



## Development of Supplement Book Based on Dragonfly Diversity in Lusi Watershed

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### Abstract

The Lusi River has local potential for abundant biodiversity, one of them is the diversity of dragonfly species. This local potential can be compiled into a teaching supplement to complement the student's teaching book. Data on the diversity of dragonflies in the Lusi watershed of Bora region was successfully obtained and compiled as a supplementary book of biodiversity chapters. However, the feasibility of the book needs to be assessed by material experts, media experts, teachers, and students. The purpose of this study was to analyze the feasibility and response of teachers and students to the supplement book developed. This study is designed as Research and Development (R&D) that is limited to the small-scale test stage. Eligibility data obtained by using media validation questionnaires and questionnaires made in accordance with BSNP 2014 standards, while teacher and student response data is obtained by using teacher and student response questionnaires. The validation of material experts against teaching supplements got a score of 93.23% and media experts gave a score of 98.61%, both with very decent categories. However, there are suggestions from material and media validators for minor revisions. Teacher and student responses to teaching supplement received scores of 91.83% and 97.3% respectively with very decent categories. Based on the results of the study, it can be concluded that the teaching supplement of dragonfly diversity in Lusi River watershed is feasible for use in the study of biodiversity chapters.

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## **INTRODUCTION**

Lusi River is one of the largest rivers in the Jratunseluna River area (Jragung, Tuntang, Serang, Lusi, Juana). Lusi River passes through various areas in Blora and Grobogan districts. The area of Lusi river flow allows for abundant biodiversity. This is also supported by the diversity of ecosystems contained in the Lusi watershed, including rice field ecosystems, forests, and plantations. The situation shows that in the Lusi watershed area has local potential biodiversity that can actually be explored and used as biology learning materials in schools.

Various learning materials can be used to facilitate students in obtaining information, knowledge, experience, and skills in the teaching and learning process. The 2013 curriculum based on competencies and characters provides space for field experience in the learning process. According to Munajah & Susilo (2015) one of the factors that cause the low quality of learning is the untapped learning resources to the maximum, both by teachers and by students. Most students use package books and student worksheets (LKS) in the learning process, which are considered less attractive to students because of the less varied examples and less developed learning materials. This has been in accordance with the results of interviews with biology teachers of SMAN 1 Jepon in Blora district who stated that teachers have not used biodiversity in the surrounding environment as a source of learning, either as a source of direct learning or packing into teaching materials. Biodiversity chapter learning is carried out using student lecture and presentation methods, utilizing LKS and observing videos about biodiversity in general.

The weakness of the student's teaching book and the LKS opens the opportunity to create a supplemental book, which serves to complete the weakness. Setyanto et al. (2016) states that supplement books have characteristics not integrated with the objectives of direct learning, but have the aim of strengthening concepts on the learning objectives to be achieved. Supplement books are only additional to increase the understanding of the material contained in the student's textbook and not the main textbook for the student. This opinion is strengthened by the opinion of Soleha et al. (2017) which states student supplement books which are student learning support books that can be used as complementary books to increase students' understanding of the lesson. Prastowo (2016) mentions the advantages of supplement books compared to other types of teaching materials, including easy to use anytime and anywhere; readers may cease at any time and may be resumed, adaptable to other media; do not need other devices in utilizing these teaching materials and low maintenance costs.

Windyarani (2016) stated that dragonfly supplement books used as teaching materials for students can make learning more interesting and meaningful, because it provides knowledge about the environment and examples are easy to find in everyday life. The proximity of the material presented will provide an opportunity for students to investigate something with observation, so it will train students to be good observers and help students to self-construct the material learned. Reizal et al. (2020) further stated that the development of teaching books that are close to students that are packed interestingly and equipped with images and captions can make it easier for students to understand the material. The use of images and explanations will help students in visualizing learning materials, making them easier for students to accept and remember. According to Imtihana et al. (2014) supplement book development can be used as a learning resource because the form is simple and provides accurate data and can help students in understanding the concept of the material. Students prefer fun learning and students find it easier to understand a concept by using image media and teaching books that are not too thick (Puspita et al., 2017).

The concept of developing this supplement book is to bring examples of biodiversity in the surrounding environment, namely the diversity of dragonfly species in the Lusi river in Blora district to get into school learning. With this book, students are expected to understand that in fact the surrounding environment, especially Blora district, also has abundant local biodiversity potential. The development of this book also supports factual and conceptual learning, by showing examples of the diversity of dragonflies that actually exist around students through photo documentation and descriptions so that students can still learn biodiversity materials in the surrounding environment without having to go directly to the field. This

learning supplement is also expected to increase students' concern for genetic diversity and its preservation based on the area of residence. The development of supplementary books on the diversity of dragonflies in the Lusi river has been adapted to the 2013 Curriculum applicable in high school grade X that supports conceptual and factual learning.

To be used in learning, this developed learning supplement book needs to be assessed by material experts and media experts, as well as teacher and student responses, until it is declared feasible for use in learning. The purpose of this study was to determine the feasibility and analyze the responses of teachers and students to the book "Supplement of teaching materials of biodiversity chapter based on dragonfly diversity in the Lusi watershed"

## **RESEARCH METHOD**

This research uses a modified Research & Development method from Sugiyono (2014) which aims to produce a learning supplement book and analyze the feasibility and practicality of the product. This supplementary book contains the local potential of dragonfly diversity in the Lusi River which aims to increase students' knowledge, so that students can deepen their understanding of biodiversity materials in the surrounding environment. This research is limited only to the small-scale test stage, meaning that the results of small-scale tests are the final results of the study.

Field research was conducted to collect materials and data on the diversity of dragonflies species which was subsequently made the book "Supplement of teaching materials of biodiversity chapter based on dragonfly diversity in the Lusi watershed". Research on dragonfly diversity was conducted in January-February 2020 at eight observation points of Lusi river watershed, which through four sub-districts, namely Blora, Jepon, Ngawen, and Banjarejo. Small-scale test was conducted at SMA N 1 Jepon in September 2020 aimed at obtaining teacher and student response data.

All types of dragonflies that have been obtained in field research are then identified using the book "Dragonflies of Yogyakarta". Furthermore, the data is analyzed using diversity index, equality index, and domination index. After performing data analysis, it is then created in the form of a learning supplement book using Microsoft PowerPoint programs. The supplement book was then validated by media experts and material experts from the Department of Biology of Semarang State University, using a questionnaire in accordance with BNSP 2014 guidelines. After the teaching supplement was declared feasible from aspects of book size, cover layout, cover typography, content layout, content typography and book images by media validators and aspects of knowledge dimensions (KI3), language, presentation techniques, and completeness of presentation by the material validator was subsequently given to two teachers of SMA N 1 Jepon to request his response to the supplement book with a questionnaire of teacher responses on the graphic aspect , materials and language. After getting input from teachers to adjust the research format to government regulations during the pandemic, the format of books that were printed was changed to soft files. Then the supplement book in the form of soft files was conducted a small-scale test to twelve students of SMA N 1 Jepon which was divided into upper, middle, and lower categories based on student learning results, using student response questionnaires. The results of students' responses to educational supplement books based on aspects of interest, material aspects and aspects of language were stated to be good if obtaining a eligibility percentage above 63% and expressed excellent if obtaining a eligibility percentage above 82%. From the advice given by validators, teachers, students are revised to get better teaching materials.

## **RESULTS AND DISCUSSION**

### **Feasibility Book Diversity of Dragonflies in Lusi Watershed**

The average validation score from material experts and media experts on "Supplement of teaching materials based on dragonfly diversity in the Lusi watershed" is presented in Table 1.

**Table 1.** Validation Results of Dragonfly Diversity Book in Lusi Watershed

No.	Validator	Percentage	Criteria
1	Material Expert	93,23%	Very feasible
2	Media Expert	98,61%	Very feasible

The validation results of this supplement book obtain a percentage value of more than 82% with very feasible criteria from material experts and media experts. This indicates that the supplement book developed is in accordance with the BSNP 2014 guidelines and is feasible for use in school learning. Material validation is assessed from four aspects of feasibility, namely aspects of knowledge dimensions that refer to KI 3, aspects of language, aspects of presentation techniques and aspects of completeness of presentation, the results are shown in Table 2.

**Table 2.** Material Validation Results Table

No.	Aspek kelayakan	Pernyataan	Skor	Persentase	Kriteria
1	Dimensions of knowledge (KI 3)	Material Accuracy	4	87.5%	Very Feasible
		Contextual	3		
2	Language	Language is easy to understand	4	93.75%	Very Feasible
		Conformity with Indonesian language rules	4		
		Ability to motivate	3		
		Use of scientific terms, symbols and names	4		
3	Presentation Techniques	Systematics of Presentation	4	100%	Very Feasible
		Presentation Demands	4		
4	Completeness of presentation	Introduction	3	91.67%	Very Feasible
		Table of Contents	4		
		Library List	4		
Average Percentage Criteria				93.23%	Very Feasible

In terms of the dimensions of knowledge obtaining perfect value on the accuracy of the material used but has shortcomings in the content of the book that contains contextual, this deficiency can actually still be maximized again, although it still has a very feasible category (Table 2). In the linguistic aspect of the four points of assessment, the language is easy to understand, is in accordance with the KBBI, the ability to motivate, and the use of foreign terms. On all four points the assessment is only motivating ability that does not get perfect points, but this deficiency is able to be covered with the use of simple language and easy to understand students so that supplement books are expected to still be able to attract students to read. This indicates that the book meets all the requirements in the use of good and correct language. The material in the book already uses interesting language, easy to understand, the use of punctuation, writing structure and the use of sentences is appropriate so as not to cause multi-interpretation. The use of terms, symbols, scientific names is appropriate and has been consistent so as not to cause confusion when reading a book. According to Wedyawati & Lisa (2018) the preparation of teaching books must use simple language and in accordance with the rules of good and correct Indonesian language by paying attention to the preparation of clear sentences in order to be easy to understand.

The next aspect of material validation assessment is the aspect of presentation techniques that include the systematics of presentation and the quality of presentation has obtained perfect scoring points. However, in terms of completeness of presentation still needs to be improved again on the preparation of the introduction to be strengthened so that it can better describe the contents of the book. In addition to the introduction that must be further strengthened, the book "Supplements of Biodiversity Materials Based on Dragonfly Diversity in the Lusi River Watershed" already has complete presentation and presentation

requirements, ranging from prefaces, table of contents, introduction of dragonflies, glossarium and library lists. This indicates that, the presentation of material in the supplement book ajarini material has fulfilled aspects of the assessment in accordance with the textbook according to the guidelines BSNP 2014.

The results of material validation per eligibility criteria obtained a total percentage value of 93.23% with a very decent category and no need for revision. However, there are suggestions of material validators, among them related to the writing of taxons of the genus and species that are still not appropriate, the use of inconsistent terms in writing, adding the role of dragonflies as useful insects, ecological indicators, protein sources and also dragonflies as harmful insects, some miswritten in the scientific name section should be more noticed, differences in nymphs anisoptera and zygoptera are added, and the process of laying dragonflies should be more clear. Suggestions from validators have been responded to by making improvements.

Validation of media experts on supplement books is assessed from six aspects of feasibility, namely size aspects, aspects of cover layout, aspects of cover typography, aspects of completeness of book content layout, typographical aspects of book content and aspects of image clarity, the results are displayed in Table 3.

**Table 3.** Media Validation Results Table

No	Eligibility Aspects	Statement	Score	Percentage	Criteria
1	Book Size	Suitability of size with the contents of the book	4	100%	Very Feasible
2	Book Cover Layout	The cover and rear layouts have something in common	4	100%	Very Feasible
		Display a good and clear center of view	4		
		Balanced cover layout composition and in harmony with the content layout	4		
3	Book Cover Typography	Letters used are interesting and easy to read	4	100%	Very Feasible
		Simple (communicative) letters	4		
4	Book Content Layout	Layout speeds up understanding	4	100%	Very Feasible
		Placement and appearance of layout elements	4		
		Placement and appearance of layout elements	4		
5	Book Content Typography	Simple typography	4	91.67%	Very Feasible
		Typography easy to read	4		
		Typography makes it easy to understand	3		
6	Images on the contents of the book	Clarity of image/photo presentation	4	100%	Very Feasible
Average Percentage Criteria				98.61%	Very Feasible

In terms of book size obtaining a perfect feasibility assessment, this assessment refers to the suitability of the size with the contents of the book. The size of the book follows the standard A5 book size (148mm X 210mm) with a tolerance of 0-5mm size difference. The cover design aspect gets a perfect feasibility score with a very decent category and does not need to be revised, this aspect assessment refers to the already good cover layout and typography. Attractive cover layouts and cover typography can interest students' reading. Aspects of the design of the contents of the book, in the layout of the contents of the book has obtained a perfect feasibility test value and typography of the contents of the book get a high feasibility test value with a category very feasible and does not need to be revised, which needs to be improved in this aspect is in the making of typography of the contents of the book that should facilitate understanding. However, in the design aspect of the book content still gets a very decent category. (Figure 1)



Figure 1. Cover of teaching material supplement

For the aspect on the picture the contents of the book get a perfect due diligence score with a category very feasible and does not need to be revised. According to Suyuti et al. (2016), image media or also called still image is one of the learning media included in the visual media in the form of images from the photographic process. The original photo of an object can help students recognize and describe objects faster. This shows that the use of photos / images in learning can cause interest in students' learning so that students can absorb the material more easily. Thus, the book Diversity of Dragonflies in Lusi River blora regency developed by combining biodiversity material in general with photographic photos of dragonfly diversity in Lusi River is expected to attract students to read and deepen their knowledge of biodiversity material. According to Mahendrani & Sudarmin (2015) the use of photos in learning media aims to make learning more interesting with the presence of a variety of images and colors that support (Figure 2)



**Figure 2.** Display of the contents of supplements teaching the diversity of dragonflies

Media validation results per eligibility criteria obtain a total percentage value of 98.61% with a very decent category and no need for revision. However, the media validator provides additional notes so as not to redo the same image too much. On this suggestion, then made revisions by replacing the image in question so that it is more varied (Table 4)

**Table 4.** Repeating Image Layout Revision

Before Revision	After Revision
 <p>White-faced dragonfly Cepeng sambar semak Famili Libellulidae</p> <p><b>Deskripsi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p> <p><b>Revisi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p>	 <p>LEUBUNGAN BAKA-BAKA SPESIES Famili Libellulidae</p> <p><b>Deskripsi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p> <p><b>Revisi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p>
 <p>Green dragonfly (Günther, 1844) Suka air tawar Famili Anisobinae</p> <p><b>Deskripsi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p> <p><b>Revisi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p>	 <p>LEUBUNGAN BAKA-BAKA SPESIES Famili Anisobinae</p> <p><b>Deskripsi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p> <p><b>Revisi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p>
 <p>Zygoptera dragonfly (Hagen, 1841) Wahai anak-anak Cepeng sambar pakis Famili Libellulidae</p> <p><b>Deskripsi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p> <p><b>Revisi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p>	 <p>LEUBUNGAN BAKA-BAKA SPESIES Famili Libellulidae</p> <p><b>Deskripsi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p> <p><b>Revisi</b> Mendiami habitat air tawar, terutama di sungai dan kolam. Mereka adalah predator yang sangat efektif untuk serangga air lainnya. Mereka juga adalah predator yang efektif untuk ikan kecil.</p>

The result of the teacher's response to "Supplement of Biodiversity Material Teaching Materials Based on Dragonfly Diversity in Lusi River Watershed" includes three feasibility components, namely graphic aspects, material aspects and language aspects. The results of each teacher's response to the eligibility

criteria obtained a percentage of 100% grades from Teacher-1 and 91.67% from Teachers-2 with very decent categories (Table 5).

**Table 5.** Recapitulation of Teacher Response Results

No.	Aspects	Teacher-1	Teacher-2
1	Graphic Aspects	100%	91.67%
2	Material Aspects	100%	83.33%
3	Language Aspects	100%	100%
Average Percentage		100%	91.67%
Criteria		Very Feasible	Very Feasible

The teacher's response to "Supplement of Biodiversity Material Teaching Materials Based on Dragonfly Diversity in Lusi River Watershed" received a positive response, this was proven by the high yield of the calculation of the percentage of teacher response questionnaires. In addition to giving a positive assessment on the questionnaire teachers also gave impressions and inputs for the development of supplement books to be better in the future. According to Teacher-1 this supplement book is already good and worthy for class X learning, while Teacher-2 gives a very good book assessment, can add insight to children, it looks also interesting and can increase children's interest in reading.

Students were happy and enthusiastic when reading the results of the development of the supplement book teaching materials "Diversity of Dragonfly Species in Lusi River Blora Regency". This is evident from the results of student responses from 10 aspects of assessment that have the lowest percentage of 93.75% that is in the aspect of book display and who obtain the highest score of 100% in the aspect of images / photos in the book can facilitate understanding and make students more passionate in learning. Student response questionnaires scored an average of 97.3% with excellent criteria (Table 6).

**Table 6.** Students' Responses to Dragonfly Diversity Teaching Supplement

No.	Statement	Score	Percentage	Criteria
1	The look of the book is interesting.	45	93.75%	Excellent
2	This book makes me more passionate in studying Biology.	48	100%	Excellent
3	Pictures can attract me to study the material.	47	97.92%	Excellent
4	Systematic presentation of material.	47	97.92%	Excellent
5	The delivery of material in the book relates to daily life.	46	95.83%	Excellent
6	This book is equipped with supporting images/ photos of the material.	48	100%	Excellent
7	There is a table of contents containing chapter and subbab titles, and a diversity list of dragonflies to make it easier to find and understand books.	48	100%	Excellent
8	The language used in this book makes it easier for me to understand its contents.	46	95.83%	Excellent
9	This book has not found many typos or typos in it.	45	93.75%	Excellent
10	The letters used are clear and easy to read.	47	97.92%	Excellent
Average Percentage			97.3%	
Criteria			Excellent	

The results of the student response based on the questionnaire showed that the display of the book both the cover and the contents of the book can attract students to read. Books make students more passionate in learning biology, especially for biological keanekaragaman material because the book is equipped with photos obtained directly during the research process. The original photo of an object can help students recognize and describe objects faster. The presentation of material in the book is arranged systematically so as not to cause confusion when reading the book. In addition to the material on the classification of



dragonflies, material on biodiversity issues and conservation efforts are also presented. The material presented in the book is easy to understand because it is close to the students and in accordance with daily life. According to Rozalia et al. (2018) the presentation of materials should begin with problems that are often encountered in everyday life, so that learners feel closer and familiar with the material they will learn. If students are already feeling close, of course they will be easier to learn and understand the material.

The results of the study are in accordance with previous research related to research on the development of biodiversity learning media including dragonfly diversity shows positive results. Yani et al. (2020) who developed the "Student Worksheet on Dragonfly Type Biodiversity to Develop Understanding of High School Students" received a good response from students with a percentage of 80.17% and teachers with a percentage of 80.3% so that the media is said to be worthy of use as teaching materials. Another study conducted by Setyaningsih et al. (2019) who developed "Local Potential-Based Media Booklet in West Kalimantan on Biodiversity Material" received a very good response from students with a percentage of 90.0% and teachers with a percentage of 90.4% and is said to be worthy as a teaching material. Meiningsih et al. (2019) who developed "IT-Fly Va Magazine: Alternative Choice of Biological Learning Resources" also received a response that was not much different, namely 91.67% from teachers and 83.46% of students with a very decent category. Interesting image factors and good lay-outs are of concern to students.

With the development of the book "Supplement of Biodiversity Material Teaching Materials Based on Dragonfly Diversity in the Lusi Watershed" as a biological learning supplement is expected to realize students that in their environment has a very abundant local potential of biodiversity. In addition, it is expected to increase students' awareness of environmental conservation that has recently been under threat, especially in watersheds. Students are expected to be able to realize the importance of dragonfly type sustainability to the condition of aquatic areas because dragonflies can be used as bio-indicators of water quality in watersheds. In addition, the development of this book can support contextual and actual learning, so that students are expected to be more able to understand the learning materials more easily, because for example being around students and close to students. This is in accordance with the statement of Pitay et al. (2019) that if the teaching materials developed are sourced from areas close to the student's life give more value because they can recognize the local environment and potential around their residence. The expected follow-up effect is that students have a concern to maintain their environment.

From the results of small-scale tests in addition to obtaining excellent feasibility assessments, students who were involved in small-scale tests also gave a positive response to the book "Diversity of Dragonflies Lusi River Blora Regency", this was shown with hope for the development of the next book. Student feedback and comments can be found in Table 7.

**Table 7** Responses and Comments from Students

No.	Students	Comments
1	Students-1	The book is good, easy to understand, but in some parts there is writing that is too cornered so it is difficult to read.
2	Students-2	It is helpful in understanding biodiversity material, but there is only one type of animal discussed.
3	Students-3	The book is very good, only on the cover is less interesting, but it's already good.
4	Students-4	It is very helpful in studying biodiversity material, but if it can not only dragonflies.
5	Students-5	It's been good, there's no suggestion.
6	Students-6	There are some writings that are not readable, especially those in the corner of the page, if you can write do not be too corner.
7	Students-7	It's been very good, but if you can make the book more concise and not too thick.
8	Students-8	The book should have been printed, not pdf.
9	Students-9	Very useful, growing curiosity towards dragonflies, the photos are good.
10	Students-10	Books are good, but there are words that are difficult to understand and too difficult to understand, it is better to use words that are easier to understand.
11	Students-11	Book covers can be made even more interesting, so that readers become more interested.
12	Students-12	The picture is too big and some of the writing is not very legible because it is too corner.

The average student gives a positive response to a book, for example: the book is very useful; photos

that are clearly displayed, nice, as well as raise curiosity about dragonfly animals,; very helpful in studying biodiversity materials; material in a simple book; close to nature and easy to understand. But students also see there are still shortcomings, most of which highlight about the appearance of the book cover that is still not maximal, so it does not attract readers, but overall it is already good. The issue of material writing layouts is also in the student spotlight, as some writing is too over the edge. The existence of some foreign words and difficult to understand students are also commented by students, but in fact this problem has been solved by the presence of glossarium at the end of the book. In general, the book material is good and can help understanding biodiversity material, but students give advice so that what is discussed is not only dragonflies to be wider. The effectiveness of page drafting is also worth noting so that the book is not too thick. There is a suggestion that the book should be printed only, not in pdf form. Actually this supplement book is designed in the form of a printed book, but because it is constrained pandemic for the implementation of research online, it is made in pdf form. However, there are already six copies of the book that have been submitted to the school library as student reading material. The existence of this book can also encourage the extracurricular activities of the Adolescent Scientific Group (KIR) which has been vacuumed.

## CONCLUSION

Based on the validation of material and media experts, the book "Supplement of Biodiversity Material Teaching Materials Based on Dragonfly Diversity in the Lusi Watershed" is declared very feasible to be used as a supplement to teaching materials on biodiversity materials. From the response data of teachers and students, it can be concluded that this supplement book is considered practical to be used as a supplement to the teaching materials on biodiversity material.

## REFERENCES

- Intihana M., Martin F.P., & Priyono B. (2014). Pengembangan buklet berbasis penelitian sebagai sumber belajar materi pencemaran lingkungan di SMA. *Journal of Biology Education*, 3(2): 186-192
- Mahendrani K. & Sudarmin. (2015). Pengembangan booklet etnosains fotografi tema ekosistem untuk meningkatkan hasil belajar pada siswa SMP. *USEJ* 4(2): 866-872
- Meiningsih D., Alimah S., & Anggraito Y.U. (2019). *Majalah IT-Fly VA: Alternatif Pilihan Sumber Belajar Biologi. Jurnal Phenomenon*, 9(1): 10-20
- Munajah & Susilo, M.J. (2015). Potensi sumber belajar biologi SMA kelas X materi keanekaragaman tumbuhan tingkat tinggi di Kebun Binatang Gembira Loka. *Jupemasi-Pbio*, 1(2): 184-187
- Pitay, M.F., Anggraito, Y.U., & Ngabekti, S. (2019). Identifying medicinal plant in Local Custom Nasinoah Forest to develop local wisdom based learning material. *USEJ*, 8(2): 108-115
- Pradana S.R., Nugroho A., Suharyanto, & Kurniani D. (2015). Pengendalian debit banjir Sungai Lusi dengan kolam detensi di Kecamatan Tawangharjo Kabupaten Grobogan. *Jurnal Karya Teknik Sipil*, 4(4): 471-476
- Prastowo, A. (2016). *Pengembangan Bahan Ajar Tematik*. Yogyakarta: Kencana
- Puspita A., Kurniawan A.D., & Rahayu H.M. (2017). Pengembangan media pembelajaran booklet pada materi sistem imun terhadap hasil belajar siswa kelas XI SMA N 8 Pontianak. *Jurnal Bioeducation*, 4(1): 64-73
- Reizal H., Agustningsih & Hutama F.S. (2015). Pengembangan buku ajar berbasis infografis pada tema ekosistem untuk meningkatkan hasil belajar siswa kelas V SD. *Muallimuna: Jurnal Madrasah Ibtidaiyah*, 5(2): 54-65
- Rozalia A., Kasrina, & Ansori I. (2018). Pengembangan handout biologi materi keanekaragaman hayati untuk SMA Kelas X. *Diklabio: Jurnal Pendidikan dan Pembelajaran Biologi*, 2(2): 44-51
- Setyaningsih E., Sunandar A., & Setiadi A.E. (2019). Pengembangan media booklet berbasis potensi lokal Kalimantan Barat pada Materi Keanekaragaman Hayati pada siswa kelas X di SMA Muhammadiyah 1 Pontianak. *Jurnal Pedagogi Hayati*, 3(1): 58-67
- Setyanto H.A., Amin M., & Lestari U. (2016). Pengembangan buku suplemen pendekatan molekular Taksonomi Hewan Vertebrata. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 1(6): 1180-1184
- Soleha, Maharta N., & Rosidin U. (2017). Pengembangan buku suplemen siswa berbasis multi representasi pada materi Hukum II Newton. *Jurnal Pembelajaran Fisika*, 5(4): 31-40
- Sugiyono. (2014). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta halaman 407
- Suyuti Y., Zulianto S., & Nur Y. (2016). Penerapan media gambar dalam upaya meningkatkan kemampuan menulis karangan deskripsi siswa kelas X SMA N 2 Dampelas. *E-jurnal Bahantodea*, 4(2): 116-122
- Wedyawati N. & Lisa Y. (2018). Kelayakan buku ajar mata kuliah pembelajaran IPA SD bagi mahasiswa PGSD. *Edukasi: Jurnal Pendidikan*, 16(2): 155-168

- Windyariani S. (2016). Pengembangan bahan ajar berbasis konteks capung untuk melatih literasi sains siswa SD. *Jurnal Prosiding Symbion (Symposium on Biology Education)*, 27 Agustus 2016: 361-370
- Yani R.F., Karyadi B., & Ansori I. (2020). Pengembangan lembar kerja peserta didik tentang keanekaragaman hayati jenis capung untuk mengembangkan pemahaman siswa SMA. *Diklabio: Jurnal Pendidikan dan Pembelajaran Biologi*, 4(1): 31-39