

## PART III – MUSEOGRAPHY

SURVIVAL STRATEGIES IN INSECTS WORLD  
– TEMPORARY AND ITINERARY EXHIBITIONS –

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## ABSTRACT

The exhibition “*Survival Strategies in Insects World*” was a cultural project developed at “Ion Borcea” Natural Science Museum Complex of Bacău in 2010 and continued as an itinerary exhibition in 2011, 2012 and 2014. The objective of this project was to present to the public a world less known – the world of insects. The exhibition presented a world in miniature – it includes beings which we often ignore due to their small size. Although human and insects share the same world, usually we don’t notice their presence. However, these organisms appeared on Earth before us, they live with us and probably they will continue to populate the Planet also after the mankind will disappear. How is this possible? How did they manage to resist for so long? How will they ensure their survival through time? This exhibition revealed to the public possible answers to these questions.

**Key words:** insects, temporary, itinerary exhibition

## Introduction

As it is known, the world of insects impresses both the number of individuals and the number of species. They also succeeded in surviving over the time – they appeared on Earth before us, they live with us and probably they will continue to populate the Planet also after mankind will disappear.

The insects represent a world in miniature – usually we don’t notice their presence due to their small size.

The temporary exhibition “Survival Strategies in Insects World” was opened in 2010 (it was a cultural project). The exhibition presented the fascinating world of insects: their main adaptations

which assure their survival. This project developed as an itinerary exhibition (Galați in 2011, Tulcea in 2012 and Posada 2014).

## Material and method

The exhibition was realised using authentic, auxiliary and complementary exhibits (Florescu, 1990). The material was exposed in accordance with scientific documentation (Ionescu, 1970, Opreș, 1988).

This cultural project also included marketing tools as: banner (fig. 1), poster (fig. 2), invitation and leaflet (in Romanian and English).



Fig. 1 – The banner.



Fig. 2 – The poster.

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The insects were presented in their natural habitats and for this we used microdioramas (fig. 3). Each microdiorama had a theme (for example, the nectar and the pollen represent important sources of food for many species of insects. We called this kind of relation “Petals’ call” – fig. 3).



**Fig. 3** – “Petals’ call” microdiorama.

The insects presented in each diorama were described in labels with minimum information (fig. 4). In the microdioramas the insects from the same group were marked using coloured arrows explained in the labels (for example, red arrows for wasps, yellow arrows for ladybirds etc. – fig. 4 a).

The exhibition also included an interactive part – the visitors could discover many curiosities regarding the fascinating world of insects.

## Maeștri ai camuflajului

fluturii de stejar seamănă foarte bine cu frunzele stejarilor → →

fluturii *Catocala* se confundă foarte ușor cu scoarța arborilor pe care stă → →

călugărițele reușește să își schimbe culoare în funcție de substrat → →

gândacii pământii reușesc să se acopere rapid cu firușoare de nisip pentru a se ascunde → →

## Culori de avertizare

sunt prezente la insectele care au venin, sau care pot elimina substanțe neplăcute

ploșnițe în pijama → → viespi → →

buburuze → →

gândacii de Colorado → →

**Fig. 4** – Labels for “Warning colours” (a) and “Masters in the art camouflage and disguise” (b)

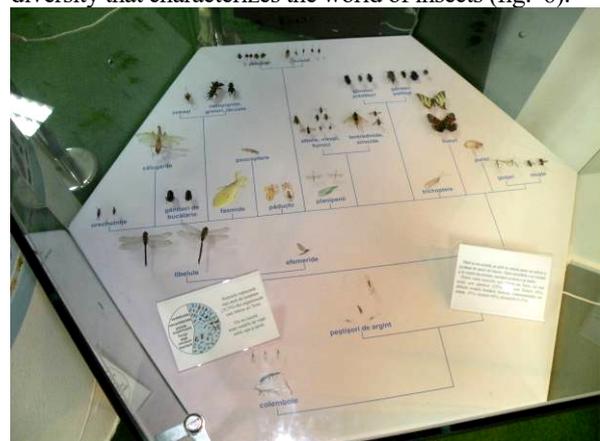
## Results and discussions

In our days the insects dominate our planet by their large number of specimens and species (from this point of view, the Earth can be considered the planet of insects). Therefore, our exhibition started with a representation of the main groups of organisms living now on our planet – the insects representing over 50% - fig. 5.



**Fig. 5** – The main groups of organisms on our planet.

The exhibition also presented the large diversity that characterizes the world of insects (fig. 6).



**Fig. 6** – Diversity in the world of insects.

The insects represent a group of organisms that succeeded in surviving over the time. How did they manage this? – By developing different

surviving strategies. The exhibition tried to offer answers to the main problems concerning their existence. For surviving, like all the other organisms, insects need: food (“What do they eat?”), defences skills (“How do they defend themselves?”), they had to ensure the surviving of their descendants (“How do they take care of their offspring?”), communication skills (“How do they communicate?”). Another subject is referring to their large number of specimens and species and there for they had to share territories (“Where do they live”) and the “length“ of day and night (“When can we admire them?”).

### What do they eat?

The food has a very important role in the life of all the organisms. The insects have numerous sources of food, but with limited diversity compared to the large number of groups of insects. Therefore, different groups of insects had to share the same source of food. For example, burying beetles and necrophagous flies “share” dead animals; coprophagous beetles and coprophagous flies use dung as food etc. (fig. 7).



Fig. 7 – Sharing food.

There are many “skilful hunters” in insects’ world: mantises, ground beetles, tiger beetles, dragonflies, ladybirds (fig. 8) and also there are many cannibals: mantises, cockroaches, mole crickets (fig. 9).



Fig. 8 – Skilful hunters.



Fig. 9 – Cannibals in insects’ world.

Numerous insects are parasites, such as mosquitoes, lice or fleas. Many ichneumon wasps lay their eggs in different larvae of insects. These larvae become “Living tins” because they ensure shelter and fresh food for the ichneumon’s larvae (fig. 10).

The nectar and the pollen represent important sources of food for some groups of insects. Therefore, there is a special relation between pollinating insects and plants with flowers. We called this kind of relation “Petals’ call” (fig. 1).



Fig. 10 – “Living tins”.

### How do they defend themselves?

Beside food, defences skills have an important role in surviving. There are many insects armed with real weapons such as needle with venom (bees, wasps – fig. 11), cephalic and thoracic armours (rhinoceros beetle – fig. 12 a), powerful mandibles (stag beetles – fig. 12 b, ants).



Fig. 11 – Needle with venom.

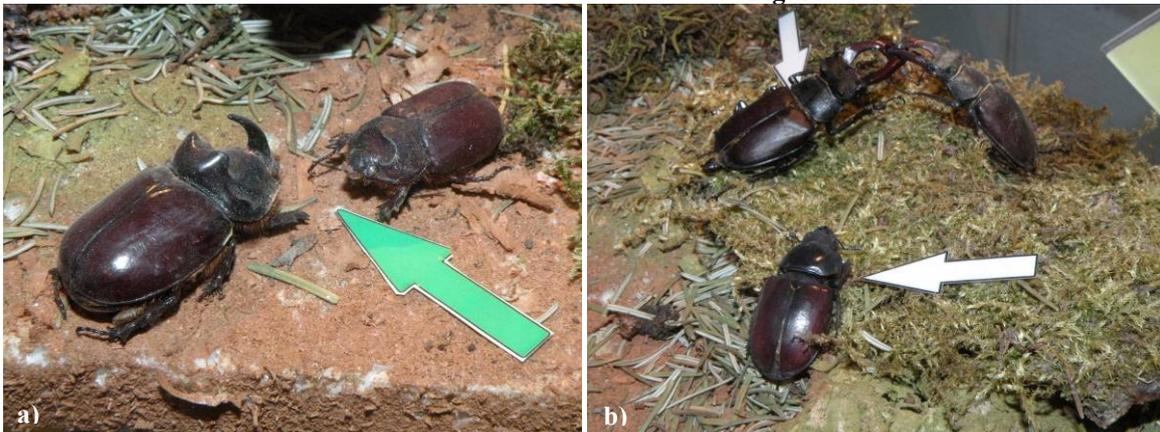


Fig. 12 – Weapons in insects world: a) cephalic and thoracic armours at rhinoceros beetle; b) powerful mandibles at stag beetles.

In order to defend themselves, many insects run (ground beetles, tiger beetles etc.), fly (chafer, flies, dragonflies etc.) or jump (crickets, grasshoppers, locusts).

Besides these methods of defence, in insects' world there are many “masters” in the art

camouflage and disguise: mantises (fig. 13 a), red underwing moths (fig. 13 b).

When they are in danger, some insects pretend to be dead (weevils or leaf beetles). Insects like European peacock butterflies and hornet moths are very good imitators (fig. 13 c).



Fig. 13 – “Masters” in the art camouflage and disguise: a) mantis; b) red underwing moth; c) European peacock butterflies and hornet moth.

Also, we took in count the warning colours. Contrasting colours are present at bees, wasps, ladybirds, some bugs etc.

**How do they take care of their offspring?**

The surviving of a species is not ensured only by the surviving of the specimen; it is necessary that the adults reproduce – they must ensure the perpetuation of the species. Thus, the offspring has an important role in the surviving of the species.

Many groups of insects take care of their offspring: bees, wasps, ants etc. (fig. 14).

Some insects dig underground refuges for protecting themselves and their larvae (*Lethrus* beetles, dung beetles– fig. 15).



**Fig. 14 – Nests.**



**Fig. 15 – Underground refuges: a) *Lethrus* beetles, b) dung beetles.**

**How do they communicate?**

Communication is very important in the world of animals. Insects developed different communication “skills”. The most important system is the smell, ensured by the pheromones (the seduction perfume – for example, silk moths – fig. 16).

Many insects communicate using sounds (“serenades”): crickets (fig. 17), longhorn beetles (fig. 18) etc.

Communication can be also ensured by bioluminescence – “living diamonds” – glow-worms (fig. 19).



**Fig. 16 – Silk moths - the seduction perfume.**



Fig. 17 – Crickets.



Fig. 18 – Longhorn beetles.



Fig. 19 – Glow-worms – “living diamonds”

**Where do they live?**

The insects conquered all the living environments: ground (underground, vegetation), water and air. For example, there are many insects adapted to terrestrial life: ants, beetles (fig. 20) and there are also insects which can be found on

vegetation: bugs, flies, grasshoppers etc. (fig. 21). Many insects are adapted to aquatic environment: water beetles, water stick-insects, water scorpions (fig. 22). Many insects conquered the air – they fly.



Fig. 20 – Terrestrial insects.



Fig. 21 – Insects on vegetation.



Fig. 22 – Aquatic insects.

**When can we admire them?**

Being so numerous, beside territories, the insects also had to share the “length“ of day and night – the 24 hours of day. As a result, some insects

are active during the day (fig. 23), others by night (fig. 24).



Fig. 23 – Diurnal insects



Fig. 24 – Nocturnal insects

The exhibition is completed by an interactive part: two modules where the visitors can discover some curiosities from insects’ world (the

ghost insects, the real migrators, the little vampires etc.). The visitors can also try to guess what insects hide in different pictures – fig. 25.



**Fig. 25** – The interactive desks

The opening of the temporary exhibition “Survival Strategies in Insects World” was in 2010 at the “Ion Borcea” Natural Science Museum Complex of Bacău – fig. 26.

In 2011, the project continued as an itinerary exhibition and it was open at the Natural Sciences Museum Complex of Galați – fig. 27.

The project also continued in 2012, when the exhibition was opened in Tulcea, at the Danube Delta Eco-Tourism Museum Centre (fig. 28).

In 2014 the exhibition was itinerated at Posada Hunting Museum (Prahova County).



**Fig. 26** – “Ion Borcea” Natural Science Museum Complex of Bacău 2010 – the opening



**Fig. 27** – Natural Sciences Museum Complex Galați 2011 – the opening



**Fig. 28** – Danube Delta Eco-Tourism Museum Centre 2012



**Fig. 29** – Posada Hunting Museum 2014

### Acknowledgements

Many thanks to our colleagues Maria Ciubotaru, Maria Hongu and Nela Diaconescu, for their involvement in the process of making the microdioramas. Our thanks also go to our colleague eng. Bogdan Barabaş for museotechnical contribution.

### Conclusions

1. The temporary exhibition “Survival Strategies in Insects World” was a cultural project developed in 2010 at “Ion Borcea” Natural Science Museum Complex of Bacău.
2. The project presented a world in miniature, the world of insects in their natural habitats and for this we used microdioramas.
3. The exhibition tried to offer answers to the main questions regarding the surviving of the insects over the time: “What do they eat?”, “How do they defend themselves?”, “How do they take care of their offspring?”, “How do they communicate?”, “Where do they live” and “When can we admire them?”
4. The exhibition is completed by an interactive part: two modules where the visitors can discover some curiosities from insects’ world.

5. The project continued as an itinerary exhibition in 2011 (Galaţi – the Natural Sciences Museum Complex Galaţi), 2012 (Tulcea – the Danube Delta Eco-Tourism Museum Center) and 2014 (Prahova - Posada Hunting Museum).

### Rezumat

Expoziția „Strategii de supraviețuire în lumea insectelor” a fost un proiect cultural desfășurat în anul 2010, care s-a transformat în expoziție itinerantă începând cu anul 2011.

Proiectul și-a propus să aducă în fața publicului o lume mai puțin cunoscută – lumea insectelor. O lume în miniatură deoarece, ea este formată din ființe pe care de cele mai multe ori omul le ignoră mai ales datorită dimensiunilor lor reduse.

Totuși aceste organisme au apărut pe Terra cu mult timp înaintea noastră, trăiesc alături de noi și probabil că ele vor continua să populeze Pământul și mult timp după ce omenirea va dispărea. Cum este posibil acest lucru? Ce au făcut ele de au reușit să dăinuiască atât de mult timp? Cum anume își vor asigura ele supraviețuirea în timp? Prin această expoziție am încercat să oferim răspunsuri la aceste întrebări.

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