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"Intellectual Property Right Based on Green Social Dynamics, Business and Science-TechIntellectual Property Right Based on Green Social Dynamics, Business and Science-Tech"

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Foreword from the Chairman of the Committee ICGWBT 2014

Assalamu'allikum.w.w.

Praise the presence of God, who has blessed us all with health, so that we can follow this ICGWBT 2014. I say thank you to all the organizers, who tel; ah work hard for the implementation ICGWBT 2014 well.

We extend our gratitude to the Dean of the Faculty of Industrial Technology, the Dean of the Faculty of Mathematics and Natural Sciences, Head of the Center for Intellectual Property Rights, the head of the Social Dynamics Study Center, which has support the fund, so ICGWBT 2014 be held on this day well and smoothly.

We extend our gratitude to the speakers, Assoc. Prof. Dr.. Zulkifli Mohamed Udin, Senior Lecturer, University Utara Malaysia (UUM); Assoc. Prof. Pharkphoom Panichayupa-karanant, Ph.D., Senior Lecturer, Prince of Songkla University; Armin A. Fullante, Ph.D., Director for Student Affairs, University of Nueva Caceres, Naga City, Philippines, for the willingness of all of you, as a speaker at this ICGWBT 2014.

This ICGWBT 2014 theme is "Intellectual Property Right Based on Green Social Dynamics, Business and Science-Tech", with a topic such topick, Agronomy (Agroindustrie, etc..). Biotechnology (Plant Tissue Culture, Microbiology, Biochemestry, etc..). Education. Environment (monitoring and modeling, policies and planning,, Clean Technologies, Green House Effect, Impacts of pollutions, etc..) Green Buildings & Smart homes, Green Economy (Accounting, finance, Marketing Business, etc..), Green Educational Technologies.Green food, Feed and Drink Technology, Green Manufacturing & Energy efficiency, Green Science (Computing trends, Biology, Chemistry, tc.), Green Technology (Engineering, Information and Communication, Technopreneurship, etc..), Health (Pharmacy, Nutrition, Medicine, etc..), Intellectual Property Right, Psychology, Religion, Sustainable development, Any other relevant conference topic.

Topics presented by Assoc. Prof. Pharkphoom Panichayupa- karanant, Ph.D, the Department of Pharmacognosy and Pharmaceutical Botany, Faculty of Pharmaceutical Sciences, Prince of Songkla University, Hat-Yai, Songkhla 90112, Thailand is "Standardization and Preparation of Active Constituent Rich Herbal Extracts". Topics presented by Dr.. ARMIN A. FULLANTE, University of Nueva Caceres ,Naga City, Philippines, is "Green Enviromental Education". Topics presented by Zulkifli Mohamed Udin, PhD, Associate Professor School of Technology Management and LogisticsUniversiti Utara Malaysia, is Intelectual

Property Right Roles In Green Business And Technology. Topics that will be delivered by Anwaruddin Hysam, M.Sc., Ph.D. Is Rare Earth Elements: Impact on Green Technology.

We extend our gratitude to the participants of the conference, either as partisipant and presenter, this activity may be useful for you all. In this iCGWBT 2014, attended by approximately 100 participant, and 50 call for papers as a presenter ..

In the next year, in 2015, God willing we will hold back ICGWBT that to 4, with speakers from 6 countries, namely Indonesia, Japan, Germany, the Philippines, Malaysia, and Thailand. We hope in the coming ICGWBT 2015, participants increased, followed by participants from various countries.

That's all I have to say is welcome, sorry if there are words that are less pleasing.

See you in 2015 ICGWBT to 4. Success to you all

Yogyakarta, 29th March 2014
Chairman Program

Dr.Dwi Suhartanti.,M.Si

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Science

Technology

Analysis of Tree Vegetation Degree in Boyong River Riparian Area, Yogyakarta as a Biology Learning Resource

Trikinasih Handayani, Lusi Tranwinarti

Abstract. This research was conducted in Boyong riparian river area, Yogyakarta. The purpose of this research are to find out 1) the kinds of tree vegetation degree which has the biggest role based on its INP, 2) the diversity of tree degree's type, 3) the relation between the measured abiotic environment with the grouping pattern of tree vegetation degree, 4) the potential of research finding result as Biology learning resources.

The study area on this research are divided into three, Study area A (the tip area), study area B (the middle area), and study area C (the final area). The method used in this research is Point Centered Quarter. The data analysis used to find out the grouping pattern of tree vegetation degree with the measured abiotic environment factor is cluster analysis using SPSS version 16 program.

Based on the result finding from the entire study area of Boyong river riparian area was obtained the variety of tree degrees that has the greatest role such as Leucaena glauca, Swietenia mahagoni, Albazzia falcataria. The index mean of tree degree is 1,80. Abiotic environment factor which related with the grouping pattern tree vegetation degree is the air humidity, air temperature, soil temperature, and KPK, while the abiotic factor which doesn't have relation with the grouping pattern of tree vegetation degree are the soil pH, N, P and K. Through this study method, the result finding conducted in Boyong river riparian Yogyakarta can be used as a Biology learning resources Senior High School students grade X on biodiversity ecosystem level learning material.

Keywords *Tree Vegetation Degree, Boyong river riparian*

1 Introduction

River are a places, containers and also the drainage system from the springs to the estuary,restricted its right and left and along the demarcation line by the riparian river line. Based on the Indonesian Government Rule no. 38 year 2011 article 16 verse 1b and article 3 decided that riparian area with no dyke outside the urban city is the small river with watershed (DAS) wide less than or same with 500 km2 (five hundreds metre square) from the left and right side along the river flow. Riparian aea Boyong river still overgrown with many plants, whether its herbaceous strata, shrubs, and trees. Tree degree are plants which have a very important role in the riparian area. Tree have ecological function derived from the effect of nutrients transport, nitrogen tethering, the increasing material of soil organic, the improvement of soil structure and also erotion control. Plant in the Boyong riparian area have abundant species and diversity. Variety of trees and its diversity in Boyong riparian area influenced by the abiotic factor. Thus, to know the kinds of tree strata, tree diversity, and also grouping pattern tree vegetation strata should be conducted a research in Boyong riparian area, Yogyakarta.

The types of tree vegetation strata are parts of the environment, besides giving ecological benefit, tree also give benefit towards the society that is the

commercial utilization and also scientific purposes. The society could use the tree by taking its wood and as a medical material. In an education sector, using the study method which is adjusted with the curriculum on the middle school level so the result of this research is expected to be used as the Biology learning resources Senior High School students grade X on the biodiversity learning material.

2 Material & Method

This research is conducted from 24 June – 7 July 2013. The equipment used in this research are the watershed Boyong river map with 1:83.000 scale which is obtained from PPIK UGM, bamboo pegs, rope, thermometer, roll meter 50 m, GPS, metal stakes, litmus paper, hygrometer, knife, scissor, plastic glass, camera and herbarium sasak.

This research use the three study area, the A study area (the tip river area), B study area (middle part), and C study area (the end of the river). The method used is Point Centered Quarter (PCQ). Data analysis used to know the pattern grouping of stand tree vegetation degree towards the measured abiotic environment (soil pH, soil KPK, air humidity, air temperature, soil temperature, and nutrient N, P and K) is a cluster analysis using SPSS program version 16. The diversity index calculation (H') using Shanon-Wiener (Odum, 1998) formula

$$H' = -\sum pi \log pi$$

Explanation :

H'= shanon index

ni= interest value for each species

N= total interest value

pi= ni/N interest values opportunity for each species

3 Research Finding & Discossuin

The result of this research shows that the variety of tree vegetation strata found in Boyong River Riparian are 22 kinds consists of *Albazzia falcataria, Cocos nucifera, Swietenia mahagoni, Gnetum gnemon, Artocarpus communis, Hibiscus tiliaceus, Tectona grandis, Artocarpus integra, Leucaena glauca, Psidium guajava, Mangifera indica, Gliricidia sepium, Aleurites moluccana, Terminalis cattapa, Sterculia urens, Muntingia calabura, Polyalthia longifolia, Pometia pinnata, Persea gratissima, Morinda citrifolia, Anacardium occidentale*, dan *Euphoria longana*. Important Index Value (INP) is the addition of Relative Density Value, Relative Dominance, and Relative Frequency.

The variety of tree degree which have the highest INP in the riparian Boyong river namely *Leucaena glauca for* 48,96. Switenia Mahagoni for 46,99. *Albazzia falcataria for 40,57*. Kinds of strata tree which has the lowest INP namely *Euphoria longana* for 0,30. *Terminalis cattapa* for 2,02. *Psidium guajava* for 3,04. Kinds of tree strata which has the highest INP means it has the highest role in those ecosystem. Diversity index from the entire study area in Boyong river riparian has the value 1,80. The result of the calculation shows that the tree vegetation strata on the watershed Boyong river has the high level of diversity.

Based on Todum (Wiwin, 2010) diversity index plant community composer on one place is the interaction result from several factor one of them is heterogenity of space, the formed community plants highly influenced by the existing environment. The more heterogen and complex an environment, the higher diversity index of community will be.

The measured abiotic factor from the three study area are as follows; 1) pH on the three study area start from 5-6 with median 5. Air humidity from 52-70% with the median 61%. Air temperature ranges 24-33^{0}C with the median 28^{0}C. Soil temperature ranges 26-32^{0}C with median 28^{0}C. Besides the measured abiotic factor, there's a measured nutrient like Cation Exchange Capacity (CEC)), N (Nitrogen), P (Fosfor), and K (Kalium) which is different in every study area. The A study area has the total measured CEC 12,24 me/100 g. The total measured N nutrient is 0,28%. The total measured P nutrient is 0,02%. The total measured K nutrient is 0,03%. The B study area has the total measured CEC for 11,26 me/100 g. The total measured N nutrient is 0,18%. The total measured K nutrient is 0,01%. The total measured K nutrient is 0,06%. Study Area C area has the total measured CEC 7,73 me/100 g. The total measured N nutrient is 0,09%. The total measured P nutrient is 0,01%. The total measured K nutrient is 0,06%.

The result of this research could be used as a learning resource, if this biology research finding appropriate with the applied biology education curriculum. Djohar (Suhardi, 2012) stated that an object or a occasion being a learning source should fulfill the requirement as follows; the clarity of its potential, the suitability with the learning purpose, the clarity of its target, the clarity of information revealed, the clarity of its exploration guidance, the clarity of its expected result. Based on those requirement, this research finding could be used as the Senior High School Grade X Biology learning resource on the biodiversity ecosystem level learning material.

4 Conclusion

Based on the result finding and its discussion, it could be concluded that

1. Kinds of tree vegetation strata found in Boyong Riparian river are 22 kinds
   a. The types of tree vegetation strata in Boyong river riparian which has the most important role based on its important index value are as follows; *Leucaena glauca, Swietenia mahagoni,dan Albazzia falcataria*
   b. Diversity means index of tree vegetation strata from the entire study area of Boyong river riparian is 1,80
2. Based on cluster analysis test result, the abiotic environment factor which related to the grouping pattern of tree vegetation strata are as follows; air humidity, air temperature, soil temperature, and Cation Exchange Capacity (CEC). Meanwhile, the abiotic environment factor which doesn't have relation with grouping pattern of tree vegetation strata are as follows; soil pH, N (Nitrogen) nutrient, P (Fosfor), and K (Kalium) soil.
3. Based on the proses and the result finding, the analysis of tree vegetation strata in Boyong riparian area, Yogyakarta has a big potential as a biology learning

resource on Senior High School Students Grade X on the biodiversity ecosystem level learning material

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6 Lampiran

Appendix 1. Research Location Map

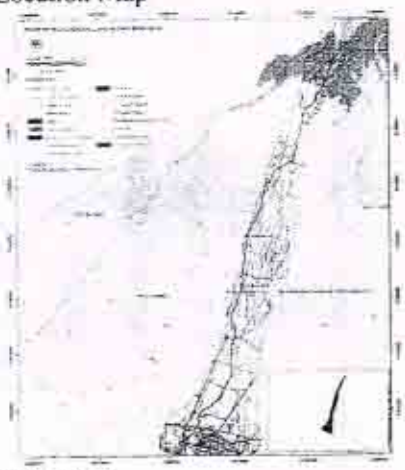

Figure 1. Research Location Map
Obtained from:
Pusat Pelayanan Informasi Kebumian (PPIK) UGM Yogyakarta.

Appendix 2. Peletakan Stand

Figure 2. Google Map Peletakan Stand on the three study area A, B, dan C
Appendix 3. Research Location Picture

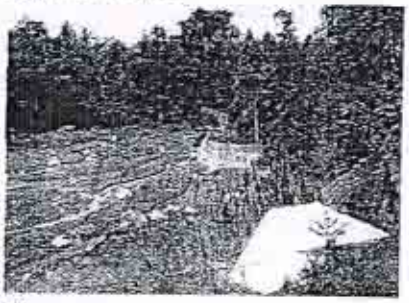

Figure 3. Tip Area Picture

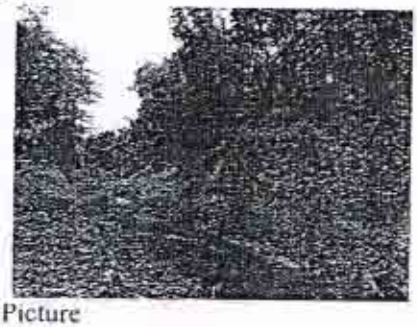

Figure 4. Middle Area Picture

Figure 5. The end of Area Picture
Appendix 3. Species Picture in Boyong River Riparian

Gambar 1.. *Swietenia mahagoni*

Gambar2.. *Tectona grandis*

Gambar 3.. *Mangifera indica*

Gambar 4.. *Artocarpus communis*

Gambar 5.. *Hibiscus tiliaceus*

Gambar 6.. *Gliricidia sepium*

Gambar 7.. *Gnetum gnemon*

Gambar 8.. *Albizzia falcataria*

Gambar 9.. *Leucaena glauca*

Gambar 10.. *Cocos nucifera*

Gambar 11.. *Psidium guajava*

Gambar 12.. *Artocarpus integra*

Gambar 13. *Aleurites moluccana*

Gambar 14. *Muntingia calabura*

Gambar 15. *Terminalia catappa*

Gambar 16. *Sterculia urens*

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Gambar 18. *Anacardium occidentale*

Gambar 19. *Euphoria longana*

Gambar 20. *Pithecellobium lanceolatum*

Gambar 21. *Pometia pinnata*

Gambar 22. *Persea gratissima*