



## RESEARCH PAPER

## OPEN ACCESS

## Awareness and perception on wildlife and conservation of teachers and college students in Los Baños, Laguna Philippines

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### Abstract

The Philippines is considered as a biodiversity hotspot, however, different threats could cause the demise of its biological treasures. One of these threats could be the lack of awareness and the negative perception of the people towards wildlife and conservation. In this study, 303 students and 52 teachers from Laguna State Polytechnic University-Los Baños Campus (LSPU-LBC) were randomly selected to answer a questionnaire designed to assess their awareness and perception towards wildlife and conservation in the Philippines. The results of the study showed that the respondents have poor to intermediate awareness and knowledge about Philippine wildlife and conservation. Moreover, the students have a higher familiarity of randomly selected wildlife species compared to the teachers (T-test;  $p=0.741$ ), and students enrolled under the College of Fisheries have the highest familiarity of the wildlife species (ANOVA;  $p=0.000$ ) compared to students enrolled in other colleges. However, despite the poor awareness of most of the respondents towards Philippine wildlife, the results show that they have a generally positive perception towards the conservation of these animals. This could further mean that the respondents have concern and willingness to conserve the remaining biodiversity in the country.

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## Introduction

The Philippines is rich in terms of its biodiversity. The endemism of the wildlife species in the country is very high relative to its land area. Out of the 928 species of vertebrate animals inhabiting the country, 529 of these are endemics (Galang, 2004), and the number is still increasing due to the discoveries of new species. The high diversity could be attributed to different factors such as the high diversity of the vegetation types, most especially the forests. However, the country's biological treasures are disturbed by different threats such as deforestation, the introduction of the exotic organisms, mining and others. A number of legislations are currently in place in the country for the protection of wildlife and their habitat, including Republic Act 9147 or the Wildlife Resources Conservation and Protection Act of 2001, and Republic Act 7586 or the National Integrated Protected Areas System (NIPAS) Act of 1992 (Senga, 2001).

Aside from the threats mentioned above, the lack of awareness and wrong perceptions of the people towards wildlife could result in the lack of concern for their conservation (Oliver and Heaney, 1996). The lack of local concern could further result in a very low government action against environmentally-degrading human activities. Thus, it is important to assess the awareness and perception of the people towards wildlife. According to Brandon (1995), conservation depends on the local people's perception and attitudes to conservation. Moreover, knowing the perception and attitudes of the people could give insights on how they would comply with the existing wildlife laws and their willingness to co-exist with wildlife species (Mir *et al.*, 2015). Although there are already existing studies on the attitudes or perception of students towards the environment and biodiversity in the Philippines, such as by Lagbas and Habito (2016) and Ricaforte (2012), there are still very limited studies about the awareness and perception of college students and university teachers towards wildlife and conservation in the country.

In line with this, the study aimed to (1) assess the awareness of the graduating college students and teachers in the Laguna State Polytechnic University- Los

Baños (LSPU-LB) on the wildlife species in the Philippines, their habitats, and current programs/laws to conserve them. Moreover, the study also aimed to (2) compare the familiarity on wildlife between students and teachers, and differences between the student's specializations, and (3) to determine the respondents' perception towards wildlife use and conservation. Assessing awareness and perception of wildlife and wildlife concepts is important in management. The results of this study will be able to pinpoint strengths and weaknesses of current information and education programs regarding wildlife, which aspects of these programs to improve upon, and which concepts to emphasize in information dissemination.

## Materials and methods

### Study Area

The study was conducted in the Laguna State Polytechnic University- Los Baños Campus (LSPU-LBC) (14°11'14"N 121°13'52"E) in Barangay Mayondon – Malinta, located in the municipality of Los Baños, Laguna, Philippines, during the month of April 2017. The campus is known for its fishery-related courses; however, other courses such as education, tourism, accounting, business management, criminology and computer science are also offered.

### Data Collection

Before gathering the needed data, a permit was requested from and approved by the campus director of LSPU-LBC, and the respondents were then communicated to the researchers through the Deans' offices with their consent. Only respondents who were 18 years old and above participated in the study. Privacy and confidentiality of the answers were maintained throughout the study.

A total of 355 respondents composed of 303 non-wildlife major college students (50% of the graduating students in the university) and 52 non-wildlife major teachers (approximately 50% of the teacher's population) were randomly selected to participate in this study. The study was not limited to students engaged in science-related courses, but to all graduating students who had already taken basic biology subject/s.

The questionnaire was designed to assess the awareness and perception of non-wildlife major teachers and college students towards the randomly selected wildlife species, and conservation in the country. The questions were designed with simplicity for the comfort of the respondents, and most were “yes” and “no” questions. The total response time of answering the questionnaire was 7-10 minutes.

*Statistical Analysis*

The first part of the questionnaire was designed to have multiple responses, thus the data were represented as a percentage (%) of the total score. Chi-square was used to know the differences between the percentages of the answers by the respondents. This enabled the researchers to know if an answer is more common than the others. Moreover, T-test and ANOVA were used to determine if there are significant mean differences in the number of known wildlife species between teachers and students, and among the student’s field of specialization, respectively. All statistics are significant if  $p < 0.05$ . All statistical tests were analyzed using IBM Statistical Package for Social Sciences (SPSS).

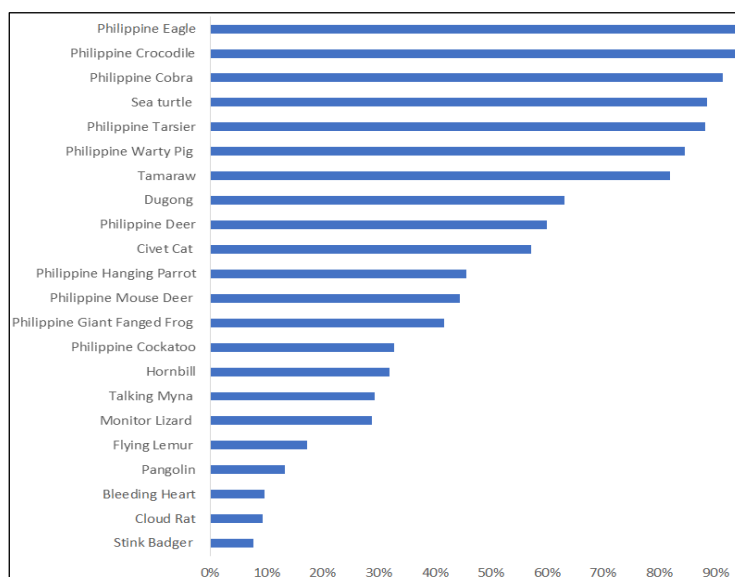
**Results**

*Wildlife and Conservation Awareness*

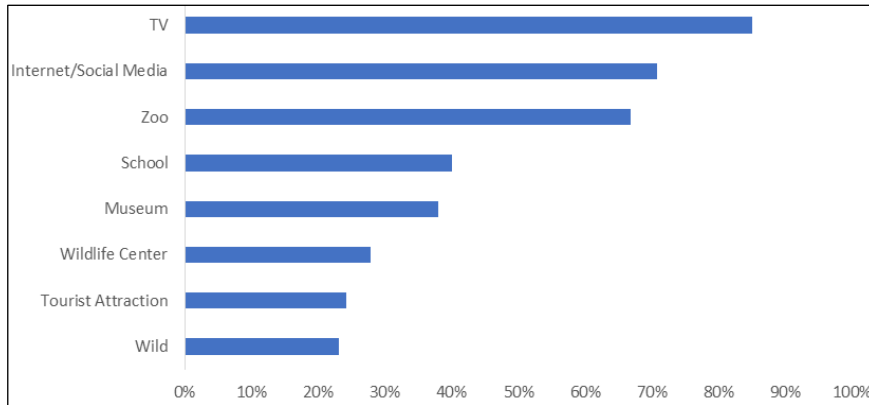
From the multiple-response questions, most of the respondents (more than 80%) were aware of the existence of the Philippine eagle, Philippine crocodile,

Philippine cobra, sea turtles, Philippine tarsiers, Philippine warty pig, and tamaraw. However, out of 22 randomly listed wildlife species in the questionnaire, 12 were assessed to be least known wildlife species by the respondents (less than 50%), which includes cloud rats, bleeding hearts, monitor lizards, etc. (Fig. 1). Moreover, most of the respondents answered that they have seen those animals from television programs and from the internet or social media only, and less have witnessed these animals from the wild (Fig. 2).

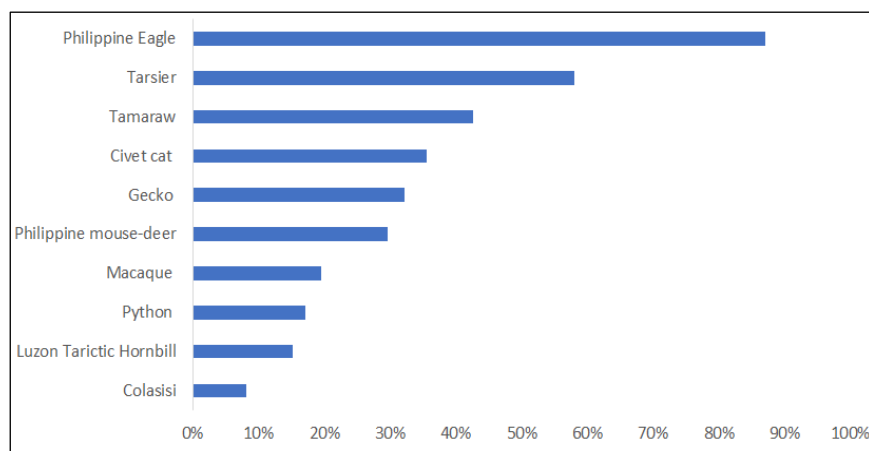
Most of them estimate that 26-50% of the wildlife species in the Philippine are endemic ( $n=167$ ;  $df=3$ ;  $chi\text{-square } p=0.000$ ). When the respondents were asked what are the threatened species listed in Fig. 3, most of the respondents have answered the Philippine Eagle and tarsier. Other wildlife animals listed were assessed by the respondents as not threatened animals. Most of the respondents estimated that 51-75% of the wildlife species in the Philippines are facing the threat of extinction ( $n=157$ ;  $df=3$ ;  $chi\text{-square } p=0.000$ ). Meanwhile, most of the respondents believe that there are only 26-50% of remaining primary forests in the Philippines ( $n=193$ ;  $df=3$ ;  $chi\text{-square } p=0.000$ ) and most of them answered that the deforestation is the main cause of the decline of the number of Philippine wildlife ( $n=122$ ;  $df=4$ ;  $chi\text{-square } p=0.000$ ).



**Fig. 1.** Percentage of the respondents familiar with the randomly selected Philippine wildlife species listed above.



**Fig. 2.** Percentage of each places/media where the respondents saw the wildlife species listed in Fig. 1.



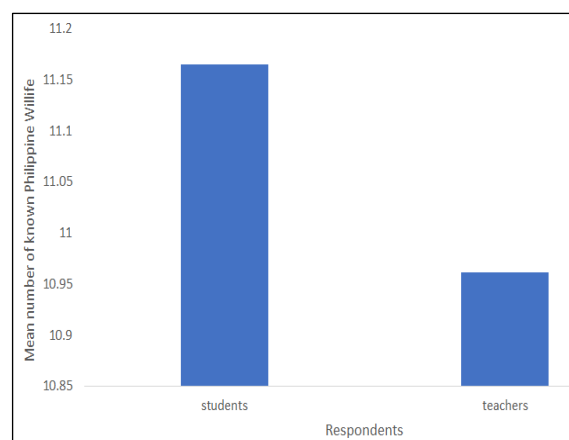
**Fig. 3.** Percentage of respondents who believe that the wildlife species listed above are threatened by extinction.

In terms of conservation agencies and laws, most of the respondents are not familiar with the International Union for the Conservation of Nature (IUCN) (n=265; df=1; chi square p=0.000), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (n=252; df=1; chi square p=0.000) and National Integrated Protected Areas System (NIPAS) Act (n=241; df=1; chi square p=0.000). However, most of them said that they know the Philippine Wildlife Act (n=285; df=1; chi square p=0.000). Many of the respondents were also not aware of the principle of protected area (n=175; df=1; chi square p=0.445) and buffer zones (n=302; df=1; chi square, p=0.000).

*Differences in the Awareness of Philippine Wildlife*

It was observed that from the list of Philippine wildlife species in Fig. 1, the students have higher familiarity compared to the teachers (Fig. 4); however, there was no statistical difference detected

(T-test; p=0.741). From the same list, it was observed that the students under the College of Fisheries (COF) got the highest mean number of known Philippine wildlife (Fig. 5), while the College of Food Nutrition and Dietetics (CFND) got the least (ANOVA; p=0.000).



**Fig. 4.** Difference between students and teachers' familiarity on the Philippine wildlife species listed in Fig. 1. T-test; p=0.741.

### *Perception on Wildlife and Use*

Most of the respondents did not agree to wildlife breeding for the purpose of pet trading ( $n=320$ ;  $df=1$ ; chi square  $p=0.000$ ) as shown in Fig. 6. Moreover, most of the respondents also did not agree to wildlife hunting/capturing for the purpose of food consumption ( $n=268$ ;  $df=1$ ; chi square  $p=0.000$ ), as pets ( $n=228$ ;  $df=1$ ; chi square  $p=0.000$ ) and for selling in the market ( $n=327$ ;  $df=1$ ; chi square  $p=0.000$ ). It was also observed that most of the respondents would not buy wildlife products such as furcoats ( $n=289$ ;  $df=1$ ; chi square  $p=0.000$ ), alternative medicines ( $n=224$ ;  $df=1$ ; chi square  $p=0.000$ ) and decorations for their houses ( $n=308$ ;  $df=1$ ; chi square  $p=0.000$ ).

Aside from wildlife use of humans, majority of the respondents also did not agree to the introduction of exotic wildlife species to control pests ( $n=192$ ;  $df=1$ ; chi-square  $p=0.027$ ). It was also found out that most of them are not in favor of killing potentially dangerous wildlife species, such as crocodiles, even if present or near in their households ( $n=289$ ;  $df=1$ ; chi-square  $p=0.000$ ).

### **Discussion**

From the results of the study, it can be said that the respondents have poor to intermediate knowledge and awareness to the Philippine wildlife. According to Galang (2004), most Filipinos are more familiar with wildlife species from other countries. Although most of them know the iconic species such as the Philippine eagle and Philippine crocodile, most of the listed wildlife species are relatively unknown to them. This could be because crocodiles and the Philippine eagle are often featured on social media and television as representatives for conservation programs, in connection with existing environmental campaigns for the species (van der Ploeg *et al.*, 2011; Salvador and Ibanez, 2006).

Furthermore, most of the respondents are not aware that the endemism in the country is more than 50% (Galang, 2004). Most of them know that most of these species are threatened; however, it was observed from the result that most of them are not aware what are those threatened species.

Similarly, most are not aware that the Philippines have less than 10% remaining natural forests (Posa *et al.*, 2008). Aside from the Philippine Wildlife Act, most of the respondents are not familiar with IUCN, CITES and NIPAS Act. This is probably because there are no subjects focusing on Philippine wildlife in the campus. Moreover, the results of the study could be attributed to the low participation of the respondents to biodiversity-related campaigns (Gandiwa *et al.*, 2014) as there are no or very limited student organizations which focus on biodiversity and conservation in the site.

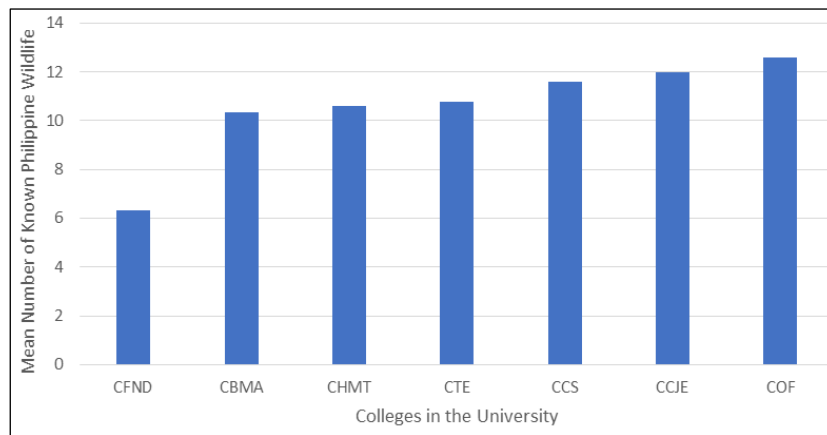
Environmental education in the Philippines is mostly incorporated into different subjects, and not a separate distinct subject (Reyes, 2014). However, the government has already taken some steps to address this, such as the formation of two national networks involved in environmental education: the Environmental Education Network of the Philippines, Inc. (EENP) and the Philippine Association of Tertiary Level Educational Institutions in Environmental Protection and Management (PATLEPAM) (Reyes, 2014). These programs could help elevate the knowledge and awareness of students and teachers in the country.

On the other hand, the familiarity of students on the Philippine wildlife was higher compared to that of the teachers but not statistically different (T-test;  $p=0.741$ ). This could be the result of the higher use rate of the internet or social media by the students compared to their teachers, which was reported in this study to provide higher information (Fig. 2) about the Philippine wildlife species listed in Fig. 1. Today, the internet has already changed the awareness of the people on biodiversity and conservation by providing easy access to videos, photographs and other materials featuring wildlife issues, trades, and conservation practices (Bisby, 2000). Additionally, there was a significant difference (ANOVA;  $p=0.000$ ) on the number of wildlife species the students are familiar with in relation to the college they are connected. It was observed that the students under the College of Fisheries have higher familiarity on the wildlife species (Fig. 5) from the list given in Fig. 1.

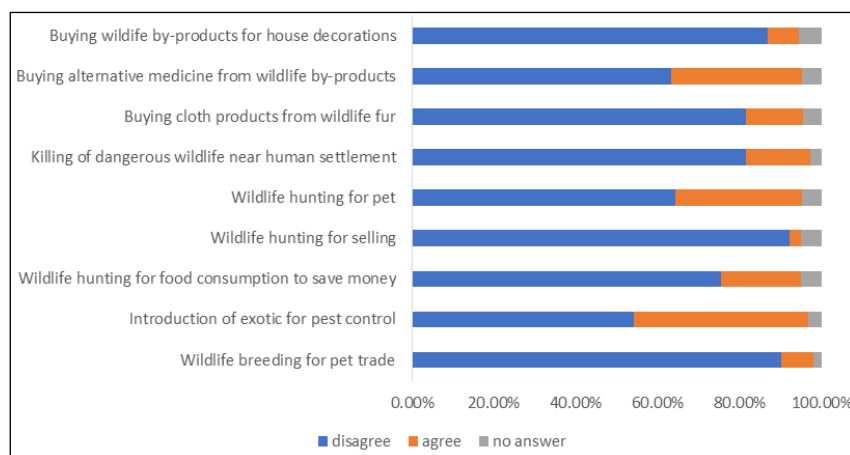
This might be because the students in the college are more inclined to science-related topics, which makes them familiar to animals in the Philippines. However, this should be further investigated. The result could imply that the educational affiliation and background of students could affect their awareness and knowledge of wildlife and conservation.

Despite the poor to intermediate awareness and knowledge of the respondents towards Philippine wildlife and conservation, it was observed that most of them have a generally positive perception towards wildlife and conservation (Fig. 6). This was also observed in the study of Sia Su (2008) where there was a positive perception of college students towards

the environment. Studies from outside the country show the same positive perception of local people towards wildlife and conservation, such as in Zimbabwe (Gandiwa *et al.*, 2014) and in Kashmir Valley, India (Mir *et al.*, 2015). This is an encouraging result for conservationists as the respondents have already developed concern for the survival of our own wildlife. The positive results could be the outcome of the lesser human-wildlife conflict in the area of LSPU-LBC or from the respondents' respective hometowns. From other studies where the conflict is intense, negative perception to wildlife has been reported (Ehua *et al.*, 2011), thus making it hard to achieve a successful conservation management plan for the wildlife species in those areas.



**Fig. 5.** Differences among students' familiarity on the Philippine wildlife species listed in Fig. 1. ANOVA;  $p=0.000$ . Legend: College of Food Nutrition and Dietetics (CFND), College of Business Management and Accountancy (CBMA), College of Hospitality Management and Tourism (CHMT), College of Teacher Education (CTE), College of Computer Studies (CCS), College of Criminal Justice Education (CCJE) and College of Fisheries (COF).



**Fig. 6.** The response of the students (in percentage) if they agree or disagree on the cases mentioned in the Fig.

## Conclusion

In this study, most of the respondents have poor to intermediate knowledge and awareness toward the Philippine wildlife species listed in the questionnaire, and most of them have seen them on television and the internet only. It was also observed that the students have higher familiarity on the wildlife species from the given questionnaire compared to the teachers, but the result was statistically insignificant. Furthermore, students enrolled in the College of Fisheries have the highest familiarity with the given wildlife species. Most of the respondents are not aware that the Philippines has more than 50% endemic wildlife species, and there are only less than 10% remaining primary forests in the country. Aside from these, most of the respondents are not familiar with IUCN, CITES and NIPAS law, but are familiar with the Philippine Wildlife Act. Even with the poor to intermediate awareness and knowledge of the respondents towards wildlife and conservation in the Philippines, it was observed that they showed positive perception of the wildlife species in the country.

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