ECONOMIC VALUATION OF TIMOR DEER AS A TOURISM OBJECT IN TWA GUNUNG TUNAK, CENTRAL LOMBOK

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ABSTRACT

Efforts to develop the sustainable use of Timor deer can be carried out in situ, such as through the management of Natural Tourism Parks and ex-situ through captivity. The existence of the Timor deer and its breeding effort in the Gunung Tunak TWA is intended as an effort to provide tourist attractions which are the primary mandate of the management of the Gunung TWA. Utilization that is carried out needs to pay attention to the principles of leadership and the welfare of the animals. Apart from the biological technical perspective related to the management aspect of the Timor deer, another essential thing that needs to be studied is the economic valuation of the existence of the Timor deer as a tourist attraction in TWA Gunung Tunak. The purpose of this study is to analyze the economic valuation of the Timor deer as a tourist attraction using the methods of observation, interviews, accidental sampling, and data analysis using the calculation of willingness to pay, chi-square test, and bidding game. The results showed that the average economic value of Rp. 21.162 with an estimate of Rp. 52.853.167 in a year based on admission. This research is expected to add and enrich information related to the economic value of Timor deer in the context of developing utilization as a tourist attraction in TWA Gunung Tunak.

Key words: *Rusa timorensis, bidding game, willingness to pay, focal animal sampling*

INTRODUCTION

Timor deer is a species of wild animal that is protected by the Government of Indonesia based on Government Regulation Number 7 of 1999 concerning Preservation of Wild Plants and Animals, then reaffirmed its protection status through Regulation of the Minister of Environment and Forestry of the Republic of Indonesia No. 106 of 2018 on Protected Types of Plants and Animals. Geographically, the distribution area of Timor deer in Indonesia is only found in a few areas, but nowadays, based on the results of research by Rahman et al. (2020) it turns out that the geographical distribution of the Timor deer in Indonesia is very wide, covering almost the entire territory of Indonesia.

Some research show that Timor deer has been widely used as a potential and prospective economic resource, both in the form of goods such as meat, leather and antlers, as well as their services as attractive recreational or tourism objects. One of them is research by Randa et al. (2021) which is making deer shredded venison with the addition of herbs as superior food in the new normal era. As a protected animal, efforts to develop its use must ensure its sustainability as a national and global germplasm, as well as guarantee the sustainability of its beneficial value for the life of the community between generations. One form of development of the use of the Timor deer is done by making the Timor deer a tourist attraction, such as the one developed at the Gunung Tunak Nature Tourism Park, Central Lombok.

In the development of the use of the Timor deer as a tourist attraction, the presence of the Timor deer in its maintenance cage will interact with visitors and to a certain extent is expected to have an impact on the daily behavior of the Timor deer, including the possibility of changes in daily activity patterns as the response of the Timor deer to the presence of visitors and conditions. maintenance environment. As it is known that animal behavior is an animal's expression in response to changes in factors that influence it, both internal factors of animals and external factors.

The important thing that needs to be studied related to the development of the use of Timor deer as a tourist attraction in TWA Gunung Tunak, is its potential economic value, especially seen from the willingness to pay from visitors or willingness to pay (WTP). The willingness to pay is the amount of money that someone is willing to pay for a certain desired object of goods or services (Rahmawati et al., 2018). The value of WTP results that visitors are willing to pay for tourist attractions can be used for tourism development, as well as can be used as a basis for determining how much visitor participation is in supporting the preservation of these attractions (Medida and Purnomo 2021). Given that information related to economic value is important in developing the use of Timor deer as a tourist attraction, this research is considered important and interesting to do.

RESEARCH METHOD

The research was carried out from October - December 2021 at the Gunung Tunak Nature Tourism Park, Mertak Village, Pujut District, Central Lombok Regency, West Nusa Tenggara. The Gunung Tunak TWA area is designated as a TWA based on the Decree of the Minister of Forestry Number; 2844/Menhut-VII/KUH/2014 dated April 16, 2014, covering an area of 1,219.97 ha (Anonymous 2017; Widada et al. 2015).

The object of this research is the Timor deer (Rusa timorensis) which is kept in TWA Gunung Tunak. To assist in data collection, several tools were used including digital cameras for photo/image documentation, tally sheets for collecting data on the behavior of Timor deer, questionnaires for collecting data on visitor characteristics and the value of visitors' willingness to pay, as well as MS Word and MS Exel programs for data analysis.

Data collection includes data on respondent characteristics (age, gender, regional origin, education level, occupation, and income) and the amount of economic value each visitor is willing to pay. This data was collected using interviews and filling out questionnaires. The number of respondents who were interviewed was as many as 30 people with criteria >18 years old, namely the age that is considered capable of making decisions independently. Respondents were selected by accidental sampling technique, namely, the technique of determining respondents based on chance found and willing to be interviewed (Sugiyono, 2009; 2013).

The calculation of economic value is collected through a bidding game system or a bargaining system (Subagyo et al., 2015) on the value of willingness to pay and fill out the prepared questionnaire. The amount of the benchmark value for the offer of willingness to pay is determined by referring to the price of the entrance ticket to the Gunung Tunak TWA area, which is Rp. 5,000 and is gradually increased until it reaches a maximum value of Rp. 50,000. Furthermore, based on data on the results of willingness to pay from visitors represented by interviewed respondents, the average economic value of Timor deer is calculated based on willingness to pay using the value estimation formula (EWTP) (Hasbiah et al. 2018) with the formula:

EWTP = WiPfi
where
EWTP = Estimated average WTP
Wi = I-WTP value

Pfi = Relative Frequency
n = Number of respondents
i = Respondent to-i who are willing to pay for environmental services

Furthermore, the total value of WTP (TWTP) is calculated based on the distribution data of the respondents' WTP using the formula :

$$\sum_i^n WTPI\left(\frac{ni}{N}\right) P$$

TWTP =
where
TWTP =Total WTP;
WTPi = WTP of the individual sample i ;
Ni = Number of selection i who are willing to pay the amount of WTP;
N= Number of pieces;
P = Total population, and
i = respondent who is willing to pay.

To determine the effect of the respondent's characteristic parameters on the magnitude of the WTP value, the Chi-Square test was carried out. Chi-Square is a type of non-parametric comparative test that is carried out on two variables, where the data scale of the second variable is nominal (If from 2 variables, there is 1 variable with a nominal scale, then a chi-square test is carried out concerning that the test at the lowest degree must be used) (Mokoginta et al., 2021).

RESULT AND DISCUSSION

1. *Characteristics of Respondents*

The results of interviews with 30 respondents showed that respondents were male (70%) and 30% female, with the largest age of visitors being 30-60 years (46.67%) and 19-30 years old (40%) (Table 1). This condition shows that there are differences in the gender preferences of visitors in tourism activities as stated by Rizki et al. (2014) that differences in the number of individuals between women and men can occur due to differences in travel preferences. The results of research by Marpaung et al. (2022) at the Sambar deer breeding unit in Aek Nauli, North Sumatra as a tourist attraction also showed that male visitors were relatively more (51%) than female visitors (49%). In terms of age, the dominance of visitor age is classified as productive age, as stated by Rimbawati et al. (2018), that the productive age of humans is the age that makes a person able to be actively involved in carrying out various activities, including tourism activities.

Table 1 Characteristics of respondent.

Characteristics	Data	Total	Percentage (%)
Sex	Male	21	70
	Female	9	30
Age	18	4	13.33
	19 – 30	12	40
	30 – 60	14	46.67
Formal education	Junior High school	3	10
	Senior high school	12	40
	Bachelor	15	50
Occupation	Student	6	20
	Enterprenur	7	23.33
	Trader	3	10
	Employee	6	20
	Others (Housewife and Laborer	8	26.67
	Lombok Tengah Outside	19	36.67
Origin	Lombok Tengah Inside	11	63.33
	0	5	16.67
Income	< Rp 500.000	2	6.67
	Rp 500.000 – Rp 1.000.000	5	16.67
	Rp 1.000.000 – Rp 2.500.000	8	26.67
	Rp 2.500.000 – Rp 5.000.000	10	33.33

The results of this study also show that most of the visitors who become respondents have a bachelor's degree (S1) education, which is 50%, followed by 40% of high school education and 10% of junior high school education (Table 1). Meanwhile, when viewed from the level or amount of income (Table 1), it is known that most of the respondents have income above Rp. 1 million with details of payment of Rp. 2.5 million to Rp. 5 million by 33.33%, followed by Rp. 1 million revenue. 2.5 million. as much as 26.67%, income below Rp 1 million – Rp 2.5 million as much as 26.67%, and income <Rp 500 thousand as much as 6.67%.

The size of the respondent's income is related to visitors work (Table 1). Most respondents with incomes above Rp 1 million are civil servants and entrepreneurs. In contrast, respondents who think below Rp 1 million are generally still classified as students or do not have a fixed income source from their work. The area of origin of most respondents is from the Central Lombok region (63.33%) because the location of their residence is relatively closer to the Gunung Tunak TWA area as a tourist attraction.

2. *The Economic Value of Timor Deer as a Tourist Attraction*

The results of the calculation of the economic value of the Timor deer as a tourist attraction in TWA Gunung Tunak using the Willingness to Pay (WTP) approach (Suryawati et al., 2019) from visitors using the bidding game method with a benchmark price of the area entrance ticket, namely Rp. 5.000 (five thousand rupiahs) and the highest bid value of Rp. 50.000, the distribution of the average WTP value is Rp. 21.165. This means that every visitor, on average, is willing to pay the economic value of the Timor deer as a tourist attraction in TWA Gunung Tunak of Rp. 21.165 with the lowest value of Rp. 5.000 and the highest value of Rp. 50.000. Using the relative frequency distribution of the number of visitors who are willing to pay a certain WTP value with the assumption that the data on the number of visitors a year is 2497 people, the total economic value of the Timor deer as a tourist attraction in TWA Gunung Tunak in one year is Rp. 52.853.167 (Table 2).

According to Amelia (2016), visitors have the right to judge and choose whether or not the price they will pay is appropriate compared to the uses and benefits they will get. In general, the results of many studies show that many factors are thought to influence the willingness to pay by consumers. For example, the results of research by Najib (2014) and Rofiatun and Bareska (2018) on willingness to pay for organic and inorganic vegetable products show that among the factors influencing consumers' willingness to pay are the respondent's income, product quality, product safety and lifestyle. Another factor that affects the willingness to pay visitors is related to facilities and rides. According to visitors to the Gunung Tunak TWA Sanctuary, it provides adequate facilities and rides, one of which is the availability of prayer rooms, toilets, and parking lots. So that visitors feel comfortable and safe when traveling. This is in accordance with the opinion of Sulistyana et al., (2017) which states that good and adequate facilities can provide comfort to visitors. Likewise, according to Wulandari and Wahyuati (2017) facilities can provide convenience to visitors when carrying out their activities while traveling, so that the needs of visitors can be met during the trip.

Table 2. Value of WTP calculation within a year at TWA Gunung Tunak based on ticket prices.

WTP	Frequency	Relative Frequency (%)	WTP Average (Rp)	Population (Visitors)	TWTP (Total Amount) (Rp)
5.000	5	16.67	833	416	208.0833
10.000	8	26.67	2.667	666	665.8667
15.000	6	20	3.000	499	7.491.000
20.000	2	6.67	1.333	166	3.329.333
25.000	2	6.67	1.667	166	4.161.667
30.000	0	0	0	0	0
35.000	0	0	0	0	0
40.000	0	0	0	0	0
45.000	0	0	0	0	0
50.000	7	23.33	11.667	583	29.131.667
Total	30	100	21.167	2497	52.853.167

Table 3 The results of the chi-square test between the influence of the respondent's characteristics and the value of WTP.

Variabel	Chi Square Test Result	Decision
Gender	0.043	Take Effect
Age	0.251	No Effect
Origin	0.556	No Effect
Educaion	0.485	No Effect
Income	0.002	Take Effect
Occupation	0.012	Take Effect

The results of research by Medida and Purnomo (2021) show that one of the dominant factors that significantly affect the willingness to pay consumers is the level of income in addition to the level of consumer education. Related to this, in this study based on the results of the Chi-Square test, it is known that from the six variables of the characteristics of the respondents tested, namely gender, age, area of origin, education level, income, and occupation, it is known that there are three variables that have a significant effect on the magnitude of the score. WTP of visitors, namely gender, income, and occupation (Table 3). This shows that the more established a person's job with a relatively high-income level and male gender is, the more likely it is to be positively related to the value of the WTP he pays to witness the Timor deer as a tourist attraction in TWA Gunung Tunak.

CONCLUSION

The conclusion of this study is that the average economic value of Timor deer as a tourist attraction based on the WTP approach by each visitor is Rp. 21.162 with an estimated total annual economic value of Rp. 52.853.167 based on the price of admission. This economic value is relatively small when compared to the research by Ewaldo et al. (2021) in concluding that the willingness to pay visitors is Rp. 27.552.000.000 year. For this reason, the recommendation that needs to be made is to increase the entrance ticket price as a manifestation of the management and development of the sanctuary in the future.

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