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THE ROLE OF ART AS AN INSTRUMENT FOR SCIENTIFIC RESEARCH AND POPULARIZATION OF THE REINTRODUCTION ACTIVITIES IN BULGARIA

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INTRODUCTION

A variety of activities and branches of science can contribute to the reintroduction efforts for plant and animal species. Art is one of them. This paper aims to present several chief types of art and their vital role in the work of state institutions and nature conservation groups that are involved with restoring certain species' population in Bulgaria. The study has a pioneering nature, as there are no prior efforts in Bulgaria to show the synergies between art and nature conservation.

MATERIALS AND METHODS

The necessary materials and information for this study were collected thanks to collaborative work with nongovernmental organizations and state institutions that actively work toward species' reintroduction in Bulgaria, including the National Museum of Natural Science (NMNS), the Faculty of Biology at Sofia University "St. Kliment Ohridski," the Fund for Wild Flora and Fauna (FWFF), and Green Balkans. In an effort to assess the full impact of artworks in these organizations' activities, the study traces the entire process from the pieces' creation to their practical application. Hence, it was important to establish direct contact with artists working in the field and to synthesize information about specific technological and artistic approaches. This was accomplished through meetings and interviews with a few key contemporary artists – animalists, scientific illustrators, photographers, and sculptors. In addition to atelier and

work place visits, methodology included the field work that is specific to all kinds of art listed in this study with direct applications to natural conservation and reintroduction in particular. Results are presented here through several classic art history methods – biography and formal and comparative analysis of examples.

RESULTS AND DISCUSSION

As an art form, scientific illustration must combine two very different but compatible functions: the informative as well as the aesthetic. In most cases, it relates to a particular text and aims above all to visualize and show scientific facts presented in the writing. Scientific illustrators are specialized artists working in the field of science. They apply scientific observations and combine them with technical and aesthetic qualities in order to represent their object. Precision and communication are both vital to a scientific illustration (Hodges, 2003.) Despite this, even the images meant for strictly scientific publications can be viewed and analysed with regard to their purely artistic qualities. There are a variety of factors that determine the illustrations' characteristics, such as the nature and purpose of the publication in which they appear or their artist's personal style. These characteristics determine the balance between the maximum precision in representation and the artistic freedom an artist can afford to exhibit.

The art of scientific illustration has a long history. Its roots can be traced back to the Renaissance and even further to ancient art, although of course in these cases it cannot be viewed as a separate art. Its differentiation and development into its modern form corresponded with the separation of sciences and above all the appearance of specialized publications. In Western Europe and the USA, this process occurred significantly earlier than in Bulgaria, where it began only toward the end of the 19th and beginning of 20th centuries. At first, publications in the country featured predominantly translated Western and Russian literature; these publications were also the first influences on scientific illustration in Bulgaria. The earliest Bulgarian editions dedicated to biology and wildlife conservation also contain reproduced foreign engravings and illustrations. Over time, these were replaced by the works of the first Bulgarian artists that helped establish the foundations of scientific illustration in the country. An important point in this process was the establishment of the Bulgarian "Nature" magazine in 1893. Over the next few decades, original artist works in Bulgarian scientific and popular periodicals were scarce. One of the earliest larger specialized publications in Bulgaria was the first volume of *The Fauna of Bulgaria* series, entitled *Birds in Bulgaria*. The volume's illustrations were created by the zoologist Nikolay Boev, who is better known for his contribution to zoology and conservation in Bulgaria.

In the last few decades, artists have shown an increased interest in the themes of nature and its conservation. The Bulgarian field of scientific illustration has

grown rapidly, with certain tendencies in technique, artistic approaches, and artists' personal characteristics.

One tendency is that of scientific illustrators to fall into one of two broad groups. A majority of the artists who publish their artwork in scientific publications have not had a formal training in the arts. Often, they are biologists or other academics, reminiscent of the encyclopaedic personalities from former eras. Much like the New World explorers, they combine their zoological knowledge with drawing, illustrating their materials themselves and acquiring the ability to represent their objects empirically through observation. This group of contemporary Bulgarian scientific illustrators features Georgi Pchelarov, who authored the illustrations in a large array of scientific publications, including foundational editions such as *The Fauna of Bulgaria* or *The Birds on the Balkan Peninsula*. Lately, he emphasizes acrylic paint, which allows him to layer colours to a different degree and place accents in colour, form, or volume. This approach has resulted in particularly expressive artwork (Grozdanova, 2016.)

Asen Ignatov is another artist educated in biology whose works have illustrated a large number of Bulgarian scientific publications such as *The Red Book of the Republic of Bulgaria Vol. II: Owls in Bulgaria* or *Poisonous Plants and Their Effects*. Ignatov prefers to work with water colour and water colour pencils. These materials allow him to work in the field, directly observing and representing plants and animals in nature. This approach provides for the artist's ability to show his objects reliably with their characteristic movement and liveliness.

Another tendency is the differentiation of Bulgarian scientific illustration through specialized education at the National Academy of Art. It is only in the last few years that scientific illustration has found a place at the Academy through a Master's program. This development can be attributed to prof. Viktor Paunov, an experienced artist in the field, whose zoological illustrations have been featured in a number of Bulgarian publications. Paunov also illustrates various publications, including a large range of fictional literature. His works can be characterized by their focus on purely artistic problems, something that is apparent even in strictly representative scientific works.

Denitsa Peeva is yet another Bulgarian artist whose work embodies the role of specialized education in scientific illustration. After graduating from the National Academy of Art, she enrolled in a Masters' program in scientific illustration in the Netherlands. Attending a course that had long and well-established traditions of teaching this field independently, Peeva took Bulgarian scientific illustration to a global level. Her accomplishments were recognized with a 2014 award from the International Contest of Herpetological Illustration. Peeva's contribution is also theoretical, since she has published a short handbook to illustrating field guides (Peneva, 2012.)

Sculpture is another kind of art that significantly impacts reintroduction projects. Some highly specialized sculptors work on modelling certain animal species in plastic. This is important as many wild animals are hard to observe in their natural habitat. At the same time, popularizing the challenges associated with maintaining their populations in certain areas forms an important part of most reintroduction projects in Bulgaria. To that end, in areas where such projects take place, there are often visitors' centres involved with educational activities. Along with natural history museums, these centres are the chief commissioners for sculpted animal replicas.

Animal models can also serve practical purposes. For instance, sculpted replicas of vultures have been utilized to attract and retain the species in a particular area (Peshev, H., E. Stoynov at al, 2015.)

This method has also been applied in projects concerning other animal species.

There are only a few artists in Bulgaria that work on animal replicas. The sculptor Nikolay Todorov trained at the St. Luca Applied Arts School and subsequently the National Academy of Arts. Due to his deep interest in animals and the environment, he specialized in representing nature faithfully. Todorov's pieces can be said to be three dimensional scientific illustrations. He has created many of the sculpted models presented in the NMNS, the History Museum in Panagyurishte, and several visitors' centres, including those in Gabrovo, Belene, and Levka. His ability to combine scientific precision with the plasticity of sculpture was something inherited by his son, Mincho Todorov, also a graduate of the National Academy of Art's sculpture program. Father and son often work together on projects. Yet another alumnus of Bulgaria's most prestigious art institution, Nayden Slavchev, often works on sculpture models commissioned by large non-governmental organizations such as Green Balkans.

Another kind of art that plays an important part in reintroduction projects is photography. On the one hand, it is used for its practical applications, such as documenting or recognizing different species and even individual animals. However, even when used for these purposes, it can exhibit the artistic qualities of art photography. Just like scientific illustration, field photography can fulfil a variety of functions that in the end determine its characteristics. Despite this, documenting plants and animals in nature features as a main genre in art photography and therefore presents a number of purely artistic concerns.

In Bulgaria, Nikolay Raykov was among the first photographers to dedicate his work to wild nature, conservation, and animal pictures. He also wrote the first Bulgarian books on the subject: *Hunting without a Gun* and *Steps in the Sand*. In literature abroad, the concepts of "wildlife art" and "wildlife photography" have existed for a long while, but in Bulgaria they are only now gaining popularity, and so far have not been explored in original research. It could be said that Nikolay Raykov established the field of wildlife photography for the country, not

only through his work behind the lens, but also through his written theoretical contributions.

No less important, Luybomir Andreev has contributed to Bulgarian photography through his active work in the 1990s, when he photographed rare animal species for posters and other materials for popularizing natural conservation. Today, Andreev's focus has shifted to film, but he continues to work with the same themes.

The development of contemporary photography in Bulgaria is fast-paced, with rapid technological improvements offering new opportunities for taking and rendering digital images online. Additionally, images are increasingly available, helping professional and amateur photographers to become engaged and better versed in the artistic problems of wildlife photography – both outdoors and in motion, this kind of photography poses very different challenges than the ones associated with work in a controlled studio.

There are many photographers who are inspired by nature conservation and rewilding and who work in the field. Among them, of particular interest is the artistic perspective of Asen Ignatov, whose work as a conventional artist and illustrator lends a unique approach to his views on photography. Other contemporary photographers include Hristo Peshev of the FWFF and Atanas Grozdanov of the Sofia University Faculty of Biology. Both have developed their artistic approaches to photography as a result of necessity during their experiences in the field.

All of these artists collaborate with state and non-governmental organizations involved in nature conservation and rare species reintroduction. Their photography has been featured in a number of specialized publications, as well as information and popularization materials.

CONCLUSION

Art holds an indisputable role in nature conservation and in projects on the reintroduction of key species in Bulgaria. Some types of art, such as illustration or photography, are indispensable elements of scientific publications. They also find practical applications outside the constraints of science or specialized work, as key means of public communication and conveyors of little known but vitally important issues.

In 2015, an art exhibit entitled "The Great Return" was opened in parallel with the First Bulgarian National Conference on the Reintroduction and Conservation of Species. The exhibit aimed, as has been argued here, to demonstrate that art and science are components of a cohesive whole. More than 50 artists participated, with more than 30 images of animal and plant species featuring in Bulgarian reintroduction projects (Grozdanova, 2015.)

The problems associated with the artistic qualities and aesthetic of different kinds of art as they exist in this narrowly specialized field can be reviewed in much more depth with many more examples. A study like that could help trace the emergence and development of particular tendencies mentioned in this paper. The examples given here have aimed instead to highlight some of the key issues in the main types of art that are applicable to wildlife conservation and species reintroduction in Bulgaria. Future publications will examine the arguments presented here in more depth.

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