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## Teachers' evaluation of recent changes in the school subject environmental knowledge

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**Abstract:** Nowadays, in Hungary, the Framework Curricula determine the requirements of education. Currently, education is provided by the requirements of the 2012 and 2020 National Core Curricula (2020, hereinafter NAT). The latter shall be applied in the ascending system from the 2020/2021 school year onwards. With the introduction of the new NAT, several changes have taken place in the subjects. These changes also had a major impact on the subject of environmental education. Our research aimed to assess the knowledge of environmental education educators on the topic of wildlife and to examine their views on the new 2020 NAT. The results presented in the article show that the topic of wildlife, which was the 2nd-grade curriculum according to the 2012 NAT, will be left out of the lower grade curriculum with the introduction of the 2020 NAT. This step could deprive students of any knowledge at school about this topic. The research carried out reveals that teachers in the lower grades of public education do not have adequate and accurate knowledge of the subject.

**Keywords:** National Core Curriculum; environmental knowledge; teacher;

### 1. Introduction

The issue of wildlife is a unique topic these days. It is present in the daily life of both adults and children. The place of acquaintance with the species is primarily the family, as this is the elemental socialization scene for a young child. It can take place on the occasion of a forest trip, a visit to a game park, and our domestic wild game species also play a role in many of our tales. Just think of our folk tales of “*The Wolf and the Fox*”, “*Little Red Riding Hood*”, “*Mr. Nyávogi*”, “*The Deer Who Admired Himself*”, all featuring wild animals. The parents are the most important people in the cognition process because curiosity is present as an age trait in early childhood. The parent is responsible for answering their child’s questions.

Within the institutional framework, the place of socialization is the kindergarten and later the school. Here, the educator is responsible for the transfer and possible supplementation of knowledge. Curriculum and environmental lessons that provide a framework for all this to happen help children to get to know the world around them. In kindergarten, the National Basic

Program of Kindergarten Education formulates and summarizes the educational tasks aiming at developing habits of environmentally conscious behavior and getting to know the environment in the chapter “*Active acquaintance with the outside world*”.

In everyday kindergarten life, children actively discover nature and their environment, to which kindergarten teachers - ideally - convey appropriate scientific knowledge during the processing of the knowledge contained in the recommended activities. The development of an environmentally conscious approach is an educational process that influences the development of the whole personality, therefore it is necessary to ensure the organized transfer of knowledge in this field from the first ages (Molnár, 2015). The question arises whether the educator can convey correct, accurate knowledge to the children.

Environmentally conscious education, environmental morals, and scientific education develop social sensitivity in the field of environment and nature protection. Nowadays, we carry out consciousness-forming activities by passing on knowledge, providing experiences, and developing environmentally conscious behaviour (Molnár, 2009).

To develop an environmentally conscious attitude, environmental education must start already in the first class, basic knowledge of wildlife and many other topics are needed as a basis for environmentally conscious behaviour and education for sustainability.

Today, 21<sup>st</sup>-century children spend their free time at home using digital devices. Due to the rushing world, children can get to know e.g. animals inside a house or apartment with the help of a TV, computer, or tablet, which gives by no means as much experience and knowledge as personal experience in nature. Through crawling, climbing, and perceiving a much closer relationship develops between child and nature (Mesterházy, 2019). This has eliminated the opportunity for children, parents, and educators to meet our wildlife outdoors, in the natural community of animals.

In Hungary, the NAT - including the Framework Curricula - provides guidelines for teachers in public education. In the case of public education, the Office of Education divided the framework curricula into two groups: 1-4. and 5-8. classes (National Core Curriculum, 2020).

The role of training is essential when it comes to knowledge transfer and accurate knowledge. Within teacher training, students are introduced into several subjects. At the Teaching Department of Eötvös Loránd University the subject Functional Anatomy and Health Sciences, Natural Sciences and Environmental Protection I., II., then Pedagogy of the Natural Sciences Subject I., II. and III. are included within the theme of Pedagogy of the Natural Sciences

Subject. Each of them is worth 2 credits, with a total of 56 hours of lectures, divided from the first to the fifth term (Eötvös Loránd University-Information, 2013).

In the same department of the University of Pécs, in addition to the above-mentioned subjects, there are Environmental Projects, Locality and Sustainability and Forest School subjects in addition to the range of compulsory subjects (University of Pécs-Study Guide, 2019).

Thus, teachers have several subjects available during their training, with the help of which they can deepen their knowledge in every field of education. Due to the information above, it can be assumed that practicing teachers transfer the subject of environmental knowledge to the growing generation with sufficient/accurate knowledge and experience.

The framework curriculum states the following about the teaching of the subject of environmental education and the acquisition of knowledge: “To the continuous extension of knowledge, it is essential that the educator forms students' motivation, interest, and attitudes towards the environment, nature and the functioning of their bodies during the education. The framework curriculum supports this with the choice of topics and problem raising that also influence students' emotional attitudes” (Education Office, 2020).

In the study entitled “*Methodological Challenges in the Education of the New Generation,*” Istvánné Éger writes: “We can only capture the attention of the new generation by means other than the ones we are used to. I am not just thinking here of the replacement of outdated, frontal work, forms of education based on student involvement in small groups. In modern pedagogical workshops, the - most technical - tools are already available, which the future generation grows up on” (Éger, 2012).

So educators have a big responsibility. On the one hand, they need to provide students with appropriate, credible, accurate knowledge, while maintaining their motivation, and on the other hand they should be encouraged to get acquainted with the game management and our main domestic wild species within the topic of sustainability by raising and stimulating their interest.

## **2. Problem identifications, goals, hypotheses of the research**

In Hungary 2020, the framework curricula define the requirements for students, which is distributed to institutions in terms of subjects and classes. Currently, NAT 2012 and NAT 2020 are in effect in public education. The latter must be applied by institutions in an ascending system from the 2020/2021 academic year (National Core Curriculum, 2020).

The introduction of NAT 2020 involved several subjects including environmental sciences in lower classes. More precisely, this means that the aforementioned subject of environmental knowledge dealing with nature will disappear from the 1<sup>st</sup> and 2<sup>nd</sup> classes, and the subject will remain unchanged in the 3<sup>rd</sup> and 4<sup>th</sup> classes. In the ascending systems, it is planned to realize the knowledge of nature by incorporating it into the Hungarian language and literature subjects. This raises a problem. The research (Mesterházy, 2021) conducted in spring 2020 confirmed that among the lower-class textbooks on the 2019/20 textbook list, the 2<sup>nd</sup> class curriculum includes most sections of major wildlife species. This will disappear with the introduction of the new NAT 2020.

This research aims to assess the knowledge of educators teaching environmental knowledge on the topic of wildlife and to examine their opinions on the NAT 2020.

Our hypotheses were as follows:

H / 1 The NAT introduced in 2020 had a negative impact on the subject of environmental education.

H / 2 The wild animals in NAT 2012 are not in line with the core material of the lower-class textbook family on the textbook list.

H / 3 Environmental education teachers do not have adequate knowledge of the deer species so teachers can't transfer accurate knowledge, knowledge of the main wild species must be included in their training/aids.

### **3. Research methods and sample**

To reach a larger target group in this pandemic situation as well, we chose the online questionnaire as our research method, in which environmental education teachers were asked 24 questions grouped around the three hypotheses. The questionnaire included 4 open-ended and 20 closed-ended questions, two of which were 1-5 grade Likert scales. The questionnaire was shared on social websites and sent via email to the target group. Based on this, the survey was completed by 51 people. The questionnaire was completed in October-November 2020.

In the present study, I will present the most striking results plotted on diagrams.

The chart below shows the gender distribution, with 42 women (82.4%) and 9 men (17.6%) answering the questions (Figure 1).

Gender  
51 answers

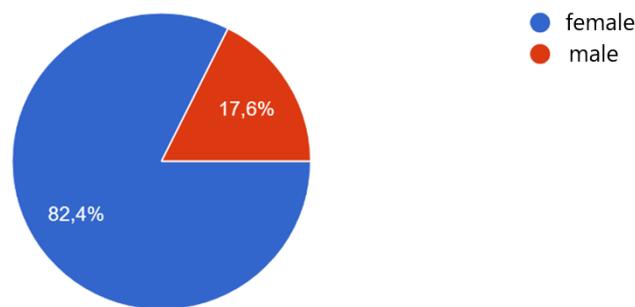


Figure 1: Gender distribution of the responders

Most of the respondents were aged 46–55 years (18 people, 35.3%), followed by those aged 36–45 years, and the least were aged 56–65 years (Figure 2).

Age  
51 answers

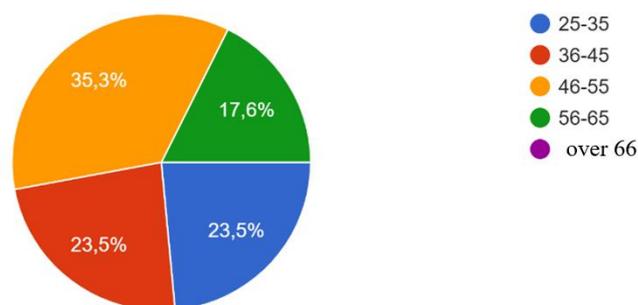


Figure 2: Age distribution of the responders

26% of the respondents (13 people) have been in the teaching profession for 6-15 years. 12% of educators, 6 people, have been in the teaching profession for more than 36 years.

The next question was about teaching the current environmental subject. 96.1% of the respondents (49 people) were teaching the subject of environmental knowledge when filling in the questionnaire, and 3.9% answered “No” to the question (Figure 3).

Do you still teach environmental education?  
51 answers

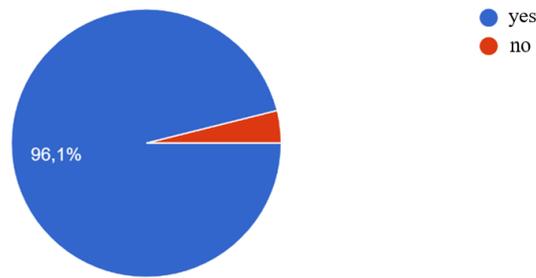


Figure 3: Question regarding teaching the environmental subject

Among the environmental education teachers, 19 (38%) teach in small towns, 17 (34%) in villages, 8 (16%) in large cities, and 6 (16%) in the capital.

Most of the respondents (8-8), who filled in the questionnaire, are from Győr-Moson-Sopron and Pest counties, which is 17.5-17.5%. This is followed by Vas county with 6 received answers (11.8%) and by Jász-Nagykun-Szolnok county with 4 received answers (7.8%). The map shows that 3-3 people from the eastern part of the county: Borsod-Abaúj-Zemplén and Szabolcs-Szatmár-Bereg counties filled in the questionnaire, which is 5.9% for both counties. In Zala, Fejér, Tolna, Csongrád-Csanád, Heves, Nógrád and Baranya counties, 2-2 people filled in the questionnaire. 1-1 people from Veszprém, Somogy and Bács-Kiskun county answered. No filling was received from Hajdú-Bihar and Békés counties (Figure 4).



Figure 4: Number of respondents in the 19 counties of Hungary “The word “fő” means “head” in the Figure.

## 4. Results

In the following, the results are presented according to hypotheses. The results are illustrated by diagrams. Some of the answers to the open-ended questions are also listed below.

### 4.1. First hypothesis

Our first hypothesis is as follows: The NAT introduced in 2020 had a negative impact on the subject of environmental education.

To prove this hypothesis, we asked educators 5 questions.

To our question about the positivity and negativity of NAT 2020, respondents were able to mark their answers on a 1-5 grade Likert scale. Answers 1-2 meant negativity, 3 meant a neutral answer and 4-5 meant the positive option. 19 people (37.3%) and 13 people (25.5%) feel completely negative and negative about the impact of NAT 2020 in general. 15 people (29.4%) think the changes are neutral and 4 people (7.8%) think the changes are positive (Figure 5).

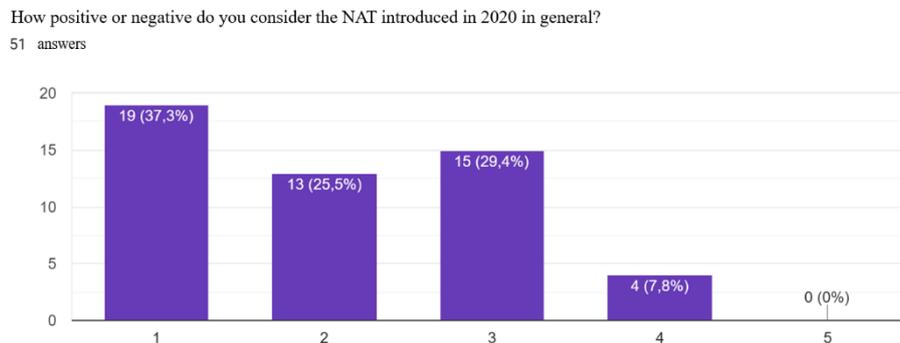


Figure 5: Judgement of NAT 2020 in general

24 (47.1%) of the number of all respondents think that the impact of the NAT 2020 on the subject of environmental education is completely negative and 14 (27.5%) think, it's negative. 10 people (19.6%) gave a neutral answer and 3 people (5.9%) gave a positive answer to the question (Figure 6).

How do you think the change will affect the subject of environmental education?  
51 answers

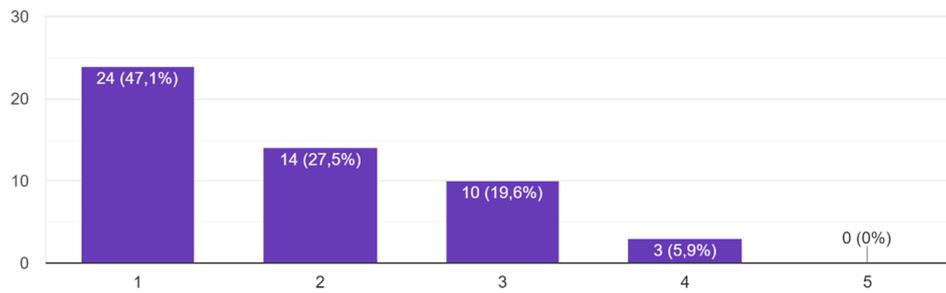


Figure 6: The effect of NAT 2020 on the subject of environmental education

The following statements about NAT had been made by us to aim at educators who teach Environmental Education. Their task was to mark the statements which they agreed about. Multiple answers were allowed. Our claims were as follows:

- The requirements in the NAT overburden children.
- It is sufficient to start teaching the subject of environmental education in 3<sup>rd</sup> and 4<sup>th</sup> classes.
- Teaching the subject of environmental education should begin already in 1<sup>st</sup> and 2<sup>nd</sup> classes.
- With the introduction of the NAT 2020 students' competencies and their development will come to the fore.
- In the 1<sup>st</sup> and 2<sup>nd</sup> classes within the subject of Hungarian language and literature, teachers can transfer the knowledge material of the deleted subject of environmental knowledge.
- The NAT 2012 provided the appropriate framework for the proper transfer of environmental subject knowledge.

Most people - 39 (76.5%) - agree with the statement that teaching the subject of environmental education should start in 1<sup>st</sup> and 2<sup>nd</sup> classes. 37 people (72.5%) agree with the statement that the NAT 2012 provided the appropriate framework for the proper transfer of environmental subject knowledge. 22 people (43.1%) believe that the requirements in the NAT 2020 overburden children. Only 4 people (7.8%) think that it is sufficient to start teaching the subject of environmental education in 3<sup>rd</sup> and 4<sup>th</sup> classes. 3 respondents (5.9%) agree that with the introduction of the NAT 2020 students' competencies and their development will come to the fore. 7 people (13.7%) think that teachers can transfer the knowledge material of the deleted subject of environmental knowledge in the 1<sup>st</sup> and 2<sup>nd</sup> classes within the subject of Hungarian language and literature.

The following chart shows whether the opinion of environmental education teachers was sought about the introduction of the NAT 2020. It can be seen that 98% of the respondents, i.e. 49 people, marked the “No” response option. Only 2 people claim that the school management asked for their opinion on this (Figure 7).

Focusing on the subject of environmental education: Has anyone asked for your opinion on the introduction of the new NAT?

51 answers

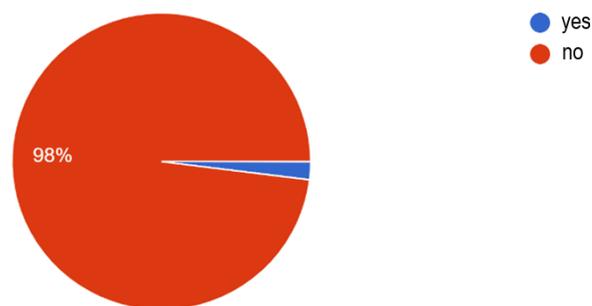


Figure 7: Asking for opinions on the introduction of a new NAT

#### 4.2. *Second hypothesis*

The second hypothesis is as follows: The wild animals in the NAT 2012 are not in line with the core material of the lower-class textbook family on the textbook list, so the transfer of such knowledge is problematic for teachers.

It can be seen that 46 (90.2%) environmental education teachers miss some of the topics that were included in the 1<sup>st</sup> and 2<sup>nd</sup> classes according to the old 2012 NAT (Figure 8).

Do you miss any of the topics that have been covered in 1st and 2nd grade environmental classes so far?

51 answers

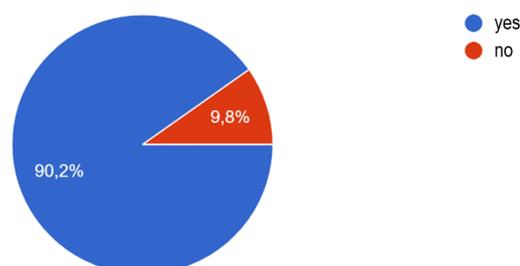


Figure 8: Missing topics due to the NAT 2020

The next issue contains a list of topics, in which multiple answers were allowed. From the possible answers, most respondents missed the topic of Communities of living beings (40 people, 78.4%), Orientation in and around the school (28 people, 54.9%), and Materials around us (27 people, 52.9%).

Among the surveyed educators, 42 (82.4%) find wildlife an important topic. 9 people (17.6%) think that this topic is not important (Figure 9).

Do you find the topic of wildlife important?  
51 answers

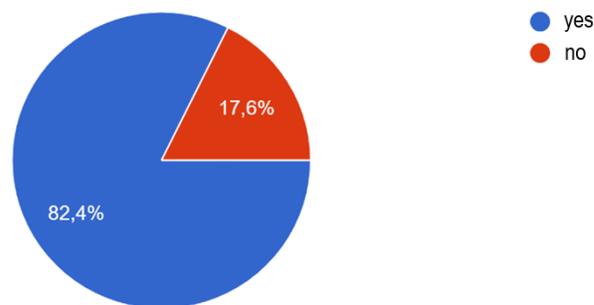


Figure 9: The importance of wildlife

For both options, the educators had the opportunity to justify their answers. The ones, who answered “yes”, hereby considering the above question/topic important, justified their answers with the following:

- “Children need to know their environment, forest animals are also part of our environment. As adults, they cannot identify so much with the protection of the flora and fauna of the forest if their awareness is not raised in childhood.”
- “Every student should be familiarised with the world around him/her and the living beings on it. They need to be taken to nature as much as possible, and it must be ensured that a family program does not consist exclusively of a weekend shopping in Tesco.”
- “It is necessary for students to deal with living nature as much as possible, to bring the topic of living nature close to them, as they are mostly surrounded by inanimate things. Although wild animals live in it as well.”
- "Getting to know the fauna and flora is part of the general education."
- “Children need to get to know nature and to be able to appreciate and appraise the values nature provides. All this contributes to becoming the growing youth more responsible.”
- “We can have a positive opinion of what we know. This is important.”
- “For demonstrating the food chain and raising awareness about the environment.”
- “We love and protect, what we know. It is also important for generations who have moved away from nature to get to know the animals around us better.”

- “Most children of today are not even sure to meet a pet. They meet wild animals only in the zoo, but most of them don't get even there.”

The educators who indicated the “No” response option justified it with the following:

- "Later, they will learn it anyway, first they learn about their environment and pets."
- "Unimportant."
- "It will be over later."
- "We don't meet them."
- "There are more important topics which children do not have a basic knowledge in."
- "Unnecessary, more important is the topic of pets."
- "There should be other, more important topics, it is unnecessary to know anything about wildlife since we don't meet them."

The old 2012 NAT includes the following wildlife species (curriculum for 3-4 class): crucian carp, pike, egret, white stork, anglewings, common cockchafer, starling, blackbird, common vole, deer, and fox. The question was whether these wild animals had been described in detail in the textbook. With this, the description of the habitat, the feeding, the reproduction, the exact naming of the individuals of the species was meant. The chart shows that 28 educators (54.9%) say that the species listed above are not detailed enough, 14 people (27.5%) say “Yes”, and 9 people (17.6%) think that only some species are described in full detail (Figure 10).

Were the wild animals listed in the old NAT (crucian, pike, egret, white stork, moth, May beetle, starling, black thrush, field voles, roe deer, fox) described in detail?

51 answers

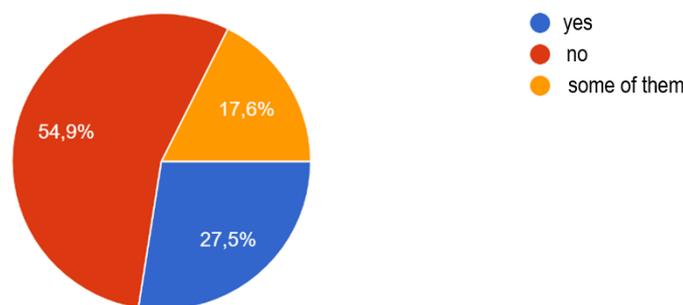


Figure 10: Detailed description of wild animals according to the textbooks compiled according to NAT (2012)

Those who marked the “Some of them” answer option had the opportunity to explain their answer. They mentioned the egret, the crucian carp, and the pike. According to them, these species are discussed in detail in the textbook. One respondent wrote “You don’t even need deep knowledge. That is the reason I choose “Some of them”. I think it’s plenty enough to be aware of the names.”

### 4.3. Third hypothesis

The third hypothesis focused on the knowledge of environmental education teachers, according to which: Environmental education teachers do not have adequate knowledge of wild species so that teachers can transfer accurate knowledge, knowledge of the main wild species must be included in their training/aids.

In the following there were pictures, the correct answer had to be chosen from the list. The answers included correct names and incorrect/false ones.

The first image showed a European roe deer, buck.

The chart shows that 35 people (68.6%) marked the correct answer. 9 people (17.6%) chose an incorrect/false answer, which was the red deer, a buck (Figure 11).

What do you see in the previous picture?  
51 answers

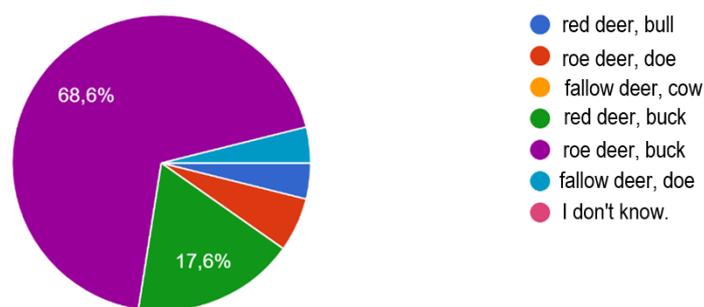


Figure 11: Recognition of European roe deer buck

The next picture showed a red deer, a cow with her calf.

The chart shows that 27 people (52.9%) of the respondents thought that a European roe deer with her calf is in the picture. 13 people (25.5%) chose correctly and 6 people (11.8%) marked the “Don't know” option (Figure 12).

What do you see in the previous picture?

51 answers

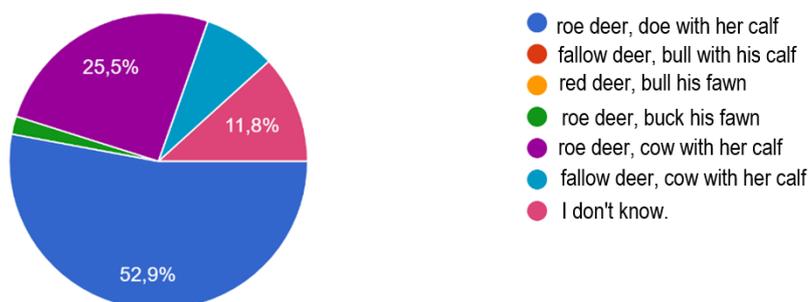


Figure 12: Recognition of red deer, a hind with her calf

Among our big domestic wild species, the following picture showed a fallow deer (cow).

The diagram proves that only 9 (17.6%) of the educators knew the correct answer. Most people (31, 60.8%) thought that a European roe deer (doe) was pictured (Figure 13).

What do you see in the previous picture?

51 answers

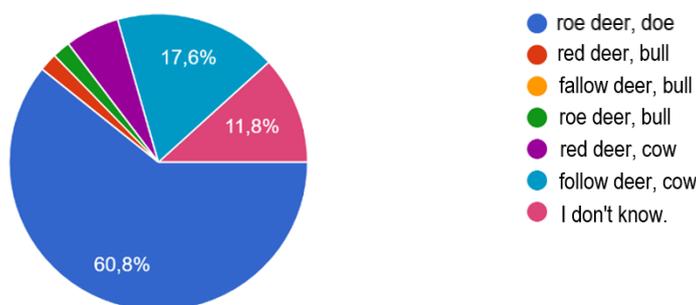


Figure 13: Recognition of fallow deer (doe)

In the following, the question focused on the breeding period of red deer. The breeding period of red deer lasts from late August to late October (Faragó, 2012). This answer was chosen by 8 people (15.7%). Most thought it lasts from early September to late November (24 people, 47.1%) (Figure 14).

When is the red deer 's breeding season?

51 answers

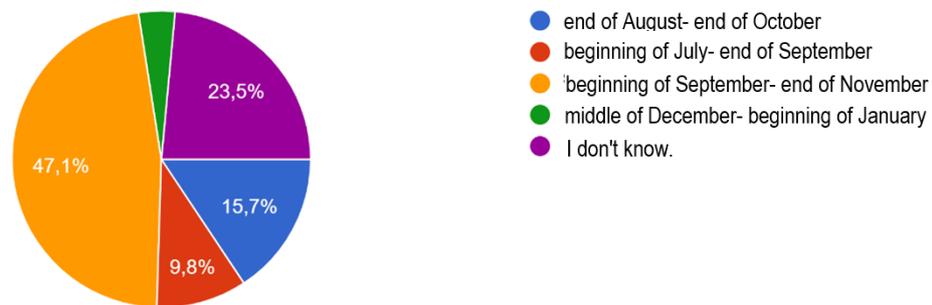


Figure 14: Breeding season of red deer

The next question was: “What is the usual litter size of a European deer?” Does typically give birth to two-spotted fawns, but since they have occupied agricultural areas with more favorable feeding conditions, there may be three or even four fawns, ie. the quality of the habitat affects the litter size. They give birth once a year (Farágó, 2012).

32 respondents (62.7%) know that the European female deer gives birth once a year. Among these 32 respondents, 8 (15.7%) knew that giving birth to two fawns is typical, 11 people (21.6%) marked the “I don't know” option (Figure 15).

In general, what is the litter size of a roe deer?

51 answers

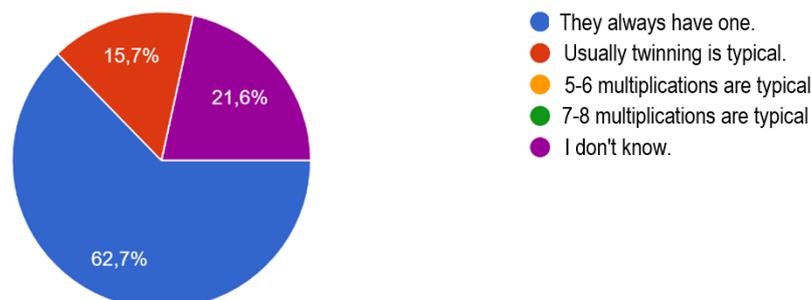


Figure 15: European deer litter size

Those who filled in the questionnaire had the opportunity to express their opinions and comments on the topic. Some of these are:

- “Today's children have insufficient basic knowledge about environmental education curricula as well. This will be a problem !!”

- “I don’t know either: it shows that the 1<sup>st</sup> and 2<sup>nd</sup> classes don't have to be stuffed with this either. (We were at the Wildlife Park this week ...)”
- "I feel I have insufficient knowledge about wild species."

## 5. Discussion and Conclusion

As a result of this research, it can be stated that all three hypotheses were confirmed. Based on the results, it can be said that the introduction of the NAT 2020 had a negative impact on the subject of environmental education, according to the teachers of environmental education. The majority of educators have a negative opinion that teaching and transferring knowledge of environmental education were limited to 3-4. class.

The majority of respondents consider the topic of wildlife to be important. According to educators, the wild animals included in the 2012 NAT (crucian carp, pike, egret, white stork, anglewings, common cockchafer, starling, blackbird, common vole, deer, and fox) are not discussed in sufficient detail in textbooks (habitat, feeding, reproduction, exact name of species). According to the NAT, the wild animals listed above are discussed in the 3<sup>rd</sup> and 4<sup>th</sup> classes. Nevertheless, the deer and fox listed above are in the 2<sup>nd</sup> class textbook. A 3<sup>rd</sup> and 4<sup>th</sup> class textbooks have not been re-edited, so the mentioned wild species are going to disappear completely from the curriculum.

It can be stated that the 51 environmental education teachers who completed the questionnaire do not have adequate knowledge of the Hungarian deer species. The questions asked in the questionnaire were composed in line with the knowledge required of lower-class students. Their tasks were to recognize the exact species and individuals in pictures and answer questions regarding the reproduction of species. According to the results, it can be stated that the topic of the main wild species should be included in the training/aids of the educators, as this enables them to provide appropriate/accurate knowledge to their students.

## 6. Summary

The aim of getting better acquainted with wild species and game management is to bring more educators to the labour market in order to transfer more accurate knowledge in this field. The most important thing is to get to know the local values that are part of our everyday lives. We need to preserve these values and then pass them on to the growing generation. The cultural situation around us determines our way of thinking. This is also the case for children: if they

are in an environment on a daily basis, where the teacher is nature-loving, eco-conscious, knows and likes nature, children also form similar attitudes. The role of parents is not negligible either, as the child socializes not only in kindergarten but also at home. The child's emerging environmentally conscious, nature-loving behaviour helps to reach out to parents. The environmental education and practice of environmental knowledge would be a routine in case it could take place not only within the classroom but also as an opportunity to visit forest schools and game parks. In this manner, children could get to know wild animals personally.

According to NAT 2020 children do not have environmental education in 1<sup>st</sup> and 2<sup>nd</sup> classes. Teaching is implemented in 3<sup>rd</sup> and 4<sup>th</sup> classes continuously, applied in an ascending system, so currently, in the school year 2020/2021 the first-class students do not but the second-class students learn the above-mentioned subject.

This raises a problem in several aspects. A 3<sup>rd</sup> and 4<sup>th</sup> classes textbooks were not re-edited, so the curriculum for the first two years disappeared in entirety. As a result of previous research (Mesterházy, 2021), it can be declared that most of the curriculum related to major wildlife species is being taught in the second grade of elementary schools. This will completely disappear from next year.

The 2020 NAT explains the cancellation of the subject of environmental education in the first two classes, that the same knowledge can be imparted to children within the Hungarian language and literature subjects. The new NAT currently does not contain such tasks and goals within the subject of Hungarian language and literature, which is also a large-scale problem.

The right resources can be the right tools for educators to have accurate, credible knowledge that they can use in their lessons. We believe that lifelong learning provides an opportunity for all educators to acquire, expand, and deepen their knowledge through successful lessons through lexicons, encyclopedias, nature films, and online resources.

In today's world, which is not exactly nature-centered, removing children even more from nature and the environment will result in an unsustainable world. Within the subject of Hungarian language and literature, of course, it is possible to mention an animal or a plant. However, real, accurate knowledge, species-specific aspects, body composition, nutrition, habitat, and reproduction cannot be replaced by the knowledge of the above-mentioned subject. These methods are not suitable for children to get to know their environment, nature and to acquire the necessary knowledge effectively.

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