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Speculative research of bird (cockatiel)-plants communication

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**Abstract.** The research is devoted to the problem of interspecies communication between domestic birds and plants. These living entities, taken from nature and domesticated around at least six decades ago (cockatiel), present an interesting testing area for our research.

This is due to critical ecosystem theories, according to which species evolve not through competition, but through interaction and cooperation, or symbiosis. The article presents possible proposals for measuring the parameters helping us to understand interspecific communication between birds and plants.

These approaches will be used to create a prototype of a device that would collect data for further research. It will be used to create a prototype of a device of the future that would collect data.

**Introduction.** According to Darwin's theory, species survive by competition, namely the constant struggle for survival. There are many critical theories of this idea, one of which speaks of symbiosis, as an another driven force of evolution: in this situation species get along well, a situation where species get along well with each other and thereby help each other survive. Moreover, species can not only get along, but exist together on mutually beneficial terms, helping each other. This theory was developed by biologists such as Lynn Margulis, Dorion Sagan and others. Also this project is based on posthuman theory by Donna Haraway and biosemiotic theory by Jakob von Uexkull.

However, there are not many experiments supporting the theory of symbiosis. If we talk about birds, the most striking example is owls and blind snakes, which help to clear the nest from parasites.

Another example can be found in the field of Art & Science: Olga Kiseleva's study of the interaction of whales and trees in New Zealand. As part of the project, she found out that when whales crawled to the beach and rubbed against trees, they left their bacteria on the bark, which helped the trees fight the fungus. When the coastal area began to build up, the whales lost access to trees, the trees began to die en masse.

If we talk about symbiosis in the context of birds, then, undoubtedly, we know that there are hummingbirds that carry pollen from plant to plant, helping it to reproduce. Also known is the study of pollen-eating birds in the Galapagos Islands, which perform a function similar to hummingbirds, and also rid plants of parasitic insects.

What about pollen-free houseplants and poultry like cockatiels? It is not known exactly.

Since 1960, there has been a ban on the export of cockatiels from Australia. This means that any domestic cockatiel that lives outside Australia (and cockatiels are the second most popular poultry in the world, after budgerigars), at least in the fourth generation, are torn away from their wild ancestors.

**Main part.** During our research we are going to explore how domestic cockatiel interacts with plants, and how it affects it. For our study, a ficus was selected, as well as two plants native to Australia, with which cockatiels also interact in the wild: palm and eucalyptus.

The main research methods will be observation and recording of quantitative indicators (growth, temperature, soil moisture), as well as qualitative ones (the state of a plant and of a parrot). An analysis of the cover bacteria on the parrot's skin will also be performed.

It is common knowledge that chicken manure is a good fertilizer, so we want to check if parrot droppings are fertilizer by analyzing the bacteria in their droppings.

If this is the case, then the experiment will be carried out in this way: first the plants will be in a room with a parrot, and then in a separate room without a parrot. In both cases, the plants will be fertilized with a substance from manure and water (ratio 1:10). In this way, it will be precisely tested to what extent the interaction, rather than fertilization, helps the plants grow.

**Conclusion.** These experiments will allow us to understand what data provide a clear understanding of the interaction of the plant and the parrot. Knowing what parameters need to be known and how to measure them, a prototype device will be developed that would collect and analyze this data without human intervention. The device will be in the shape of a "T", the lower end of which will be inserted into the soil to collect soil information. The upper part will be comfortable for the parrot to sit on from one side, and on the other side there will be a sphere with technical stuffing.

We believe that this device will help to reveal how important some species are to other species. This information can be relevant when changing natural landscapes for anthropogenic needs in order to assess the level of risk for existing species.