



Introducing Indonesian Endemism, Its Threat and Conservation Solution for SMA Negeri 10 Students in Kamarian Village, West Seram Regency, Maluku

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Abstract: West Seram Regency on Seram Island in Maluku Province, Indonesia has extraordinary biodiversity and is the habitat of several endemic species of Maluku and Indonesia. As a form of implementation of the dharma of community service, socialization was conducted with students of SMA Negeri 10 in Kamarian Village, West Seram Regency, Maluku about Indonesian endemism, its threats and conservation. The socialization was attended by 38 students. The socialization results indicate that 91% of students demonstrated a good understanding of endemic species, and 82% of students obtained information on endemic species from this activity. Additionally, students were able to identify 11 Indonesian endemic species, as well as the threats and efforts to protect them. This activity has the potential to increase environmental awareness among school students, the nation's young generation.

Keywords: Biodiversity; Environmental awareness; School education; Species protection.

Introduction

Indonesia, an archipelagic country in the tropics, is renowned for its relatively high biodiversity and endemism compared to other nations. The country is home to many endemic species, organisms restricted to specific areas within the Indonesian archipelago (Lana & Purti, 2019). Indonesia has around 600 mammal species, of which 280 are unique to the country; 411 reptile species, of which 150 are unique to the country; 270 amphibian species, of which 100 are unique to the country; and 1531 bird species, of which 398 are unique to the country (Asizun, 2014). Despite international recognition of Indonesia's biodiversity, knowledge of endemic species is often limited to academic circles and has yet to reach the general public (IPBES, 2019; Harrison et al., 2022; Puspardini et al., 2023). Therefore, it is important to introduce endemic species to all levels of society, especially the younger generation. One effective way to achieve this is through education in schools.

Introducing the concept of endemism to high school students can be the first step in raising environmental awareness among the younger generation, empowering them as agents of change in environmental conservation (Karim, 2018; Ismira et al., 2022).

West Seram Regency, located on Seram Island in Maluku Province, Indonesia, is one of the regions with exceptional biodiversity and is home to several endemic Maluku and Indonesian species, such as the Moluccan Cockatoo (*Cacatua moluccensis*), Orange-footed scrubfowl (*Megapodius reinwardtii*) or Cuscus (*Phalangeridae* family). One of the efforts that can be made is to introduce regional and Indonesian endemic species and raise awareness among the younger generation about the potential and status of local biodiversity. An important aspect related to the status of biodiversity is the existence of regional endemic species. The role of the younger generation, represented by students, as future agents of environmental conservation require adequate knowledge about the existence of endemic species, the

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threats they face, and the solutions adopted to conserve them. To date, various human activities that destroy the natural environment of indigenous species, such as logging and land burning, are caused by a need for more public awareness about the importance of the existence and potential of biodiversity in the future (Supriatna, 2018; Sianturi, 2019).

The lack of knowledge about the biodiversity of endemic species in the younger generation can lead to apathy towards conserving these species (Afriyie & Opore, 2022; Habel et al., 2022; Hayward et al., 2022). The existence of SMA Negeri 10, West Seram Regency, Seram Island, has the potential to produce young people who care about the environment. Therefore, it was chosen as a target school for introducing Indonesian endemism and endemic species and their threats and conservation strategies. The student's knowledge of endemic species and their problems will increase awareness of environmental conservation among students and the younger generation in Indonesia.

Method

This activity was conducted as socialisation at SMA Negeri 10 Seram Bagian Barat, Seram Bagian Barat Regency, Maluku Province, Indonesia. The introduction of Indonesian endemism was carried out using a face-to-face method with presentation techniques to the students. The presentation of the material was followed by a question and answer session, where all participants were allowed to ask questions during the activity and, at the same time, discuss the material presented. At the end of the presentation and discussion, a questionnaire was filled in to measure the student's knowledge and understanding of the endemic animals and their problems

Result and Discussion

The introduction of Indonesian endemism in schools is part of the community service activities of

university educators. The dharma of community service is part of the university's concrete contribution to society, and the benefits are immediately felt in a relatively short period. This socialisation activity aims to introduce Indonesian endemic animal species, threats and conservation strategies to the students of SMA Negeri 10 Kamarian.

Thirty-eight high school students participated in the socialisation through material presentation and discussion (Figure 1). The socialisation materials included the meaning and definition of endemism, endemic species, examples of endemic species in Indonesia and Maluku, and threats and conservation efforts. The students enthusiastically received the socialisation activity, as evidenced by their activity during the discussion and in filling out questionnaires to measure their knowledge and understanding of the material provided.



Figure 1. Introducing Indonesian endemism, its threats, and conservation at SMA Negeri 10 in Kamarian Village, West Seram Regency, Maluku

The participating students comprised 23% of Grade XI students and 77% of Grade XII students (Figure 2a). Grade X students did not participate in this activity due to temporary classroom learning activities. The age of the students ranged from 15 to 18 years, with the highest percentage of 17-year-olds at 53% (Figure 2b).

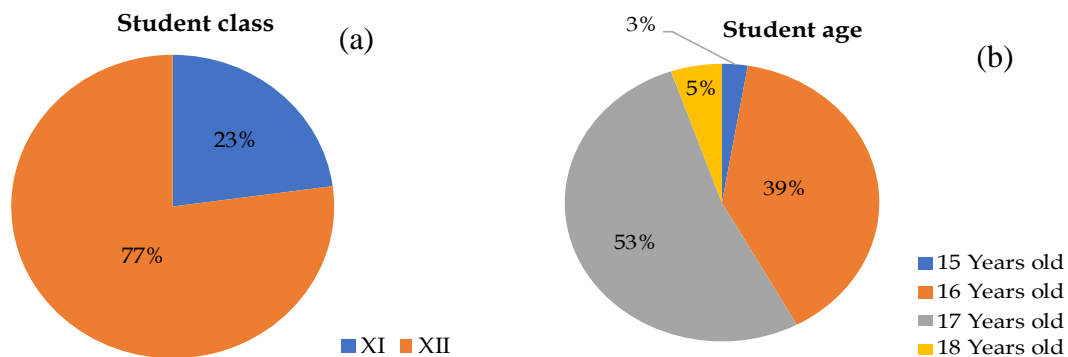


Figure 2. Profile of SMA Negeri 10 students in Kamarian Village, West Seram Regency, Maluku participating in the socialisation of the introduction of Indonesian endemism, (a) class of students and (b) age of students

The questionnaires filled in by the students showed that most students already know about endemism, with questions about the definition of endemic species being answered well by 91% of the students who participated in the activity (Figure 3a). Of the 91% of students, 40% were able to give correct and precise answers about the definition of endemic species. The socialisation activity was effective in achieving its objectives, as 82% of the students answered that the students obtained the source

of information about endemism and endemic species through this socialisation activity, and only 18% of the students obtained this information from books and the Internet (Figure 3b). The effectiveness of socialisation in recognising endemic species indicates the importance of community service through socialisation of Indonesia's endemic biodiversity to students as the younger generation as a trigger to increase awareness of environmental conservation in the present and future.

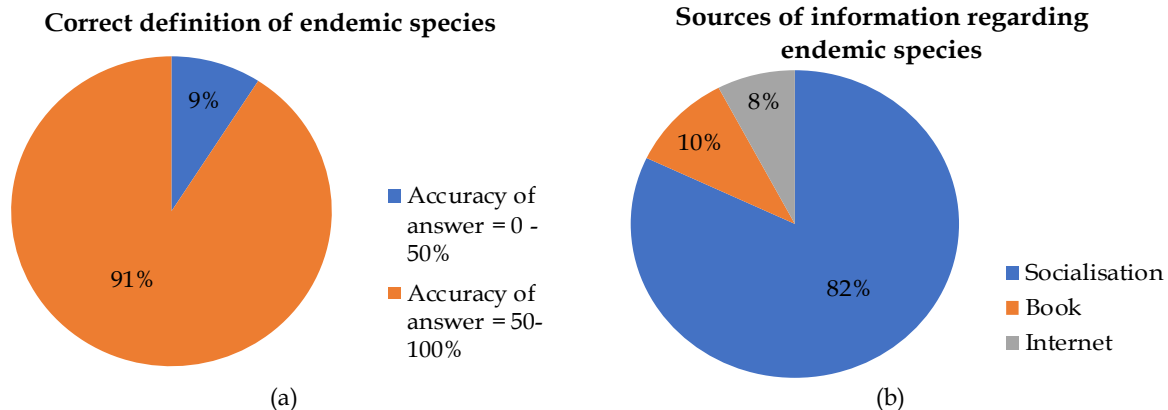


Figure 3. (a) Accurate answers to the definition of endemic species and (b) sources of information on endemic species by students of SMA Negeri 10 in Kamarian village, West Seram Regency, Maluku

The socialisation activities also helped to increase the student's knowledge of Indonesian endemic species (Siahaan & Saroyo, 2019), as shown by the student's ability to identify endemic animal species in Indonesia. The number of Indonesian endemic species that the students could name was 11 species (Table 1).

Table 1. An Indonesian endemic species named by SMA Negeri 10 students in Kamarian Village, West Seram Regency, Maluku

Spesies endemik Indonesia	Percentage (%)
Komodo (<i>Varanus komodoensis</i>)	28.3
Cendrawasih (Family Paradisaeidae)	16.0
Harimau Sumatera (<i>Panthera tigris sumatrae</i>)	12.3
Burung	10.4
Badak (<i>Rhinoceros sondaicus</i>)	7.5
Maleo (Family Megapodiidae)	7.5
Jalak Bali (<i>Leucopsar rothschildi</i>)	6.6
Gajah Sumatera (<i>Elephas maximus sumatrensis</i>)	5.7
Orang Utan Kalimantan (<i>Pongo pygmaeus</i>)	3.8
Kasuari (<i>Casuaris</i> sp)	0.9
Kakaktua Maluku (<i>Cacatua moluccensis</i>)	0.9
	100

In this activity, students were also able to provide some notes related to the threats faced by Indonesian endemic species and some efforts that need to be made to conserve endemic species (Table 2). The largest percentage of threats faced by endemic species are

poaching (37.5%), over-exploitation (20.8%), and population decline (20%). In general, the efforts to protect endemic species, according to students, are preserving animals and their habitats (60%), protecting animals and their habitats (20%), and caring for endemic species and their habitats (20%).

Table 2. A. Some of the threats to endemic species and B. conservation efforts identified by SMA Negeri 10 students in Kamarian Village, West Seram Regency, Maluku

A. Threat to endemic species	Percentage (%)
Illegal hunting	37.5
Overexploitation	20.8
Population declines	20.8
Taken for sale	4.2
Easily accessible to the public	4.2
Global warming	4.2
Not looking after animals well	4.2
Destroying habitat	4.2
	100
B. How to protect endemic species	Percentage (%)
Preserving animals and habitats	60
Protect animals and habitats	20
Caring fo animals and habitats	20
	100

Based on the results of the questionnaires filled out by students, socialisation activities for school students can encourage students to be aware of the existence of endemic species in their area and Indonesia. The

knowledge gained by students can initiate the formation of the character of the younger generation to care for the environment by preserving endemic species in their area (Siahaan & Saroyo, 2019). Increasing awareness of environmental care is one form of mitigation of ecological disasters due to the extinction of endemic species (Ashuri et al., 2022) and can be done through formal education and informal education (Ashuri et al., 2021; Suciati et al., 2022).

Conclusion

The socialisation of endemism introduction for high school students is one of the contributions of higher education institutions to build the character of environmental care for the nation's young generation, especially about the existence of Indonesian endemic species. This activity enriches students' knowledge of Indonesian endemism and helps them identify threats to endemic species and make efforts to conserve them. This increased environmental protection awareness will be conveyed informally through socialisation activities, incorporated into the curriculum, and become the basis of the student's formal education.

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References

- Afriyie, J.O., Opare, M.A., & Hejzmanova, P. (2022). Knowledge and perceptions of rural and urban communities towards small protected areas: insights from Ghana. *Ecosphere*, 13, e4257.
- Ashuri, N.M., Sa'adah, N.N., Setiawan, E., Ermavitalini, D., Saputro, TB., & Nurhayati, A.P.D. (2021). Penanaman karakter peduli lingkungan melalui program edukasi konservasi keanekaragaman hayati sejak usia dini. *Sewagati*, 5(3), 240-248. <https://doi.org/10.12962/j26139960.v5i3.29>
- Asizun, N.A. (2014). *Ensiklopedia Hewan Punah Di Indonesia: Hewan Asli Indonesia Yang Hanya Tinggal Kenangan*. 1st Edition. Hemawanto (Ed.). Jakarta: Pustaka Nusantara Indonesia.
- Habel, J.C., Ulrich, W., Rieckmann, M., Shauri, H., & Nzau, J.M. (2022). Lack of benefit sharing undermines support for nature conservation in an Eastern Afrotropical biodiversity hotspot. *Ecology and Society*, 27(4), 3.
- Harrison, R.D., Shono, K., Gitz, V., Meybeck, A., Hofer, T., & Wertz-Kanounnikoff, S. (2022). Mainstreaming biodiversity in forestry. *FAO Forestry Paper*, No. 188. Rome, FAO and Bogor, Indonesia, CIFOR. <https://doi.org/10.4060/cc2229en>
- Hayward, M.W., Meyer, N.F.V., Balkenhol, N., Beranek, C.T., Bugir, C.K., Bushell, K.V., Callen, A., Dickman, A.J., Griffin, A.S., Haswell, P.M., Howell, L.G., Jordan, C.A., Klop-Toker, K., Moll, R.J., Montgomery, R.A., Mudumba, T., Osipova, L., Periquet, S., Reyna-Hurtado, R., Ripple, W.J., Pales, L.P., Weise, F.J., Witt, R.R., & Lidsey, P.A. (2022). Intergenerational inequity: stealing the joy and benefits of nature from our children. *Front. Ecol. Evol.*, 10, 830830.
- IPBES. (2019). *Global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. Brondizio, E.S., Settele, J., Díaz, S., Ngo, H. T. (eds). IPBES secretariat, Bonn, Germany, ISBN: 978-3-947851-20-1
- Ismira, I., Jendriadi, J., Adriantoni, A., & Alfiyandri, A. (2022). Penguatan Karakter Kinerja Kepemimpinan Siswa SMA Negeri 1 Pariangan Kabupaten Tanah Datar. *Jurnal Dedikasia: Jurnal Pengabdian Masyarakat*, 2(1), 23-31.
- Karim, A. (2018). Mengembangkan Kesadaran Melestarikan Lingkungan Hidup Berbasis Humanisme Pendidikan Agama. *Edukasia: Jurnal Penelitian Pendidikan Islam*, 12(2), 309.
- Lana, D.P.D., & Putri, D. (2019). Penegakan Hukum Terhadap Pelaku Perdagangan Satwa Langka Berdasarkan Hukum Pidana. *Jurnal Penegakan Hukum Terhadap Pelaku Perdagangan Satwa*. hlm, 5.
- Pusparini, E., Cahyana, A., Grantham, H.S., Maxwell, S., Soto-Navarro, C., & MacDonald, D.W. (2023). A bolder conservation future for Indonesia by prioritizing biodiversity, carbon and unique ecosystems in Sulawesi. *Scientific Reports*, 13, 842.
- Siahaan, P., & Saroyo, S. (2019). Pelatihan identifikasi satwa kunci Sulawesi bagi siswa sekolah menengah di Kota Manado di Taman Wisata Alam Batuputih, Kota Bitung, Sulawesi Utara. *Vivabio*, 1(3), 33-37.
- Sianturi, H.R.E. (2019). Pidana terhadap pelaku perdagangan hewan langka menurut hukum pidana positif. *Lex Crimen*, 8(2), 37-42.
- Suciati, R.D., Mahardani, A.J., & Kristiana, D. (2022). Mitigasi bencana untuk menumbuhkan karakter peduli lingkungan pada anak usia dini. *Jurnal Dimensi Pendidikan dan Pembelajaran*, 10(2), 123-129.
- Supriatna, J. (2018). *Konservasi Biodiversitas: Teori dan Praktik di Indonesia*. Yayasan Pustaka Obor Indonesia.