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ANALYSIS OF COMMUNITY KNOWLEDGE ON THE CONSERVATION OF WHITE-WINGED DUCK (*Asarcornis Scutulata*) IN WAY KAMBAS NATIONAL PARK

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ABSTRACT

Indonesia is one of the countries that has a high diversity of birds, one of which is the White-winged Duck (*Asarcornis scutulata*) which is a protected bird. One of habitat white-winged duck habitat in Sumatra is Way Kambas National Park (WKNP). Declain of population the white-winged Duck requires efforts and community participation in its conservation. Community participation is influenced by the understanding of the community. The aims of research to analysis the community's understanding about conservation of white-winged duck in WKNP. Data collection used a interview method using a questionnaire with purposive sampling technique. Data analysis using a quantitative technique with a Likert scale and the indicators used are questions in the two answer categories, namely yes/know with a score of 2 and no/do not know with a score of 1. The result of community knowledge in buffer villages about conservation of white-winged duck have a value of 50.8 including good category. Community experience has a value of 53 including the medium category, and community knowledge of the benefits of white-winged duck is in the medium category with a value of 54.3. The communities of knowledge not the same about white-winged duck, but dominant shown interest in participating in conservation efforts. There is a need for activities that educate communities on white-winged duck conservation. The existence of good knowledge and experience of white-winged duck owned by the community, can influence in realizing white-winged duck conservation efforts in the natural habitat.

Keywords; Community knowledge, conservation, white-winged duck, way kambas national park

INTRODUCTION

Indonesia is one of the countries with high bird diversity. According to Gagarin (2019), Indonesia is the fourth country with the highest bird diversity in the world. One of the birds in Indonesia is the White-winged Duck. White-winged Duck has the Latin name Asarcornis scutulata. Asarcornis is a new genus that has been in effect since 2014, previously the White-winged Duck was included in the cairina genus because it has similarities with mentok, while the two are different (IUCN, 2017). White-winged Duck is a bird whose habitat is in wetlands adjacent to swamps and includes birds that are under threat of extinction (Syarifuddin, 2016).

Based on its conservation status, the White-winged Duck is an endangered bird and in international trade, it is prohibited from being traded in any form and can only be traded under exceptional conditions or in the appendix 1 category (IUCN, 2017). White-winged Duck is a protected bird with a limited distribution (Syarifuddin, 2016). In Indonesia, the White-winged Duck is protected under Law No.5 of 1990 concerning the Conservation of Living Natural Resources and Ecosystems and Minister of Environment and Forestry

Regulation No.P.106 of 2018. The habitat of the White-winged Duck was previously not only in Sumatra, but also in Java and is suspected to be extinct (https://www.mongabay.co.id/2014/11/12/mentok-rimba-burung-mirip-mentok-yang-terancam-punah/). Based on Syarifuddin (2016), the existence of White-winged Duck in the world is estimated to be only 1000 individuals. The remaining White-winged Duck population in Indonesia is 150, which is located in Sumatra, precisely in Way Kambas National Park (TNWK) (Syarifuddin, 2016).

Way Kambas National Park (WKNP) is a conservation area that has various types of ecosystems, one of which is the swamp ecosystem type (Yudiyanto et al, 2021). The swamp ecosystem is a habitat for wildlife such as the White-winged Duck, which is a protected bird (Syarifuddin, 2016). This shows the need to maintain the habitat of the White-winged Duck, due to the dependence of animals on their habitat to meet the needs that support their lives. Based on Iswandaru et al (2018), to support the needs and survival of birds, it is necessary that their habitat conditions are good and free from threats. Birds are also one of the ecosystem components that have a reciprocal relationship and interact with their environment (Hastaril, 2015; Saputri et al., 2022). The abundance of food sources and the availability of water in a habitat (Issa, 2019) are influential for birds in choosing their habitat for the survival of these birds and WKNP includes areas that are good habitats for birds (Ramadhani et al., 2019). WKNP is surrounded and directly adjacent to buffer villages, making WKNP inseparable from the role of forest village communities (Safitri et al, 2023). According to Setiawan et al (2021), forest communities are an inseparable part of the forest ecosystem. WKNP has 38 buffer villages that are directly adjacent to the forest area (Safitri et al, 2023). Based on Qodriyatun (2019), local communities living around the forest are the main objects that have a stake in forest conservation because their life side by side with nature makes the community clearly know how to manage the forest without damaging and exploiting it. Buffer village communities cannot be separated from the interaction of nature and humans (Mustari, 2022), so community understanding and participation are needed.

The alarming existence of the White-winged Duck requires efforts to maintain its existence in the world. One of them is the need for more attention to White-winged Duck birds, which comes from human knowledge and understanding (Selni et al, 2021) of White-winged Duck birds in order to prevent extinction. Syarifuddin (2016) stated that there is a lack of documented White-winged Duck data and the White-winged Duck population is very small. This shows that there is a lack of attention to the White-winged Duck. Therefore, here the role of the community is needed in realizing conservation efforts, especially for people who live around the forest or White-winged Duck habitat. With the community knowing and understanding that the White-winged Duck is under threat of extinction and its population is worrying, it will increase public attention (Rosya, 2022) to keep the White-winged Duck sustainable.

The concept of ecological awareness that must be embraced by the community is to understand and realize that local communities are part of the spectrum of nature so that they have the obligation to maintain sustainability (Mumpuni, 2015). Community involvement is important in environmental management, such as communities around forests whose lives depend on nature and interact directly with nature (Setiawan et al, 2021). The involvement of local communities cannot be separated from the understanding and knowledge of the community. The existence of community understanding and knowledge will affect community behavior in encouraging people not to behave in ways that pose a threat (Purwatiningsih, 2022) to wildlife such as White-winged Duck. Public knowledge and understanding of the threats to the White-winged Duck will also prevent illegal activities such as illegal logging and illegal fissing that will threaten the White-winged Duck's habitat (IUCN, 2017). The lack of public understanding of the protected White-winged Duck will lead to poaching by local communities due to their ignorance (Pramantara et al, 2022) that the White-winged Duck is a protected bird. This shows that the knowledge and understanding of the community is very influential in the realization of White-winged Duck conservation efforts. Based on these problems, this study was conducted to determine the community's understanding of White-winged Duck conservation in Way Kambas National Park (WKNP).

METHOD

This research was conducted in November 2023 in three buffer villages of Way Kambas National Park (WKNP), namely Labuhan Ratu VII, Labuhan Ratu IX, and Braja Harjosari, East Lampung Regency, Lampung Province. These buffer villages were chosen as research sites because they are directly adjacent to WKNP (Safitri et al, 2023) and are also locations where White-winged Duck have been observed based on local community sources after a survey of research sites in WKNP. Data collection in this study used a closed interview method using a questionnaire for the people of Labuhan Ratu VII Village, Labuhan Ratu IX Village, and Braja Harjosari Village.

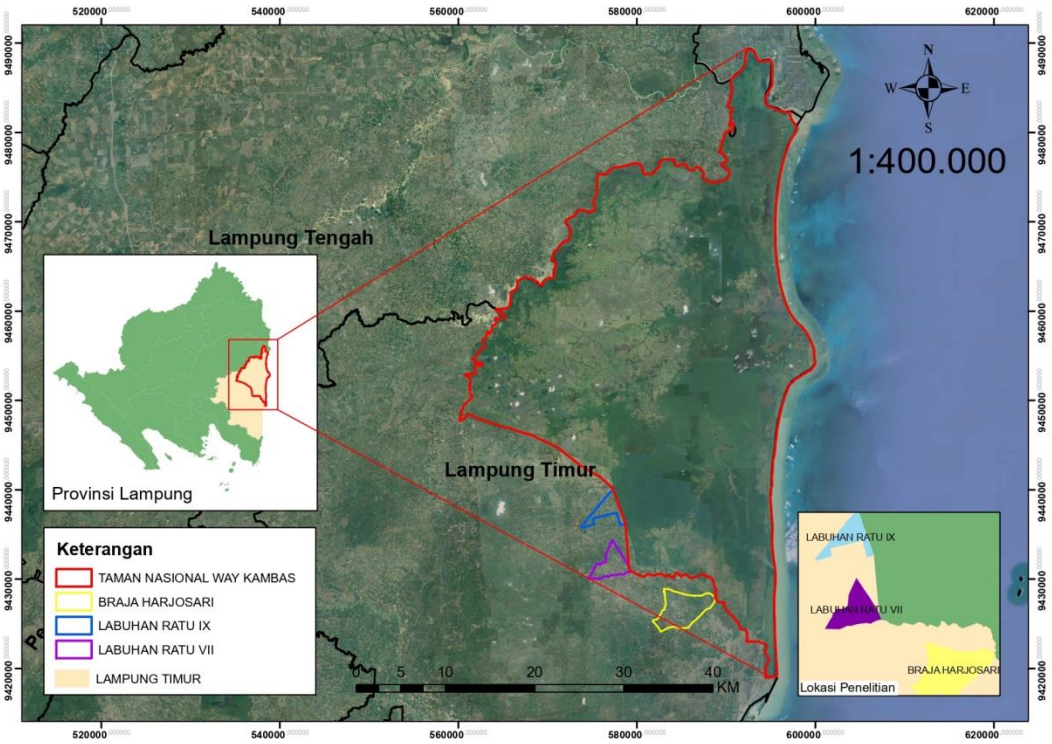

Figure 1. Research Location

Data collection was carried out using purposive sampling technique. Closed interviews were conducted with respondents based on predetermined criteria, by making 30 people as respondents with residence criteria, namely people who live in Labuhan Ratu VII Village, Labuhan Ratu IX Village, and Braja Harjosari Village, with a productive age range of 17-59 years, and an elementary school education level (SD) to college school. The data collected includes the community's understanding of the White-winged Duck, the community's experience of the existence of White-winged Duck, and the community's knowledge of the benefits of White-winged Duck.

The presentation of data in this study is using quantitative methods by using a Likert scale to measure the indicators of questions in the questionnaire on public understanding of White-winged Duck conservation in Way Kambas National Park (WKNP). The indicators used are questions that have been presented in the form of two answer categories, namely yes/know with a score of 2 and no/do not know with a score of 1, as in table 1 (Sugiyono, 2014; Agustin, 2023).

Table 1. Response categories and respondent scores

No	*Response categories*	Scores
1.	Yes/know	2
2.	No/don't know	1

The scores that have been obtained are used to determine the level of community understanding of White-winged Duck conservation based on the determination of interval distance. The formula used to calculate the interval distance is as follows (Marcelina, 2018; Agustin, 2023).

$$\text{Interval distance } (i) = \frac{\text{Highest score} - \text{lowest score}}{\text{Number of interval classes}}$$

Based on the calculations that will be carried out in this study, the results of data calculations will be the basis for drawing conclusions about public understanding of White-winged Duck conservation.

Based on the calculations carried out, the results of the interval distance on each indicator are as follows:

Table 2. Interval values and categories

Indicator	No/Low	Yes/Good
Community knowledge of White-winged Duck	42-50	51-59
Community experience of White-winged Duck	49-53	54-57
Community knowledge of the benefits of White-winged Duck	54-56	57-58

RESULTS AND DISCUSSION

This study used the communities of Labuhan Ratu VII, Labuhan Ratu IX, and Braja Harjosari as respondents. A total of 30 community respondents filled out the questionnaire that had been provided. The questionnaire consists of questions that have been presented with answer categories. There were 12 questions in the questionnaire to determine the community's understanding of White-winged Duck conservation. The questions in the questionnaire were divided into three variables, including community knowledge of White-winged Duck, community experience of White-winged Duck, and community knowledge of the benefits of White-winged Duck. This is to measure the level of community understanding of the White-winged Duck, due to the importance of understanding in realizing conservation efforts. In line with the research of Wajo et al (2023) that the ecological understanding of the community provides benefits, one of which realizes preservation and conservation.

A. Public knowledge of White-winged Duck

There are 6 indicators of questions in the variable of public knowledge of the White-winged Duck. The questions presented are related to knowledge of conservation status, threats, existence, and the name of the White-winged Duck. The results of the calculation of public knowledge of White-winged Duck are presented in Figure 2 and Figure 3.

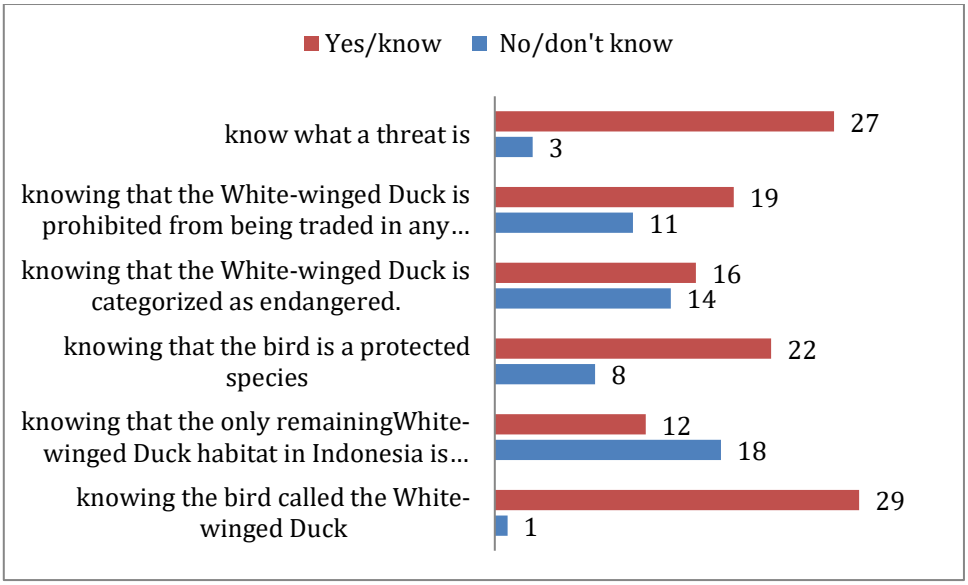

Figure 2: Community knowledge of the White-winged Duck

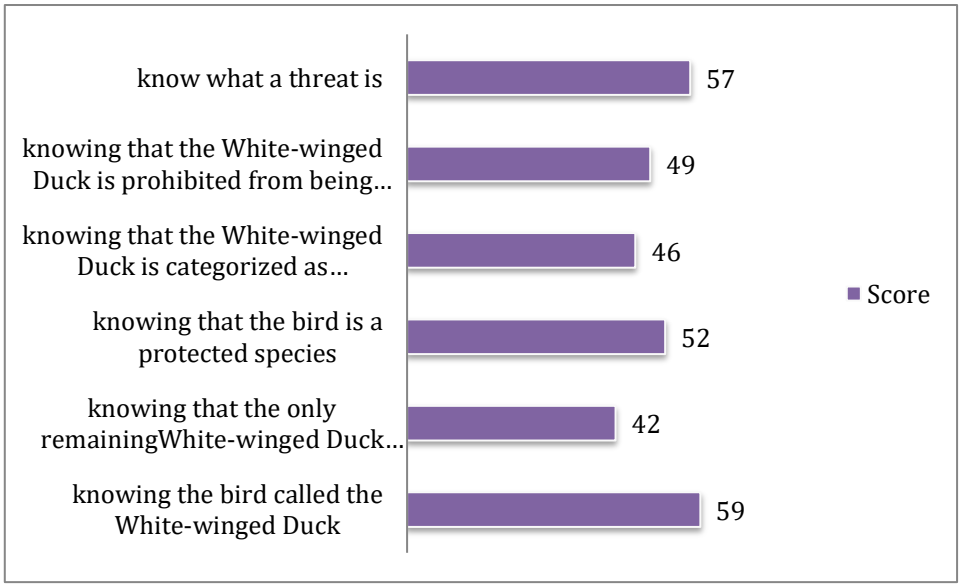

Figure 3: Score Community knowledge of the White-winged Duck

Based on the research results presented above, it can be seen that the people of the buffer villages are familiar with the bird called White-winged Duck. From the results of the data obtained, there were 29 (Figure 2) and had the highest value of 59 (Figure 3) respondents who knew it, and only 1 respondent who did not know the bird called White-winged Duck. The village community has another name for the White-winged Duck, namely mentok alas. However, not many villagers knew about the bird and only knew the name of the bird. Knowledge that the distribution of White-winged Duck in Indonesia is only in Sumatra, many people do not know it, and only 12 respondents with the lowest score of 42. Based on the website mongabay environmental news site (2014), the existence of White-winged Duck currently in Indonesia is left only in Sumatra, because on the island of Java has experienced extinction (https://www.mongabay.co.id/2014/11/12/mentok-rimba-burung-mirip-mentok-yang-terancam-punah/). This shows that if the community is aware of the conservation status of the White-winged Duck, then it is possible for the community to raise

awareness to preserve it and avoid threats to the White-winged Duck. Not only that, knowing the conservation status of the White-winged Duck is also important in realizing conservation efforts.

A total of 22 respondents with a score of 52 knew that the White-winged Duck is a protected bird. However, only 16 respondents with a score of 46 knew that the White-winged Duck based on its conservation status was categorized as endangered or that not many people knew that the White-winged Duck was at a high risk of extinction in the wild. Not many people, namely 19 respondents with a score of 49, know that White-winged Duck based on its trade status is a bird that is prohibited from being traded in any form in the world and can only be traded under exceptional conditions or appendix 1 category (IUCN, 2017). According to Tagoan et al (2019), wildlife trade is one of the most serious threats to wildlife in addition to habitat destruction, and is also related to the serial threat of hunting animals for consumption. This shows the need for public awareness of White-winged Duck conservation. Mumpuni et al (2015) stated that the community should play a role in realizing conservation efforts. The role of the community is inseparable from knowledge, making the need for community education by conducting socialization directly or with media that makes it easier for the community to get information. Providing education and socialization to communities around the forest is an effort in rare animal conservation, because many people do not know the types of protected rare animals, and this education and socialization is for the community not to kill or hunt protected animals (Raditya, 2023). The next knowledge is that 27 respondents with a score of 57 knew what a threat was. People who stated that threats are things that endanger their existence. This shows that people understand that threats have a negative impact. The community's knowledge of threats includes protected endangered animals, not just White-winged Duck. The existence of public knowledge of threats allows people to avoid things that threaten rare animals such as White-winged Duck. Community understanding is also not only seen from the knowledge that the community has but also the experience that the community has.

B. Community Experience with White-winged Duck

Community experience with wildlife can increase community understanding and knowledge (Rasyid et al, 2023). In the variable of community experience of White-winged Duck, there are 3 indicators of questions presented in the questionnaire, namely community experience in seeing White-winged Duck, community experience in the arrival of White-winged Duck in the village, and community experience in seeing White-winged Duck so that they know what White-winged Duck looks like. The results of the calculations carried out in the community's experience of White-winged Duck are presented in Figure 4 and Figure 5.

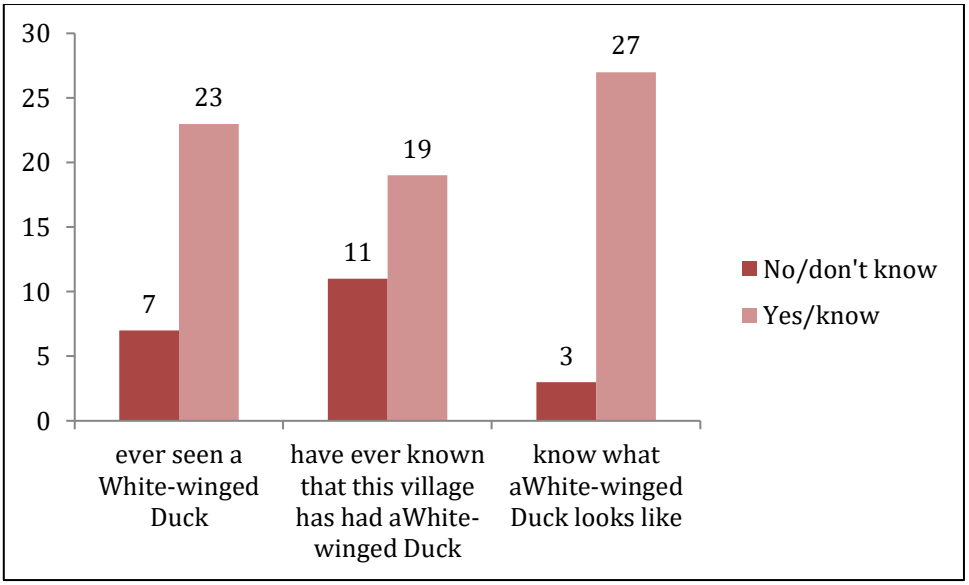

Figure 4: Community experience of the White-winged Duck

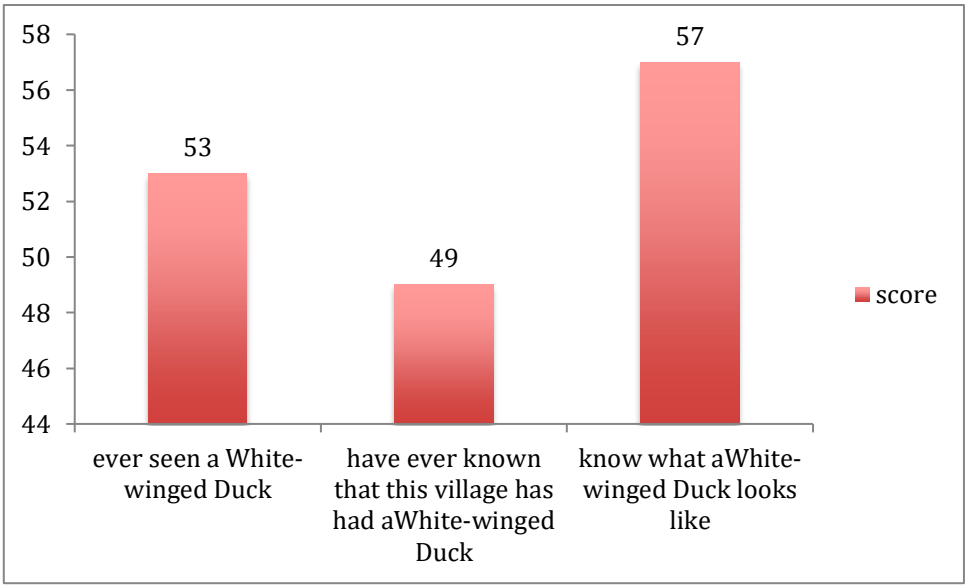

Figure 5: Score Community experience of the White-winged Duck

Based on the results obtained, it can be seen that 23 respondents with a score of 53 have seen White-winged Duck, although only to the extent of seeing White-winged Duck flying through the village. The experience of people who have seen this White-winged Duck affects the understanding and knowledge of the community, knowing that the bird that flew was a White-winged Duck. Knowledge is obtained by the community after sensing the object by the sense of sight obtained from the seeing eye (Notoatmodjo, 2003; Selni et al, 2021). However, only some people, namely 19 respondents with a value of 49, knew that in their villages, namely Labuhan Ratu VII, Labuhan Ratu IX and Braja Harjosari villages, White-winged Duck had arrived. Some people know that the village has had White-winged Duck who have seen them directly, and others know it from information obtained from people who have seen them directly. Community experience with wildlife can help develop socialization by providing information to other communities (Massiri, 2022). The experience of the community in seeing the White-winged Duck through the sense of sight, shows the

community's knowledge of the characteristics of the White-winged Duck. A total of 27 respondents with a score of 57 knew what the birds that characterize the White-winged Duck look like. The majority of the community said that the White-winged Duck is characterized like a mentok, but has a higher flight range. This also shows that people have limited knowledge of the specific characteristics of the White-winged Duck. According to Zulham (2021), White-winged Duck are generally dark in color with the underside of the wings white, the head and neck white, while the legs and beak are yellowish or dull orange, and have black spots on the neck in females. If people are unaware of the differences between White-winged Duck and village mentok, it is feared that if they see a White-winged Duck and think it is a normal mentok, it will lead to the threat of capture and poaching of White-winged Duck. This shows the importance of understanding the White-winged Duck.

C. Community knowledge on the benefits of White-winged Duck

Birds are an important element of biodiversity (Mulyani, 2020). Birds can determine the suitability of a habitat, so if a habitat has high bird species, then the habitat has good availability of life such as availability in food, water, protection, breeding places, and nesting has good availability (Sari, et al, 2020). The measurement of public knowledge of the benefits of White-winged Duck is by using three indicators of questions in the questionnaire, including public perceptions of the importance of the existence of White-winged Duck, knowing the benefits and effects of White-winged Duck on nature, and public knowledge of White-winged Duck that can be utilized as a tourist attraction. The calculation results in this study are presented in Figure 6 and Figure 7.

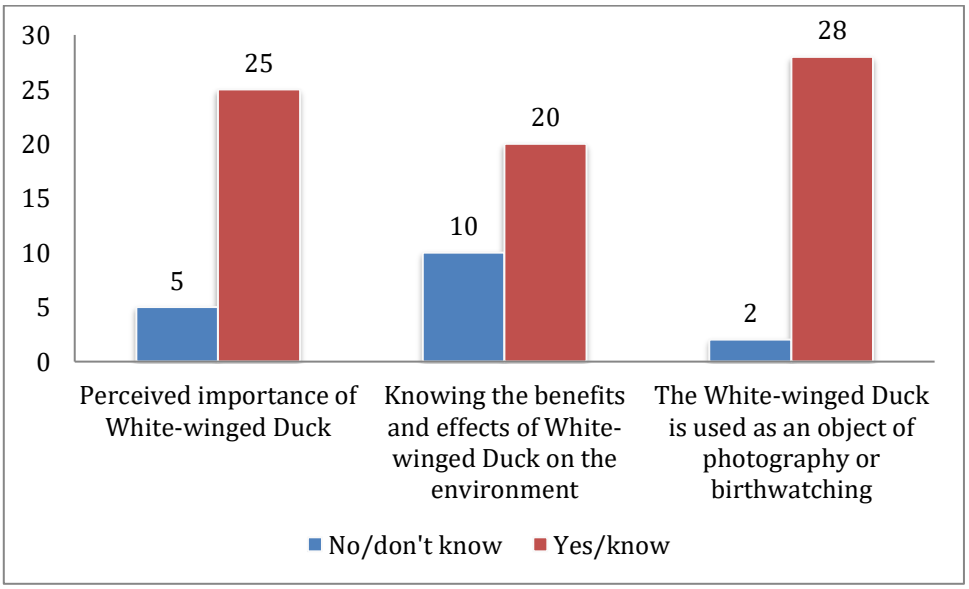

Figure 6: Community knowledge of the benefits of White-winged Duck

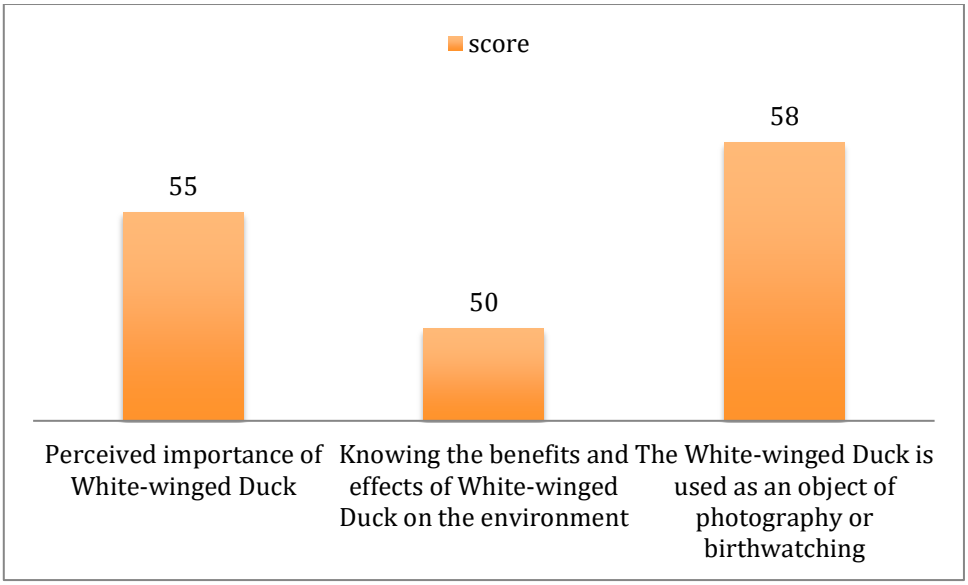

Figure 7: Score Community knowledge of the benefits of White-winged Duck

A total of 25 respondents with a score of 55 knew the importance of the White-winged Duck in WKNP both ecologically and economically. People know that the White-winged Duck is a bird that plays an important role both in the natural ecosystem and in nature tourism. In this case, as many as 20 respondents with a score of 50 knew the benefits and influence of the White-winged Duck on the environment. People said that the benefits and effects of White-winged Duck in nature are to increase the variety of wildlife. In addition, the community also said that the White-winged Duck plays a role in controlling the ecosystem in WKNP, because the White-winged Duck is included in the bird species. This is in line with research by Rumanasari (2017), the presence of birds in a habitat type makes an indicator of the feasibility of habitat quality in supporting the lives of other species, because birds are sensitive to environmental changes. The benefits of White-winged Duck also play a role in the community's economy.

The buffer villages of WKNP are villages that are developing their potential as tourist villages, including Labuhan Ratu VII, Labuhan Ratu IX, and Braja Harjosari villages. There are many natural potentials that are being developed in realizing this tourism village, one of which is bird watching (Iswandaru et al., 2023). Bird watching involving local communities is one of the tourism potentials that has been developed in WKNP (Kamaludin et al., 2019; Iswandaru et al., 2023). The existence of White-winged Duck, which is a bird with a limited distribution and is protected (Syarifuddin, 2016), can make it a potential tourist attraction that is being developed. This can be beneficial in addition to improving the community's economy, as well as nature education, namely introducing White-winged Duck to both local and foreign communities so as to encourage conservation efforts. A total of 28 respondents with a value of 58 knew and agreed if White-winged Duck was used as an object of photography or birthwatching. This is in line with research by Rasyid (2022), Opportunities to interact with animals can have an impact on conservation behavior due to the influence of positive feelings of visitors, and this is an educational approach and communication strategy to promote sustainability. Birds such as White-winged Duck can also be used as tourist objects such as birthwatching, which is known to have the potential to attract visitors and support tourism extensions. Communities around WKNP support the development of birthwatching tourism (Kamaluddin et al, 2019; Ramadhani et al, 2022). White-winged Duck, which is a rare animal and has a limited distribution in the world and in Indonesia can only be found in Sumatra, can foster visitors' curiosity about White-winged Duck.

D. Values of Community Knowledge on White-winged Duck Conservation

The measurement of community knowledge of White-winged Duck conservation uses three variables, including community knowledge of White-winged Duck, community experience of White-winged Duck, and community knowledge of the benefits of White-winged Duck. Based on the data obtained, the knowledge of buffer village communities on White-winged Duck conservation is in the good category. Selni et al (2021) stated that good knowledge has an action role in conservation. as for the calculation results can be seen in Figure 8.

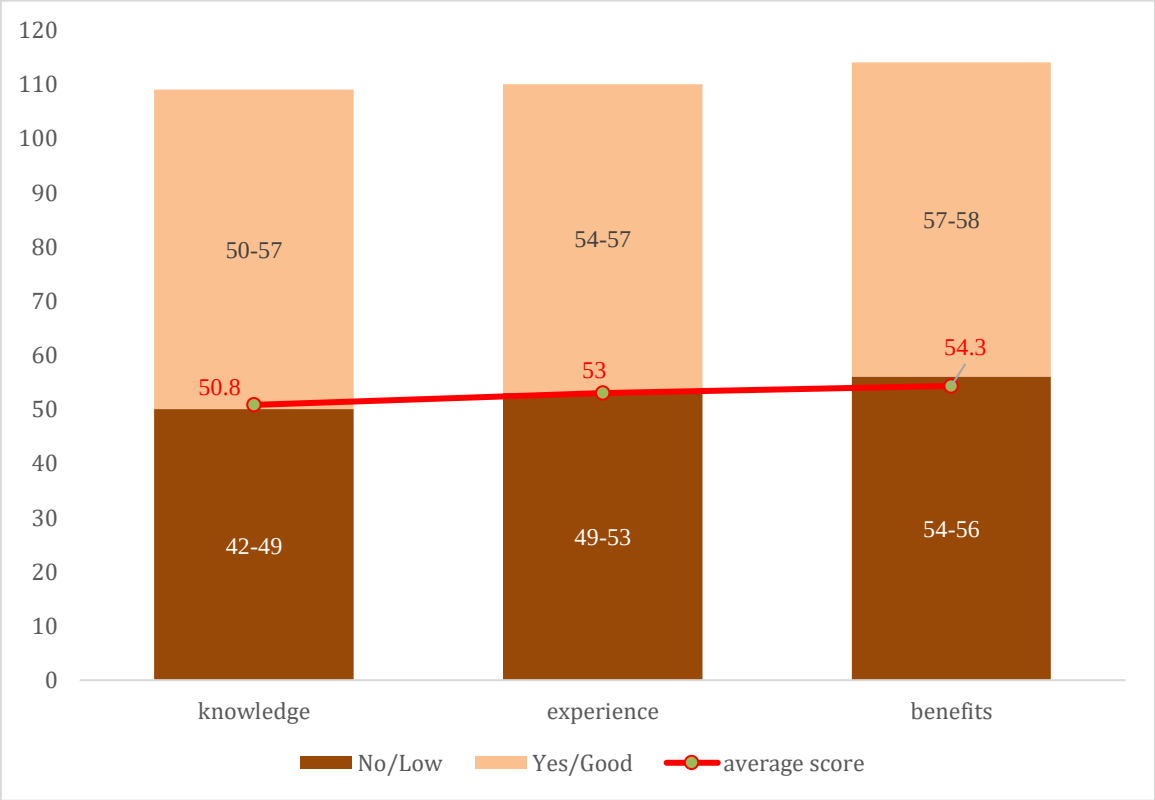

Figure 8: Score of Community Knowledge on White-winged Duck Conservation

Based on the research conducted, it is known that the community has knowledge of White-winged Duck with an average score of 50.8 which is included in the good category. Socialization activities on White-winged Duck conservation were carried out in 2010, with stickers placed on the windows of community houses. However, socialization of the White-winged Duck has not been held again for a long time. Lack of public knowledge regarding the distribution, conservation status, small population numbers of White-winged Duck and its threats, but it does not rule out the possibility that many people show interest in participating in conservation efforts, such as wanting to join conservation programs So, the need for public education such as the holding of socialization and public awareness of White-winged Duck conservation to increase public knowledge, because the community has an important role in conservation (Qodriyatun, 2019; Kushadiwijayanto *et al*, 2023). The importance of public knowledge of White-winged Duck is to avoid threats to protected birds. Previous research by Kurniawan *et al* (2022) mentioned that the poaching of White-winged Duck that threatens its existence is a problem faced in the management of WKNP. The existence of poaching that occurs may be the result of public ignorance of the White-winged Duck, which is a protected bird. The community's experience of the White-winged Duck has an average score of 53 in the low category. According to Setyowati *et al* (2009), community experience with wildlife can increase the sense of community participation in wildlife conservation efforts

such as surveillance and monitoring. Public knowledge of the benefits of White-winged Duck is in the weak category with an average score of 54.3. Birds are one of the components of the ecosystem, which has an influence in the food chain and web system in life and ecosystem components in plants, so this shows that birds have a reciprocal relationship in the ecosystem and are interdependent (Sari, *et al*, 2020). This shows the importance of the presence of birds in a habitat, as well as the White-winged Duck, which is a bird whose habitat is close to swamps (Syarifuddin, 2016). Birds are not only beneficial for the ecosystem but are also beneficial in terms of the community's economy which can be used as a tourist attraction in knowledge. Making birds as a tourist attraction provides benefits in terms of economics to local communities, namely increasing considerable income if managed effectively, and providing conservation benefits for bird species in the area (Harianto, 2021; Nurcahyani *et al*, 2022). It is important for people to understand the benefits of these birds so that they can benefit both ecologically and economically and can preserve birds such as the White-winged Duck.

CONCLUSIONS AND RECOMMENDATIONS

From the results of the above research on public knowledge of White-winged Duck conservation, it can be concluded that the understanding of the villagers of Labuhan Ratu VII, Labuhan Ratu IX, and Braja Harjosari has a good knowledge value of White-winged Duck with an average score of 50.8. The community experience of White-winged Duck has an average score of 53 in the weak category, and the community knowledge of White-winged Duck is in the weak category with an average score of 54.3. Public knowledge affects conservation efforts. Not many people understand White-winged Duck only to the extent that White-winged Duck is the name of a bird species. However, the existence of knowledge, experience and knowledge of the benefits of White-winged Duck owned by the community, can influence and encourage the community in White-winged Duck conservation efforts.

Public knowledge affects conservation efforts, and in this study there were also many people who did not know about the White-winged Duck in terms of its conservation status, threats, and benefits. The existence of public ignorance has an impact on the preservation of White-winged Duck, because understanding affects behavior, awareness, and desire to participate in society. Based on this conclusion, the researcher's suggestion is to hold socialization and public awareness of the White-winged Duck, in order to increase public knowledge of the White-winged Duck which has potential both ecologically and economically, and hopefully the White-winged Duck will be far from any threats and can be preserved.

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