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The Language of Chameleons: how the animals, which cannot talk and do not hear, communicate

PETR NEČAS

Author: petr.necas@me.com

Note: this text is an example from the book dealing exactly with this topic, this is just an introduction

INTRODUCTION

Chameleons are probably the most fantastic vertebrates living today on Earth. They belong to the squamate reptiles and are all classified in different genera within one family *Chamaeleonidae*. The so called “New World Chameleons”, are not concerned here as this expression is nowadays considered quite archaic and marginally refers to chameleon-like Iguanids of the genera *Anolis* and *Chamaeleolis*.

Chameleons have attracted attention of people from ancient times. Nowadays, thanks to media and widespread herpetoculture, many people keep chameleons in captivity. They made their way to media as heroes of movies, books, and esthetic objects in art, design and industry.

The over 200 recognized recent species of Chameleons are well known by a combination of very outstanding and unique features, such as their ability to change color, their prehensile tail, their independently movable eyes, their chameleodactylous pincer-like feet, the long extendable tongue with which they catch their prey and their overall strange appearance and behavior. Their evolutionary history reaches almost 100 millions of years back: they survived the raise and the fall of great dinosaurs. They are masters of disguise and masters of survival. There are some of the smallest vertebrates in the world amongst them, with total adult length less than 2cm! They can grow over 80cm total length and can weigh over 1,5kg. Their bodies are ornamented with unbelievable colors and patterns and equipped with fantastic features like horns, crests, casques and spikes. They are indeed the dragons of the current age!

But, do we know them really well?

Chameleons are subjects of many superstitions and myths. The miracle, how they survive is even more mysterious, if we take into account their generally small size, slow motion, and the facts, that they almost can not smell anything, they almost can not taste anything and they practically can not hear anything!

Regardless all these handicaps, they stay at the top of their food-chain and do not build a primary source of food for any other animals, though they are occasionally predated by some other lizards, birds, mammals and snakes.

Why is that?

Because they can make use of many unique and unusual strategies, enabling their survival!

And, the most fairytale-like feature they possess is: despite of being unable to speak and hear, they CAN talk.

This book will unleash some of their communication and survival strategies and show you how they do.

We put together two approaches:

1. more than thirty years of chameleon research in the wild and captivity and experience from publications and teaching and unifying people interested in chameleons all around the globe in the person of the author of the text and photographs (PETR NEČAS), and
2. fresh, unbiased, youthful view of the young generation with free access to information technologies and adorable talent in the artistic view of the world in the person of the author of the illustrations and dialogues (ANASTASIIA SHIRIAEVA)

with the aim to write a book of a very unusual format and logic, that will inspire the readers in our modern world

and will target the minds and hearts of all generations from the young to the more mature ones.

Our dream and hope is, that this book will help to transfer our fascination and love to these fantastic and unique creatures to you, the readers.

We live in a world, when traditional values are questioned, nature is destroyed and we live on a margin, if not beyond a global collapse. The world is nowadays not ruled by spiritual leaders, who would care for culture, nature conservation and long-term sustainable wise existence, but under brutal dictate of military power and money. The Pandemic CoVid19 showed us clearly, how vulnerable the human rule of the planet Earth is. The majority of humans, became overnight caring for survival rather than for virtual intangible bait and charm and tease of the modern world's technologies and consumer lifestyle.

The chameleons are masters of survival. They survived many global crises, when continents were breaking apart and great animals became extinct. But, they ensured their existence even under the hardest pressure. They even resist the destructive influence of humans nowadays. They are, surprisingly, in many aspects very similar to humans. If compared to other powerful animals, they are similarly weak and handicapped like humans. Humans do not exceed any other biological entity in any physical feature except for the development of neocortex, enabling us logical thinking, and in our adaptability. Chameleons, on the other side, have powerful eyes and unique tongue and ability of spectacular color change. The extreme adaptability is a feature, which we have with the chameleons in common.

This book opens a field for human inspiration by chameleons' strategies of survival. We can learn a lot. We can understand better, what happens in the social systems around us, and, we can learn how to handle the challenges and develop further... How to do it concretely? This is, what we leave now up to you and your valued critical thinking. In case you need us, you will find a way.

We long for inspiring you for your own learning and growth, further studies, deeper understanding of the nature and for concrete actions in protecting the chameleons, their biotopes and in the end result, the ecosystems of the whole planet: saving her, ...and us.

May the book be a good guide for diving deep into the mysterious world of chameleons, to find out more even about ourselves.

For the good of mankind and chameleankind...

SYSTEM

The book consists of individual chapters, which describe always one phenomenon, one communication mechanism only. They might be combined in reality in their use by chameleons, but we decided to handle each separately.

Each communication mechanism is explained in the same logical structure, which combines exact scientific approach with popularization. We seek a compact, easy to understand and easy to comprehend way of description without trivialization and imprecise simplifications and allow ourselves a systemic fault in purposefully using anthropomorphization: depicting things from human perspective, lending the animals human properties and approaches and even thinking. We do so to bring a series of complex biological phenomena closer to the public. It is to be strictly understood and kindly pardoned as a deliberate misuse of this approach for the named purpose and is to be taken metaphorically and symbolically only. In no way does it mean, that in general, we attribute the human abilities to



animals. We know, chameleon brain structure and function, despite of capable of surprising performance in many areas, lacks some parts, well developed in mammals including humans and therefore, it is not capable of thinking and communication in "human" sense.

Each of the many phenomena is described and elucidated in the same logic as follows:

Name of phenomenon – A short title standing symbolically for the phenomenon in discussion and using both exactly scientific as well as trivial terms and terms used in the practice of professional chameleologists and amateur keepers, breeders and chameleoculturists.



Headline – An anthropomorphized wider definition of the pertinent topic, formulated as an imperative, elucidating the main principle of the individual chapter in a metaphorical way: like if an old, experienced chameleon guru would explain a young chameleon student what to do in order to master this particular area.

Scientific-popular explanation – A scientifically based, simplified, compact explanation of the phenomenon and its roots, based on the current state of understanding (the chameleon research is still scarce and incomplete, it does not yet provide the explanation of all phenomena in full) and experience of the senior author, sometimes slightly speculating and exaggerating, in service of understanding.

Dialogue – An anthropomorphized description of communicational sequences, depicting real situations from chameleons' life history in a form of a fictional dialogue, pretending that chameleons (and other animals involved) can think and speak same as humans. The events and reactions are real, just presented in that creative and easy-to-understand metaphorical way.

Evidence – Each phenomenon is depicted by pertinent photos from the wild and from captivity, demonstrating

some aspects of the discussed topic. As most of them are of behavioral nature, and therefore dynamic and not static; the depiction is just representative. You can see demonstrations of these mechanisms in action dynamically in form of videos or time lapses at www.chameleons.info or on YouTube.

Caricatures – All phenomena are in relation to the pertinent “dialogue” artistically elaborated in a form of a drawing, depicting the reality in the perspective of humor, art and metaphors. They do reflect the reality in main aspects but may differ in some aspects due to liberal artistic perception and creativity.

Coloring – To foster creativity, coloring charts both for children as well as for adults are prepared. While coloring, the learning is fixed more firmly. And we hope that creative artistic enhancement of the use of this book will contribute also to the falling in love with these fantastic creatures.

FIVE CHAMELEON LANGUAGES

Chameleons' behavioral patterns, using which they communicate, can be divided into logical groups based on the way, how the communication is performed. Some of the phenomena are of hybrid or intermediate nature, therefore, the division and classification is to be considered formal only without the ambition of neither rigorous correctness nor absolute comprehensiveness.

1 Language of body

This language provides the possibility to express certain issues through the exposing of static features of their body and give this way an orientation to the observer about their identity: **who they are**.

It consists of chapters about the most prominent external morphological features of their bizarre bodies, such as: Silhouette, Horns, Crests, Spikes, Casques, Spurs and Fluorescence.

2 Language of movements

This language deals with mechanisms how to dynamically, with the use of their bodies and their parts, express their intentions: **what they want to achieve**.

It consists of chapters on behavioral patterns like: Leaf walking, Run-run-run, Dispersal, Pancaking, Elbowing, Knighting, Skinfolding, Disking, Descending, Bull-necking, Blowing up, Moving, Light-housing, Bobbing, Brumation, Occipital flapping, Tail magic, Shadowing, Pair-bonding, Riding, Digging, Eye retracting, Gaping, Biting, Gasping, Grasping, Limb swelling, Eye moving, Eyes shut, Casque bulging, Akinesis, Thanatosis, Swinging, Licking, Tongue magic, Poop & Urate, Quasimoding, Buzzing, Side stinging, Spine thrusting.

3 Language of smell

This language makes use of a very spectacular area of their existence, the smell and explains how they use the fact that they do not give any specific odor under normal circumstances (No smell) how they utilize their ability to produce a very remarkable odor proactively (Bad smell, Great smell).

They metaphorically talk about: **how to use the odor**.

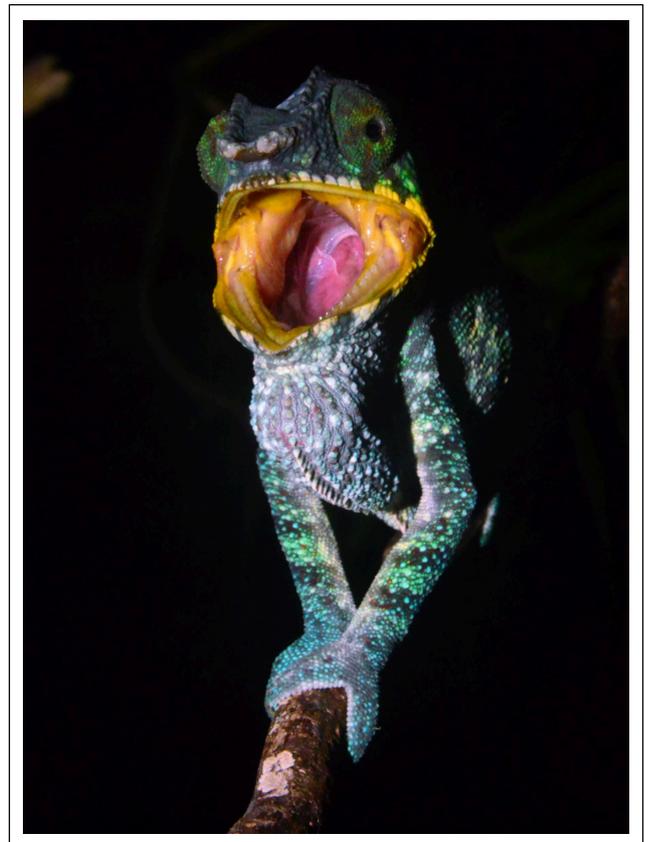
4 Language of colors

This language provides the possibility to express very complex communicational patterns within a species and amongst other chameleon species, and talk on: **how to express the will and emotions**.

This section consists of chapters on: Intraspecific communication, Interspecific recognition, Thermoregulation, Emotions, Health, Nutrition, Mimesis, Somatolysis, Color defects.

5 Language of sounds

This language comprises the only obvious loud and hearable sound, the chameleons produce proactively: His-sing. The Buzzing was technically put to "Language of movements" for the reason, that though sometimes weakly hearable, it seems to have the main function in performing vibration rather than hearable voice. There are some sounds that chameleons can produce when ill, like sort of coughing, sneezing, chirping or whistling, as passive side-effects of some diseases. And it is speculated, they can even use ultrasound.



OFFER

If you got inspired, let us show you step by step some chapters of the book in Archaius.