create by the crows in Tartu. In Paris, their predatory behaviour towards certain kind of larvae leads them to damage, sometimes heavily, grass and gardens. Solution to this problem has be experimented with success by Frédéric Jiguet (French National Natural History Museum) (Lequitte-Charransol & Jiguet, 2021) and his team but is not yet generalized and implemented, mainly for administrative and political reasons.

MILESTONE 3 – PROGRESS REPORT

IMPACT OF RESULTS

These results are a good summary of the observations that took place during the whole project. They explain or point out some aspects of the behaviour of the crows that should be taken into account when trying to create recommendations.

ISSUES, PROBLEMS OR LACKING

The time of the project is, still, quite short. Especially in a context of global climate change, unusual weather, temperatures, climate events (wildfires, tornados etc.) could also have a deep impact on the species that are poorly into account here.

NEXT STEPS

The next step is to propose recommendations for the exportations of the results, in order to create new projects of the same kind in different contexts (Deliverable D23).

GENERAL PROJECT – CURRENT STATE OF PLAY

IMPACT OF RESULTS

These results are the major point of the Milestone 3, with the recommendations that will be created from them.

PROPOSITIONS FOR OTHER ASPECTS OF THE PROJECT

ACADEMIC ASPECTS

These results will be mixed with the results of Workpackage 2 in a last proposition of academic article (see Document P3).

POPULARIZATION ASPECTS

These results will be used to enforce the guidelines for generalization in different countries, cities, linguistic areas etc. that will be proposed in EX3.

NEXT STEPS

This analysis will be the root of the recommendations made in Deliverable D23.

ANNEXES

REFERENCES

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DOCUMENTS

Field diary (PDF – version 29/04/2023)

Nomenclature (xls – version 17/11/2021)