“Beaks and berries”: zoological laboratory (II) of the formative proposal of inclusive scientific divulgation

I.A.S-C.N.R. di Capo Granitola

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Introduction

Searching a topic that help us about the implementation of an inclusive divulgation, aimed also at sensory disabilitiesusers, we have chosen birds as a key to connect different scientific issues (pollution, environmental changes, exploitation of resources) and create new knowledge in a heterogeneous auditorium, through the suggestions that the workshop lessons can infuse on the users, whether they are disabled or not. All this to bring them closer to thescientific contents to which they do not have easy access. In particular, the project aims to develop, deepen and consolidate, through communication and

information, issues concerning the concept of biodiversity, in order to sensitize users to safeguard the species and habitats of our territory and make them as the main actors of scientific dissemination.Indeed, weestabilisheda convention between the “Istituto dei Ciechi Opere riunite I. Florio – F. ed A. Salamone” of Palermo and the “Consiglio Nazionale delle Ricerche - Istituto per lo studio degli impatti Antropici e Sostenibilità in ambiente marino” of Capo Granitola (TP). The main role of this convention is to bring disable people closer to these scientific subjects and make the contents of our laboratories as inclusive as possible.The project "The world of birds", developed from January to April 2019 is divided into three main themes, the second of which is the focus of this report: The bird alimentation.

Structure of the laboratory lesson

Users who joined the project were involved by CNR researchers in short 30-minute scientific lectures, followed by laboratories (approx. 1h and 30 min.) on bird alimentation.

Using two focus question (What do birds eat? Do they all have the same beak?) we tried to trigger a discussion about the feeding of this animal class, testing also the preliminary knowledges of the user’s group. This short preliminary lesson allows us to detect and explain the principal categories of builds typologies connecting the shape and the size of the beak with the different feeding of each species.

We have dealt 6 different kind of builds, and relatives alimentation:

- Fisher birds (airons) with a long and thin beak like a spear
- Birds and mammal predator (raptors) with a short and hooked beak
- Insectivorous (warblers, tits) with a medium-size conic build
- Granivorous (finches) with a short conic build
- Nectarivore (nectarines, hummingbirds) with a long and curved beak
- Filter feeder (flamingos) with a flat and lamellar beak

Following, we presented 5 different kind of berries (cypress, rosehip, terebinth, wild olive, oak acorns) to introduce the scientific argument of the importance of wild plants in a natural ecosystem. People with disabilities were asked to memorize them by testing their smell, taste (if possible), roughness, and a feeling

of touch.The six different categories of builds and the five different wild berries were then inserted into a "snakes and ladders" game, a classic board game made by us. The objective of the game is to get to the bird box, between contingencies and probabilities. If you fell into the rectangles containing a type of beak, you had to find the corresponding food by touch. Ditto, guest the species of wild berry if the pawn fell on the cardboard chest.

Matherials description

Disable users met the different types of beaks thanks to some cards that we created in pairusing recycled cardboard and printed paper. Avery pairhad in detail the shape of the head and beak of the bird in question, as well as the food categories (fish, prey-birds, insect, grain, flower, plankton). For blind people, the edges of the image had been traced with a layer of hot glue, to highlight the edges by touch. For the visually impaired, the images were nevertheless printed highlighting the contrasts and saturating the colours, to be more brilliant and perceptible. In the lower part of the card we took care to write the type of beak treated, but in English, to give an added value to the sighted but with different sensory disabilities.Each card will be associated with a type of suitable food in a "memory" game.

Table game was created with recycled cartons, raised edges and very colourful boxes. An empty rectangle contained the single piece of the beak-food pair. The boxes recreated in cardboard housed the wild berries.

Environmental interpretation

Focus of this activity is understand that birds are an important part of wild and urban ecosystems. By installing bird boxes and feeding birds, people can make sure they thrive. The roles of this species as seed-disperser and vegetation regulator is essential in a healthy ecosystem (McCarthy et al., 1998).

As birds, also wild berries play a strong role in nature. It is important, in an urban ecosystem, let our garden grow wild, during spring. Patches of long grass encourage different plant species to grow, help insects to thrive, create feeding opportunities for birds,shelter small mammals and create lot of ecosystem service for human urban population (Guitart et al. 2012; Barò et al. 2014).

References

- Baró, F., Chaparro, L., Gómez-Baggethun, E., Langemeyer, J., Nowak, D. J., &Terradas, J. (2014). Contribution of ecosystem services to air quality and climate change mitigation policies: The case of urban forests in Barcelona, Spain. Ambio, 43(4), 466-479.
- Guitart, D., Pickering, C. & J. Byrne (2012). Past results and future directions in urban community gardens research. Urban Forestry& Urban Greening 11:364– 373
- McCarthy T.S., Ellery W.N., Dangerfield J.M. 1998. The role of biota in the initiation and growth of islands on the floodplain of the Okavango alluvial fan, Botswana. Earth Surface Processes and Landforms 23: 291–316.