

“For whom the Calandra tolls?”: zoological laboratory (III) of the formative proposal of inclusive scientific divulgation

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



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Introduction

Blind people, though not seeing the world, is nevertheless able to imagine it, activating mental processes different from those of the sighted. They can come in contact with the reality of the world and know it with appreciable effectiveness (Angeli F., 2012). It has been imagined that only the view was the capable sense of allowing the conception of space and its forms. Of course, it was the facts that showed, with increasing clarity, that the lack of sight does not prevent the mental construction of space. Although touch is generally regarded as the sight of the blind, it is important to understand how sight cannot be validly replaced by a

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single sense. To organize a good relationship with the surrounding reality, the person who does not see needs to activate the whole of their residual senses. In particular, the complementarity between touch and hearing makes us understand like the blind. The touch sense has a very small perceptive field and therefore proceeds by succession of spatial fragments, but also presents a very analytical capacity, refined and punctual. Hearing has a greatly extended perceptual field, which allows the blind to have a broad overall spatial reference but offers insufficient information on the objects and on the particular characteristics of the surrounding space (Coppa M.M., 1997). We have therefore devised a playful-practical laboratory to allow a sensory disability public, with various degrees of blindness, to reach zoological and scientific contents and then re-connect to more general problems such as the numerous environmental emergencies of this decade. Thanks to a convention between the “Istituto dei Ciechi Opererijunite 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), we start with the project "The world of birds", developed from January to April 2019 and divided into three main themes. The third of which is the focus of this report: Nest and songs.



Structure of the laboratory lesson

When we go into Nature, we are in a set of sounds produced by living beings. The sounds spread around us creating completely different acoustic landscapes. There are animals that are "masters" in the art of sound, as in the case of birdsong. In particular, some species are able to enrich their song by imitating that of other birds, as in the case of the Calandra lark (*Melanocorypha calandra*), a farmland bird. Males of this species are able to create a personal song by a puzzle of imitations taken from all the birds that sing near them. However, it is a species with a negative trend in Italy, due to agricultural changes and mechanization (Massa & La Mantia, 2010). For our disabled groups, it has been proposed, in pairs, a “listen and detect” game: short verses of 6 species (reproduced with DAS, in natural dimensions) of the Sicilian rural areas. Once these verses were learned, the second part of the game consisted of finding the fragments in the imitative song of

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the Calandra, during the projection of a video with a singing male. Meantime, the rest of the group was intent on creating cup-shaped nests with vegetable materials, after a careful and complete discussion on the nesting strategies of the birds they knew. Users who joined the project were involved by CNR researchers in short 30-minute scientific lectures, followed by laboratories (approx. 1h and 30 min). Laboratories, on the other hand, as felt like a "creative moment" of assimilation and personal interpretation of scientific issues, allowed the students to improve their synthesis skills.



Materials description

Game of birdsgong was developed using free—access programs of video and sound management (Freesound, Audacity, Windows Movie Maker, OBS Studio). The seven different bird sounds were played using a PowerPoint presentation, combined with three different videos with Calandra lark males in song, downloaded from Youtube.

Representations of life-size birds were created using DAS and non-toxic acrylic colours. Species chosen for this laboratory was:

- Little owl *Athene noctua*
- Goldfinch *Carduelis carduelis*
- Linnet *Carduelis cannabina*
- Crested lark *Galeridacristata*
- Yellow wagtail *Motacilla flava*
- Italian sparrow *Passer italiae*

About the realization of nests, the base was created from cropped bottom of recycled plastic bottles. A layer of a mixture of water and vinyl glue allowed people to attach the plant parts in a circular manner (straw, pine needles, natural plant fibres) in order to obtain a cup shape. The eggs were real (boiled quail eggs).

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Environmental interpretation

This activity allows us a good environmental interpretation of agricultural changes. In fact, ground-nesting birds, as Calandra lark, are victim of intensive mechanical work, which reduce nesting cover, nestling survival and chick foods. In central Europe farmland bird populations have collapsed by more than half since 1970, with much of the crash occurring by the 1980s (Inger R. et al. 2014). Since 1980, Europe's total farmland-bird population shrunk by 300 million birds. Insecticides are also thought to slash farmland birds' food supplies. In 2017 researchers announced that from 1989 to 2016, Germany had lost three quarters of its flying insects by mass—a nosedive tentatively connected with modern agriculture (Hallman et al. 2017). Do we really want to live in a world without farmland birds?

The workshop was brought as an exhibit to the scientific exhibition EsperienzaInsegna 2019, in Palermo from 24 to 28 February. The auditory activity has been proposed to schools and users visiting the event (for a total of 268), to test the inclusiveness of the vehicle and to spread to the public the sensitive issue of sensory disabilities and contents often inaccessible to people with such difficulties

References

- Angeli F. 2012. Vedere con la mente. Conoscenza, affettività, adattamento nei non vedenti (a cura di Galati D.). Psicologia. La psicologia di Oggi. Milano. 77pp.
- Coppa M.M. 1997. Le minorazioni visive. Editrice TecnoScuola - Via Buonarroti, 10 - 34170 Gorizia (GO).
- Hallmann C.A. et al 2017. “More than 75 percent decline over 27 years in total flying insect biomass in protected areas”. PLoS One.
- Inger R. et al. 2014. “Common European birds are declining rapidly while less abundant species' numbers are rising”, Ecology Letters. Doi: 10.1111/ele.12387
- Massa B. & La Mantia T. 2010. The decline of ground-nesting birds in the agrarian landscape of Italy. Rev. Ecol. (Terre Vie), vol. 65.