



Open Access





## Publisher

**Wildlife Information Liaison Development Society**[www.wild.zooreach.org](http://www.wild.zooreach.org)

Host

**Zoo Outreach Organization**[www.zooreach.org](http://www.zooreach.org)

43/2 Varadarajulu Nagar, 5<sup>th</sup> Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India  
Registered Office: 3A2 Varadarajulu Nagar, FCI Road, Ganapathy, Coimbatore, Tamil Nadu 641006, India  
Ph: +91 9385339863 | [www.threatenedtaxa.org](http://www.threatenedtaxa.org)  
Email: sanjay@threatenedtaxa.org

**EDITORS****Founder & Chief Editor****Dr. Sanjay Molur**Wildlife Information Liaison Development (WILD) Society & Zoo Outreach Organization (ZOO),  
43/2 Varadarajulu Nagar, 5<sup>th</sup> Street West, Ganapathy, Coimbatore, Tamil Nadu 641006, India**Deputy Chief Editor****Dr. Neelesh Dahanukar**

Noida, Uttar Pradesh, India

**Managing Editor****Mr. B. Ravichandran**, WILD/ZOO, Coimbatore, Tamil Nadu 641006, India**Associate Editors****Dr. Mandar Paingankar**, Government Science College Gadchiroli, Maharashtra 442605, India**Dr. Ulrike Streicher**, Wildlife Veterinarian, Eugene, Oregon, USA**Ms. Priyanka Iyer**, ZOO/WILD, Coimbatore, Tamil Nadu 641006, India**Dr. B.A. Daniel**, ZOO/WILD, Coimbatore, Tamil Nadu 641006, India**Editorial Board****Dr. Russel Mittermeier**

Executive Vice Chair, Conservation International, Arlington, Virginia 22202, USA

**Prof. Mewa Singh Ph.D., FASc, FNA, FNAsc, FNAPsy**

Ramanna Fellow and Life-Long Distinguished Professor, Biopsychology Laboratory, and Institute of Excellence, University of Mysore, Mysuru, Karnataka 570006, India; Honorary Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore; and Adjunct Professor, National Institute of Advanced Studies, Bangalore

**Stephen D. Nash**

Scientific Illustrator, Conservation International, Dept. of Anatomical Sciences, Health Sciences Center, T-8, Room 045, Stony Brook University, Stony Brook, NY 11794-8081, USA

**Dr. Fred Pluthero**

Toronto, Canada

**Dr. Priya Davidar**

Sigur Nature Trust, Chadapatti, Mavinahalli PO, Nilgiris, Tamil Nadu 643223, India

**Dr. Martin Fisher**

Senior Associate Professor, Battcock Centre for Experimental Astrophysics, Cavendish Laboratory, JJ Thomson Avenue, Cambridge CB3 0HE, UK

**Dr. John Fellowes**

Honorary Assistant Professor, The Kadoorie Institute, 8/F, T.T. Tsui Building, The University of Hong Kong, Pokfulam Road, Hong Kong

**Prof. Dr. Mirco Solé**

Universidade Estadual de Santa Cruz, Departamento de Ciências Biológicas, Vice-coordenador do Programa de Pós-Graduação em Zoologia, Rodovia Ilhéus/Itabuna, Km 16 (45662-000) Salobrinho, Ilhéus - Bahia - Brasil

**Dr. Rajeev Raghavan**

Professor of Taxonomy, Kerala University of Fisheries &amp; Ocean Studies, Kochi, Kerala, India

**English Editors****Mrs. Mira Bhojwani**, Pune, India**Dr. Fred Pluthero**, Toronto, Canada**Mr. P. Ilangovan**, Chennai, India**Ms. Sindhura Stothra Bhashyam**, Hyderabad, India**Web Development****Mrs. Latha G. Ravikumar**, ZOO/WILD, Coimbatore, India**Typesetting****Mrs. Radhika**, ZOO, Coimbatore, India**Mrs. Geetha**, ZOO, Coimbatore India**Fundraising/Communications****Mrs. Payal B. Molur**, Coimbatore, India**Subject Editors 2020–2022****Fungi****Dr. B. Shivaraju**, Bengaluru, Karnataka, India**Dr. R.K. Verma**, Tropical Forest Research Institute, Jabalpur, India**Dr. Vatsavaya S. Raju**, Kakatiya University, Warangal, Andhra Pradesh, India**Dr. M. Krishnappa**, Jnana Sahyadri, Kuvenpu University, Shimoga, Karnataka, India**Dr. K.R. Sridhar**, Mangalore University, Mangalagangotri, Mangalore, Karnataka, India**Dr. Gunjan Biswas**, Vidyasagar University, Midnapore, West Bengal, India**Dr. Kiran Ramchandra Ranadive**, Anna Sahab Magar Mahavidyalaya, Maharashtra, India**Plants****Dr. G.P. Sinha**, Botanical Survey of India, Allahabad, India**Dr. N.P. Balakrishnan**, Ret. Joint Director, BSI, Coimbatore, India**Dr. Shonil Bhagwat**, Open University and University of Oxford, UK**Prof. D.J. Bhat**, Retd. Professor, Goa University, Goa, India**Dr. Ferdinand Boero**, Università del Salento, Lecce, Italy**Dr. Dale R. Calder**, Royal Ontario Museum, Toronto, Ontario, Canada**Dr. Cleofas Cervancia**, Univ. of Philippines Los Baños College Laguna, Philippines**Dr. F.B. Vincent Florens**, University of Mauritius, Mauritius**Dr. Merlin Franco**, Curtin University, Malaysia**Dr. V. Irudayaraj**, St. Xavier's College, Palayamkottai, Tamil Nadu, India**Dr. B.S. Kholia**, Botanical Survey of India, Gangtok, Sikkim, India**Dr. Pankaj Kumar**, Department of Plant and Soil Science, Texas Tech University, Lubbock, Texas, USA**Dr. V. Sampath Kumar**, Botanical Survey of India, Howrah, West Bengal, India**Dr. A.J. Solomon Raju**, Andhra University, Visakhapatnam, India**Dr. Vijayasankar Raman**, University of Mississippi, USA**Dr. B. Ravi Prasad Rao**, Sri Krishnadevaraya University, Anantapur, India**Dr. K. Ravikumar**, FRLHT, Bengaluru, Karnataka, India**Dr. Aparna Watve**, Pune, Maharashtra, India**Dr. Qiang Liu**, Xishuangbanna Tropical Botanical Garden, Yunnan, China**Dr. Noor Azhar Mohamed Shazili**, Universiti Malaysia Terengganu, Kuala Terengganu, Malaysia**Dr. M.K. Vasudeva Rao**, Shiv Ranjan Housing Society, Pune, Maharashtra, India**Prof. A.J. Solomon Raju**, Andhra University, Visakhapatnam, India**Dr. Mander Datar**, Agharkar Research Institute, Pune, Maharashtra, India**Dr. M.K. Janarthanam**, Goa University, Goa, India**Dr. K. Karthigeyan**, Botanical Survey of India, India**Dr. Errol Vela**, University of Montpellier, Montpellier, France**Dr. P. Lakshminarasiham**, Botanical Survey of India, Howrah, India**Dr. Larry R. Noblick**, Montgomery Botanical Center, Miami, USA**Dr. K. Haridasan**, Pallavur, Palakkad District, Kerala, India**Dr. Analinda Manila-Fajard**, University of the Philippines Los Baños, Laguna, Philippines**Dr. P.A. Siru**, Central University of Kerala, Kasaragod, Kerala, India**Dr. Afroz Alam**, Banasthali Vidyapith (accredited A grade by NAAC), Rajasthan, India**Dr. K.P. Rajesh**, Zamorin's Guruvayurappan College, GA College PO, Kozhikode, Kerala, India**Dr. David E. Boufford**, Harvard University Herbaria, Cambridge, MA 02138-2020, USA**Dr. Ritesh Kumar Choudhary**, Agharkar Research Institute, Pune, Maharashtra, India**Dr. A.G. Pandurangan**, Thiruvananthapuram, Kerala, India**Dr. Navendu Page**, Wildlife Institute of India, Chandrabani, Dehradun, Uttarakhand, India**Dr. Kannan C.S. Warrier**, Institute of Forest Genetics and Tree Breeding, Tamil Nadu, India**Invertebrates****Dr. R.K. Avasthi**, Rohtak University, Haryana, India**Dr. D.B. Bastawade**, Maharashtra, India**Dr. Partha Pratim Bhattacharjee**, Tripura University, Suryamaninagar, India**Dr. Kailash Chandra**, Zoological Survey of India, Jabalpur, Madhya Pradesh, India**Dr. Ansie Dippenaar-Schoeman**, University of Pretoria, Queenswood, South Africa**Dr. Rory Dow**, National Museum of natural History Naturalis, The Netherlands**Dr. Brian Fisher**, California Academy of Sciences, USA**Dr. Richard Gallon**, Ilandudno, North Wales, LL30 1UP**Dr. Hemant V. Ghate**, Modern College, Pune, India**Dr. M. Monwar Hossain**, Jahangirnagar University, Dhaka, BangladeshFor Focus, Scope, Aims, and Policies, visit [https://threatenedtaxa.org/index.php/JoTT/aims\\_scope](https://threatenedtaxa.org/index.php/JoTT/aims_scope)For Article Submission Guidelines, visit <https://threatenedtaxa.org/index.php/JoTT/about/submissions>For Policies against Scientific Misconduct, visit [https://threatenedtaxa.org/index.php/JoTT/policies\\_various](https://threatenedtaxa.org/index.php/JoTT/policies_various)

continued on the back inside cover

Cover: Emperor Tamarin *Saguinus imperator*: a look into a better world through the mustache lens – mixed media illustration. © Maya Santhanakrishnan.



## Philippine Warty Pig *Sus philippensis* Nehring, 1886: level of awareness and conservation practices in Datal Bad, West Lamidan, Don Marcelino, Davao Occidental, Philippines

Pedro M. Avenido 

Institute of Professional and Graduate Studies (IPGS), Southern Philippines Agri-business Marine and Aquatic School of Technology (SPAMAST), 8012 Poblacion, Malita, Davao Occidental, Philippines.  
edoy65@yahoo.com

**Abstract:** The Philippines is a biodiversity hotspot with four endemic wild pig species. The Philippine Warty Pig is a medium to large size mammal that is usually solitary. They commonly exhibit crop raiding behavior, and hunting by farmers and poachers decreases populations of this species, which is listed as 'Vulnerable' in the IUCN Red List of Threatened Species. This study was conducted to determine the level of awareness of Philippine Warty Pig conservation practices among locals in sitio Datal Bad, West Lamidan, Don Marcelino Davao Occidental, Philippines. Responses (N = 50) were gathered by a survey questionnaire. Respondents were highly aware of Philippine Warty Pigs and policies toward wildlife conservation. They reported hunting pigs using air guns 'sorit', bow and arrow 'papana', harpoon 'bangkaw', and snare 'lit-ag'. The respondents added that they performed religious rituals and farming that may pose threats to Philippine Warty Pigs. They also manifested a willingness to work with government and academic institutions to enhance knowledge about conservation of pigs and other wildlife in their locality.

**Keywords:** Biodiversity, bow and arrow, conservation, endemic, harpoon, hunting, indigenous people, snare, threats, wildlife.

**Filipino:** Ang Pilipinas ay isang biodiversity hotspot na may apat na endemikong uri ng baboy sa gubat. Ang Philippine Warty Pig ay isang hayop na karaniwang malaki ang sukat na kadalasang nag-iisa. Karaniwan silang nangunguna sa pagnanakaw sa pananim, at ang pangangaso ng mga magsasaka at mangangaso ay nagpapababa sa populasyon ng uri na ito, na nasa listahan bilang 'Vulnerable' sa IUCN Red List ng mga Nanganganib na Uri. Isinagawa ang pag-aaral na ito upang matukoy ang antas ng kamalayan sa mga patakaran ng konservasyon ng Philippine Warty Pig sa mga lokal sa sitio Datal Bad, West Lamidan, Don Marcelino Davao Occidental, Pilipinas. Ang mga Tugon (N = 50) ay nakuha sa pamamagitan ng isang survey questionnaire. Ang mga respondente ay lubos na may kamalayan sa mga Philippine Warty Pigs at sa mga patakaran patungkol sa konservasyon ng wildlife. Nag-ulat sila ng pangangaso ng mga baboy gamit ang mga baril na 'sorit', pana at panaan na 'papana', harpoon na 'bangkaw', at bitag na 'lit-ag'. Nagdagdag ang mga respondente na kanilang isinasagawa ang relihiyosong ritwal at pagsasaka na maaaring magdulot ng panganib sa mga Philippine Warty Pigs. Nagpahayag din sila ng kagustuhan makipagtulungan sa pamahalaan at mga akademikong institusyon upang mapalawak ang kaalaman tungkol sa konservasyon ng mga baboy at iba pang wildlife sa kanilang lugar.

**Editor:** Matt Ward, Talarak Foundation, Inc., Kabankalan, Philippines.

**Date of publication:** 26 June 2024 (online & print)

**Citation:** Avenido, P.M. (2024). Philippine Warty Pig *Sus philippensis* Nehring, 1886: level of awareness and conservation practices in Datal Bad, West Lamidan, Don Marcelino, Davao Occidental, Philippines. *Journal of Threatened Taxa* 16(6): 25305-25317. <https://doi.org/10.11609/jott.8703.16.6.25305-25317>

**Copyright:** © Avenido 2024. Creative Commons Attribution 4.0 International License. JoTT allows unrestricted use, reproduction, and distribution of this article in any medium by providing adequate credit to the author(s) and the source of publication.

**Funding:** The study was not funded by any funding agency.

**Competing interests:** The author declares no competing interests.

**Author details:** PEDRO M. AVENIDO is a full-time associate professor of the Southern Philippines Agri-business and Marine and Aquatic School of Technology (SPAMAST), currently designated as the graduate school dean, former member of the SPAMAST board of trustee and a member of the Bids and Awards Committee of the College. He has several publications in peer-reviewed journals focusing of marine science, fisheries, agriculture and biodiversity. He finished his master's degree at Silliman University, Dumaguete City, Philippines and his doctor of Philosophy in University of the Philippines Visayas-Miag-ao Campus, Iloilo, Philippines. At present, he spends his time as a senior researcher and mentor to the younger generation of SPAMAST researchers.

**Acknowledgements:** The researcher would like to thank the barangay local government unit of West Lamidan, residents in sitio Datal Bad that were surveyed for their cooperation and willingness to be part of the study. The same gratitude is also extended to SPAMAST for allowing this study to be conducted.



## INTRODUCTION

The Philippines is one of the world's biodiversity hotspots, with four endemic wild pig species: three warty pigs and one bearded pig (Cariño 1998; Meijaard & Melletti 2017). As mentioned in the study of Villegas et al. (2022), the warty pigs *Sus cebifrons* (Heude, 1888), *Sus oliveri* (Groves, 1997), *Sus philippensis* (Nehring, 1886), and the Palawan Bearded Pig *Sus ahoenobarbus* (Huet, 1888) can be found in the islands of Luzon, Visayas, Palawan, and Mindanao. *S. philippensis* morphological characteristics comprise of commonly black with grey colored fur and a pale snout band. They also have long full crown tuft and nuchal mane extended along the back of a male Philippine warty pigs with pairs of warts and gonial tufts (Meijaard & Melletti 2017; Cabanas et al. 2022;). This large to medium sized mammal is usually found in solitary or with their young in areas where there is an open canopy, near clearings like plantations, trees with smaller DBH, areas with abundance of fruits, and adjacent to streams which the warty pigs can access easily (Cabanas et al. 2022; Villegas et al. 2022; Gamalo et al. 2023).

The warty pigs is known to raid crops, and farmers tend to hunt them which drives the population of this species to decrease (Cabanas et al. 2022). Aside from hunting and poaching, some threats to Philippine warty pigs that contributed to its decline are habitat destruction, pathogens (African Swine Fever Virus), and hybridization (Blouch 1995; Villegas et al. 2022; Gamalo et al. 2023). With these risks, the Philippine Red List Committee (PRLC) and the International Union for Conservation of Nature (IUCN) Red List for Threatened Species have categorized *S. philippensis* as 'Vulnerable' (Meijaard & Melletti 2017; DENR-BMB 2020). In the report of Oliver (1995), wild pig populations in Davao Region are declining and very rarely seen in Mt. Apo. In the surrounding areas of Mt. Apo, various ethnicity exists with high potential for hunting warty pigs is observed as they only know that hunting is illegal only for charismatic species such as Philippine Eagle. Accordingly, RA 8371 or the Indigenous Peoples Right Act and RA 9147 or the Wildlife Resources Conservation and Protection Act clearly stated that utilization of wild animals for tradition and culture is permitted. But in the case of the warty pigs which is already considered as vulnerable, RA 9147 does not allow the use of vulnerable animals like the warty pigs to be utilized in any traditional or cultural practices to protect its declining population. However, hunting as tradition and lack of awareness as to the status of the warty pigs is one of the leading causes of population

decline in the region (Tanalgo 2017).

Field investigation into specific environmental requirement, population structure, reactions to hunting strain, and commercial logging, are the some of the key factors that played an important role in the conservation of warty pigs (Blouch 1995). Highlighting in this paper is the Philippine Warty Pig *S. philippensis* which is reported to have sightings in Datal Bad West Lamidan, Don Marcelino, Davao Occidental especially in cultivated areas where vegetables and root crops were planted (P. Avenido pers. comm., March 8, 2023). Accordingly, a study by Cosico et al. (2017) stated that Philippine Warty Pig's main diet is composed of root crops, vegetables, fruits, and invertebrates which explains the sightings of warty pigs in West Lamidan. Given its occurrence in the area, no study related to its protection and conservation were done though communities mentioned that they safeguarded this species as it is said to be a natural resource in their land. To address this gap, this current paper aimed to determine the level of awareness and identify local conservation practices of the locals in Datal Bad West Lamidan, Don Marcelino, Davao Occidental about the Philippine Warty Pig.

## METHODS

### Study area

This study was conducted in Datal Bad, West Lamidan, Don Marcelino, Davao Occidental (Figure 1). Datal Bad is situated approximately along 6.092578 N and 125.654225 E. The areas have an estimated elevation of 1,448.5 m (4,752.2 ft). Its population as of 2022 was 113 individuals comprising two indigenous groups namely the B'laan & Manobo, living and sharing the same culture. The study site is approximately 3.3 km from the barangay proper of West Lamidan and about 4.8 km from Don Marcelino. The main source of livelihood among the tribes is farming. They cultivate crops like corn, cassava, bananas, and abaca. The crops they produce are mainly for consumption while some are sold to merchants at the barangay site including the fiber produced from abaca. Datal Bad nested along the side of the forest and is not accessible to any mode of transportation, even horses. In marketing the farm produce, the tribes used to carry them along the slopes of the mountains to the barangay site passing through the fast-flowing river.

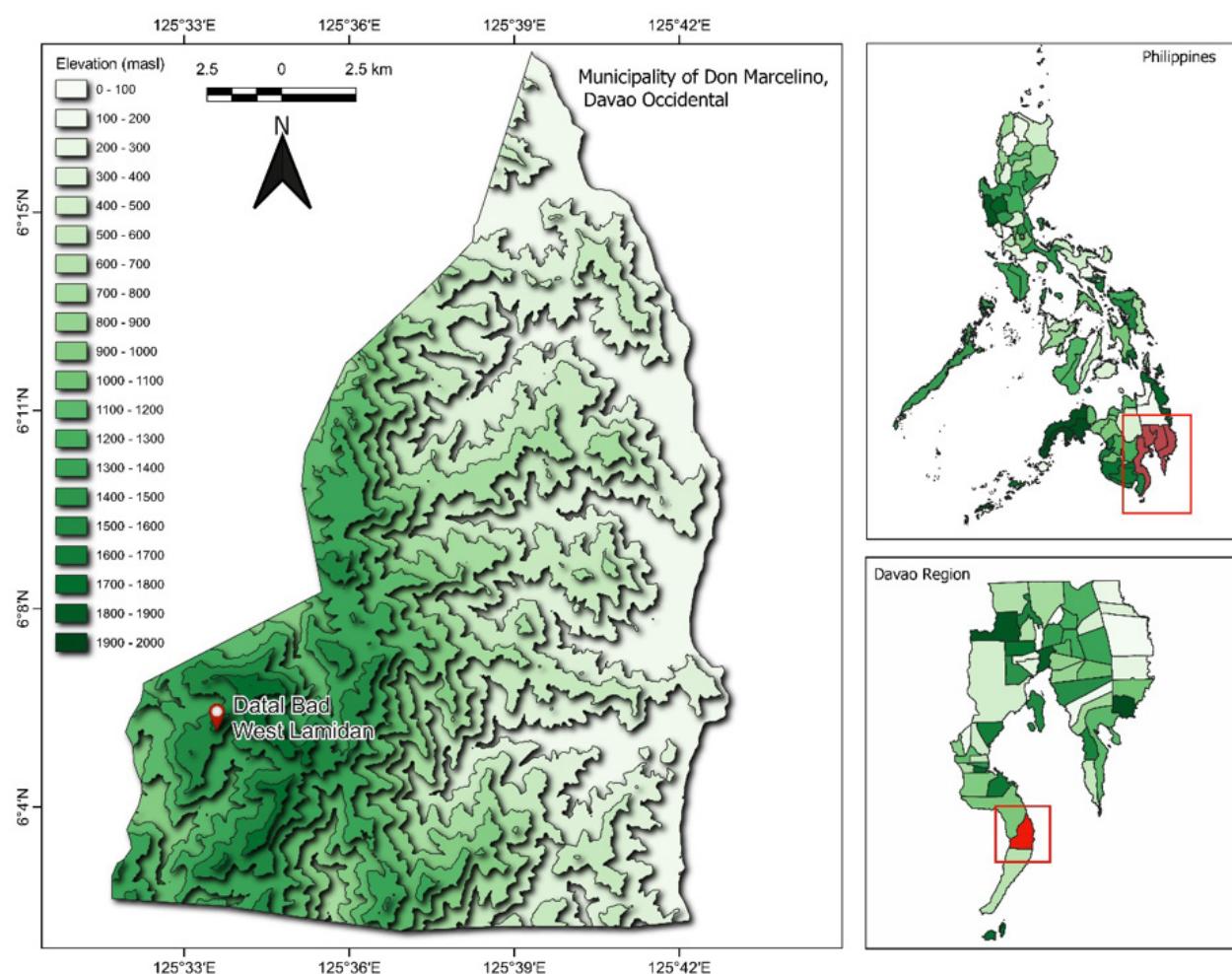
### Research Design and Instrument

This study utilized a qualitative research design to examine the current state of Philippine Warty Pig conservation practices among the tribes in Datal Bad, West Lamidan. Descriptive research design was used to analyze the data from the survey questionnaire (Sedlock 2010) relative to the main purpose of the study. An adopted questionnaire formulated by Sedlock (2010) was used to gather information in the study site. The respondents considered in the study are residents of Datal Bad. Information collected includes respondents' demographic profile, hunting preferences, number of people who went to hunt, hunting methods, reasons of hunting, level of awareness, and conservation practices. The benchmark statements on the level of awareness on Philippine warty pig conservation among the residents in the study were rated using the Likert scale (Table 1).

The common human activities related to Philippine warty pig, the scale below was used to interpret the

**Table 1. Scoring guide in the analysis of the response for the level of awareness on Philippine Warty Pig.**

Range of Means	Scale	Description	Interpretation
3.3–4.0	4	Highly Aware	Indicators relating to the level of awareness on Philippine warty pig conservation practices are always employed. The level of awareness is fully manifested.
2.5–3.2	3	Aware	Indicators relating to the level of awareness on Philippine warty pig conservation practices are oftentimes employed. The level of awareness is manifested.
1.8–2.4	2	Unaware	Indicators relating to the level of awareness on Philippine warty pig conservation practices are moderately employed. The level of awareness is sometimes manifested.
1.0–1.7	1	Highly Unaware	Indicators relating to the level of awareness on Philippine warty pig conservation practices are seldom employed. The level of awareness is somehow manifested.



**Figure 1. Digital elevation map of Don Marcelino, Davao Occidental.**

responses of the respondents.

### Respondents of the Study

An opportunistic randomly selected residents of the study site were surveyed. Simple random technique was used to identify respondents of the study out of the total population of Datal Bad (more than 10% of the entire population of the study area). Respondents were 15 years old and above. No sex preference as long as they reside in Datal Bad and have knowledge on Philippine warty pigs.

### Data Analysis and Ethical Consideration

The data collected were analyzed using descriptive statistics such as frequency count, percentage, and mean. Mean is the measure of center or average and the most recognized type of descriptive statistics. It was used to repurpose hard-to-understand quantitative insights across a large data set into bite-sized descriptions. Mean was used to determine the average of quantitative data. It was calculated by adding all the figures within the data set and then dividing by the number of figures within the set.

The responsibility of the researcher in this study was to ensure that the respondents are well cared for during and after the conduct of the study. Therefore, the researcher made coordination with the tribal and indigenous leaders prior to the entry and survey proper. The researcher explained and elaborated to respondents the objectives of the study and the purpose of the visit. This helped ensure the researcher would bring no harm or danger to the respondents, their place, and community. This etiquette followed a set of ethical consideration to protect the participants (British Psychological Society 2000).

## RESULTS AND DISCUSSION

### Socio-Demographic and Socio-Economic Characteristics of Respondents

The socio-demographic and socio-economic variables may influence awareness on hunting Philippine warty pig and its conservation practices. In addition, the extent of awareness of these practices and attitudes towards them are significantly affected by age, gender, and level of education. Increasing knowledge is associated with more positive attitudes toward conservation. This conforms to the findings of Prokop (2009) that males showed greater knowledge of wildlife than women. Likewise, knowledge of wildlife conservation issues

appears to be more extensive among men who are household heads and among people who own more livestock and, therefore, have higher economic status in the community.

Based on the interview, some indigenous group in the area are non-law abiders but they are the most knowledgeable about the wildlife. Poverty and lack of permanent job drives indigenous communities to hunt wildlife and exploiting possible resources that the environment could offer.

### Demographic Characteristics of Respondents

The demographic profile of the respondents in the study is presented in (Figure 2). In terms of age, respondents at the age bracket of 29–37 years old dominated which accounted 38% followed by 20–28 years of age (22.0%). The age group with lowest percentage was observed in the age bracket of 65–73 years old at 6.0% (Fig. 2A). With regards to gender, the male respondents dominated over female respondents with 68.0% and 32.0%, respectively (Figure 2B). This result revealed that male is more knowledgeable and aware in the existence and status of Philippine warty pig, with this, the result of the survey is more accurate. However, the information generated from women are still valid and acceptable since they also have knowledge on the Philippine warty pig in the area. Male are more engaged into hunting as they are responsible for supporting their families' necessities such as food and income while female is commonly supporting their husband doing the routinary household chores. On the other hand, with respect to the number of siblings among the respondents, it was evident that each household has siblings ranged from 1–9 per household. Most respondents belonged to a household consist of nine individuals which is very common in a Filipino family despite its economic status (Figure 2C). Moreover, as to the educational attainment of the respondents (Figure 2D), there are 37 of them who are in the elementary level (74.0%) while 22.0% have graduated elementary. Furthermore, among the respondents, only one have reached high school (2.0%), and have finished high school (2.0%), respectively.

Figure 3 depicted the employment of the respondents. Results demonstrated that most of the respondents were farmers which accounted 68.0% while some of them earned a living being a paid laborer (14.0%). There were female respondents who earned as vendor whereas the lowest value was attributed to the carpenter with 2.0%. In terms of the monthly income of the respondents (Figure 4), Majority of the respondents

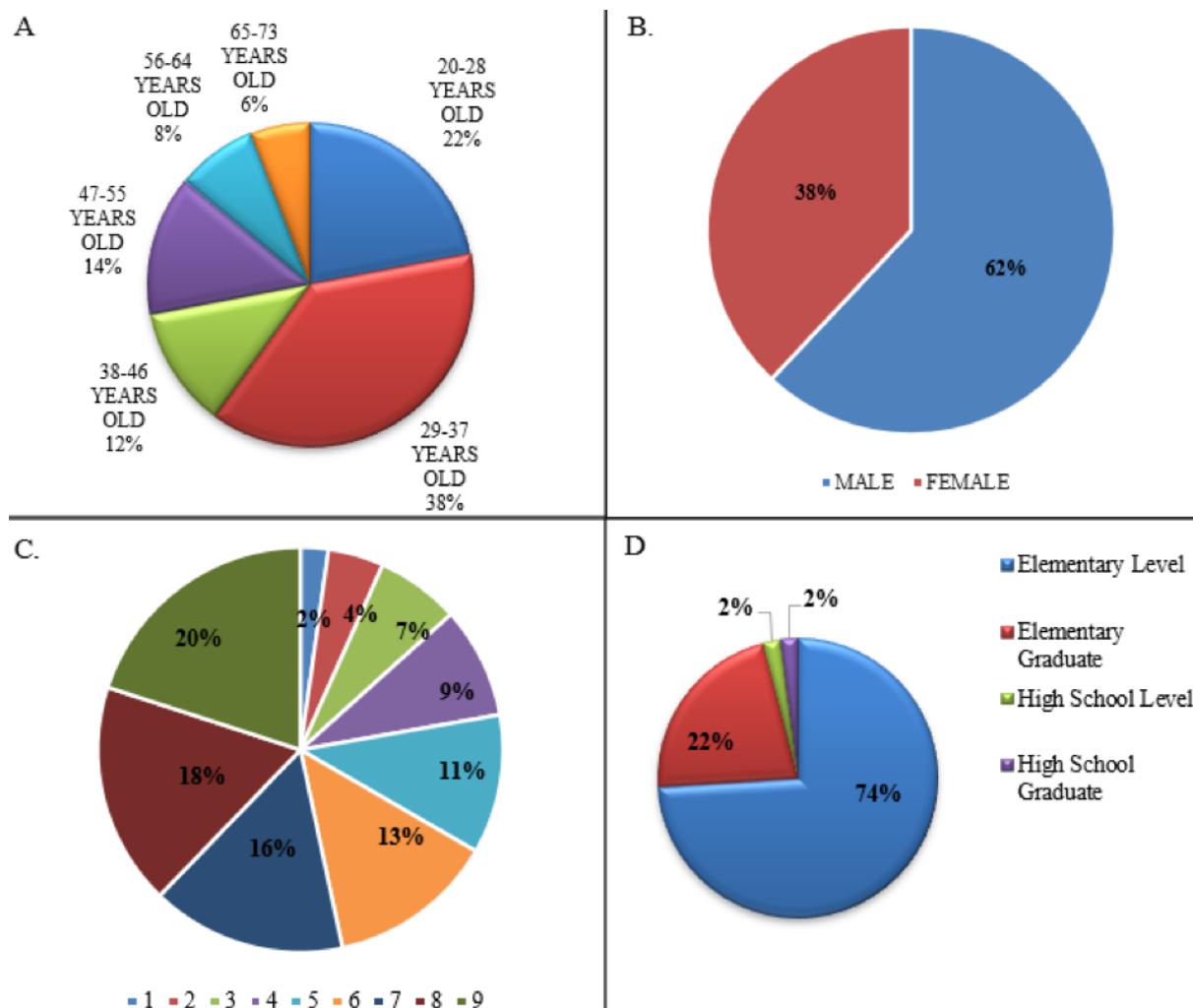


Figure 2. A—Age | B—gender | C—number of siblings | D—level of education of the respondents.

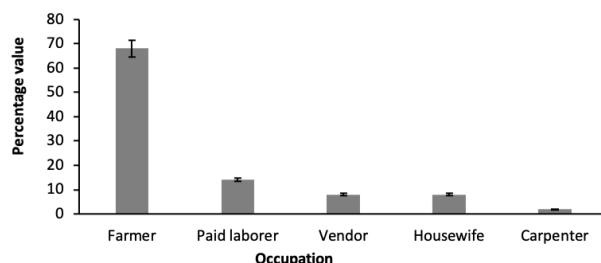
(60%) have a monthly income of below PHP 3,000.00 followed by those who earned PHP 3,001.00–PHP 7,000.00 (36.0%) monthly, whereas 4.0% had an income of PHP 7,001–11,000 per month. Moreover, none of the respondents in Datal Bad earned more 11,000 pesos a month.

#### Common activities of the locals in Datal Bad

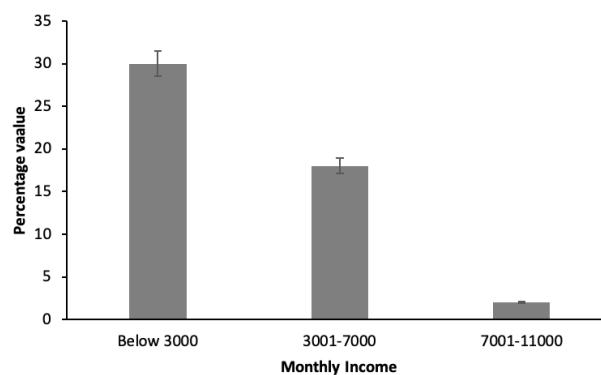
The several activities of the locals in Datal Bad in relation to Philippine warty pig is presented in Table 3. Respondents confirmed that they are doing activities that posed threat to Philippine Warty Pig. They always hunt for food, medicine or even as pet. As part of the tradition and local belief of the respondents, having the Philippine warty pig as pet will make them famous as these animals were very rare. Although, they already knew laws of the government in protecting wildlife, but they don't follow the policies and did not practice

on how to conserve Philippine Warty Pig. Due to poverty and their need for food, some of them lead to hunt wildlife resources present in the area and even sometimes they leave waste inside the forest. These may be because of no strong existing policy or ordinance in local adapting national laws in protecting wildlife. The respondent's involvement in hunting and disregarding the policies set by the National Wildlife Conservation clearly demonstrate that the local community lacks effective wildlife conservation practices.

According to the community the diversity indices of wildlife of Datal Bad are high. In spite of this, possible threat and disturbances due to human activities might hamper Philippine warty pig population and diversity of the area in general. Some practices such as military visits, excessive & unregulated tourism, and hunting might affect its population. Also, the application of chemicals to minimize the population insect pest for



**Figure 3.** The socio-economic characteristics of the respondents in terms of their occupation.



**Figure 4.** The socio-economic characteristics of the respondents in terms of their monthly income.

farming are likely to affect the current population and species composition in the forest of Datal Bad.

The researcher interviewed 50 respondents and 94.0% of them said that they were willing to work with Municipal Environmental and Natural Resources Office (MENRO), researchers, and academic institutions to manage well, protect, and to conserve warty pigs in the area and 4.0% are not willing. Also, only 2.0% was undecided to work with MENRO. In consonance to this, the respondents needed the government support, concrete road, policy enhancement, and the support from the community to make local conservation practices towards Philippine Warty Pig to be sustainable and to stop it from extinction. The locals' practices and reported disturbances might be an implication for future conservation plans in the area. Indeed, there is a need to further educate all locals and work with local barangay officials to ideally stop, or at least reduce the level of disturbance in the forest.

### Knowledge and Awareness of the Locals on Philippine Warty Pig

Table 4 shows the knowledge and awareness of the respondents about Philippine Warty Pig in the area.

**Table 2.** Scoring guide in the analysis of the responses of respondent's common activities relating to Philippine Warty Pig.

Range of means	Scale	Description	Interpretation
3.3–4.0	4	Always	Indicators relating to common activities on Philippine warty pig are always observed.
2.5–3.2	3	Most of the time	Indicators relating to common activities on Philippine warty pig are oftentimes observed.
1.8–2.4	2	Sometimes	Indicators relating to common activities on Philippine warty pig are moderately observed.
1.0–1.7	1	Never	Indicators relating to common activities on Philippine warty pig have never been observed.

Respondents were highly aware of Philippine Warty Pig in the area. On the other hand, respondents were aware on associated conservation policies formulated by MENRO and the Barangay Council, services and benefits of Philippine Warty Pig, local conservation practices, and prohibitions. They were also aware of human activities that pose threats on Philippine Warty Pig. The results contrasted with the findings in the study conducted by Hassan et al. (2015) wherein respondents, especially farmers are unaware of the ecological services rendered by Philippine Warty Pig and reflected a negative attitude towards them. However, a greater percentage of the respondents in the same study positively responded to the policies and recommendations towards conservation. This linked to the idea of Hassan et al. (2015) that lack of ecological awareness seems to be the major impediment in wildlife conservation and results to a mass persecution of wildlife especially Philippine Warty Pig that may lead towards local extinction of these organisms in the future, and as well as the educational background and ecological literacy of an individual (Kellert & Westervelt 1984). Prior to the widespread of wildlife conservation education and awareness program, a vast majority of people also had similar beliefs about wildlife.

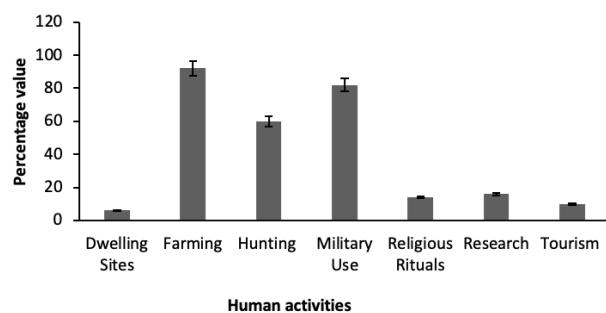
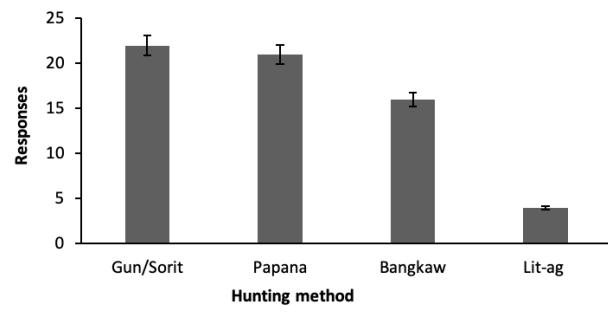
These beliefs on Philippine Warty Pig were, however, less prevalent. The educational attainment of the respondents indicates that conservation education can further convey awareness among the people, promotion of non- consumptive wildlife-oriented tourism and can serve as tool to halt mass persecution of Philippine Warty Pig.

### Conservation Threats

The human activities in Datal Bad which may cause threats and disturbance to Philippine warty pig is

**Table 3. Common activities of the locals in Datal Bad, West Lamidan, Don Marcelino, Davao Occidental.**

Benchmark statement	Mean response	Mode	Qualitative description
1. Went to the forest	2.92	3	Most of the time
2. Hunt Philippine Warty Pig in the forest	2.90	3	Most of the time
3. Sold Philippine Warty Pig in the market	2.82	3	Most of the time
4. Hunting or persecution of Philippine Warty Pig	2.60	3	Most of the time
5. Hunting Philippine Warty Pig for pleasure	2.36	2	Sometimes
6. Make Philippine Warty Pig as food	3.42	4	Always
7. Make Philippine Warty Pig as medicine	2.66	3	Most of the time
8. Sold Philippine Warty Pig in the market	2.84	3	Most of the time
9. Make Philippine Warty Pig as a pet	2.62	3	Most of the time
10. Destruct Philippine Warty Pig habitat	2.68	3	Most of the time
11. Making or creating noise inside/beside the forest	2.70	3	Most of the time
12. Leave waste inside the forest	2.08	2	Sometimes
13. Follow wildlife protection policy	2.78	3	Most of the time
Overall mean	2.72	3	Most of the time

**Figure 5. Human activities which may cause possible threats and disturbances to Philippine Warty Pig .****Figure 6. Philippine warty pig hunting method practiced by the locals.**

presented in Figure 5. It depicted that, most of the time, forest was used by the community for farming which accounted 92.0%. On the other hand, the forest was used by the military as dwelling place (82.0%). Although policies and fines were already in place for wildlife protection, hunting and retaliation (60.0%) are still happened and with the number of wildlife present in the area, researchers were conducting studies using the forest as their sampling site. Other activities included religious rituals and other activities (14.0%) while tourism and recreations accounted 10.0%. These activities were done inside or near the habitat of Philippine wart pigs which may directly or indirectly disturb and may be considered threats to the Philippine Warty Pig population.

Concordance to the findings of Cardiff et al. (2012), farming, military, and tourist can pose a threat to Wildlife population as they can disrupt Philippine

Warty Pig activities. Philippine Warty Pig avoid human which could reduce their feeding time and avoidance of prime feeding areas that are used by human can have a negative effect on their energy balance (Buckley 2004). Even if the goal of conducting research is good, it brings harm to Philippine Warty Pig in the sampling area in some ways. Research activities like staying overnight for specimen collection, using of flashlights, and creating noise like religious activity can cause disturbance to the Philippine Warty Pig in the area. Hunting and retaliation of Philippine Warty Pig species and consumption also occurred in the area.

Based on the survey, one of the respondents said that some group of people, indigenous groups, usually hunt Philippine Warty Pig in the area and they sell it at a price of 200 pesos per kg. This conformed to the findings of Mildenstein (2002) who reported that some indigenous tribes in the Philippines believed that

**Table 4. Knowledge and awareness of the locals in Datal Bad on Philippine Warty Pig.**

Variables	Mean response	Mode	Description
1. I am aware that there are Philippine Warty Pigs in our area.	3.62	4	Highly aware
2. I am aware that there are Philippine Warty Pigs near our barangay that we are not allowed to hunt.	3.24	3	Aware
3. I have received information about Philippine Warty Pig conservation.	3.32	4	Highly aware
4. I am aware how to conserve Philippine Warty Pigs.	3.38	4	Highly aware
5. I am aware that there are efforts from the local government to conserve Philippine Warty Pigs.	3.30	4	Highly aware
6. I am aware on an act protecting the Philippine Warty Pig passed by the government.	3.22	4	Highly aware
7. I am aware of MENRO and Barangay policy about Philippine Warty Pig conservation.	3.22	3	Aware
8. I am aware that human activities have significant impact on Philippine Warty Pig population.	3.12	3	Aware
9. I am aware about the services and benefits that rendered by the Philippine Warty Pig.	3.02	3	Aware
10. I am aware on the different program about Philippine Warty Pig conservation.	3.06	3	Aware
Overall Mean	3.25	3	Aware

Philippine Warty Pig meat is a good source of protein. In Carolina Islands of the Federated States of Micronesia, wild boar species are part of a high valued delicacy, traditionally eaten during celebrations. It is commonly hunted opportunistically as a novel supplemental food source (Food and Agriculture Organization of the United Nations 2011).

Extensive farming in the area poses a great threat and disturbance in warty pig fauna. In addition, worldwide, agriculture a major impact on many habitats. The increasing human population has meant ever increasing demands on agriculture to produce more food. In many countries, this has led to a change from traditional to more intensive agricultural techniques, with greater use of artificial chemicals as fertilizers & pesticides and many habitats have been lost through expanding and developing more efficient agricultural systems (Esselstyn et al. 2004). Racey (2003) stated that the increasing use of land for agriculture have been associated with extensive loss and fragmentation of natural habitats and, frequently, the degradation of remaining habitats. Major threats to Philippine Warty Pig populations worldwide are the loss of natural habitats which resulted from modification and fragmentation due to agricultural development.

Most of the results were merely similar to the findings of (Villegas et al. 2023) that most of the threats on wildlife in the Philippines are due to lack of strong policies or protection, increased demand for recreational sites, treasure hunting, mining, pollution, illegal collection of cave resources, and rapid urbanization.

#### Hunting Method

The mode of Philippine Warty Pig hunting in the

locality includes the following: solitary, by pair or in group. Most of the respondents went Philippine Warty Pig hunting in groups. According to them, group hunting was much more ideal compared to solo or by pair since there are more individual who can help in sighting possible Philippine Warty Pig. Additionally, they prefer group hunting because this group hunters were commonly relatives or a member of a single family. The family members tend to hunt during their most convenient time and if there was a report of Philippine Warty Pig sightings in the area. This result was in consonance with the study of Stegeman (1938) who reported that hunters do not follow fixed hunting schedule but hunted when convenient. Although, some hunting trips are carried out for cultural or ritualistic reasons may follow a schedule, for example during village festivals and functions. Some hunters are doing this trip because they are craving as it their viand.

In Figure 6, the multiple response of respondents relative to hunting activities they used is presented such as gun/sorit (22 responses) as their tool in hunting and is the mostly used, followed by papana (21 responses) whereas bangkaw and lit-ag have 16 and four responses, respectively. These different hunting methods are also practiced in other areas for hunting wildlife (Aiyadurai et al. 2010). Trapping methods were also practiced including bows and arrows and spears but not blowguns. The indigenous methods documented were stone-fall, trigger-and release, canopy, spring-pole, gun, metal noose, hanging stone, pitfall, box, log-fall, and rodent traps. Also, in the results gathered by the study of Johnson (2005) found out that guns were the most common method reported for capturing most wildlife, other tools for hunting include snares and bows. More

than half of total responses for hunting methods across all animals were guns, followed by papana, bangkaw, and lit-ag.

### Wildlife Use and Consumption

It was found out that hunted Philippine Warty Pig were commonly consumed for food, fairly used as pet, and rarely practiced for trading due to the awareness of law in protecting wildlife. This finding revealed wildlife specifically the Philippine Warty Pig and fish made up an average of 66% of protein source. Interviewers observed that relatively small amounts of meat were consumed per individual per meal, but that meat was often present. Also, as stated by Bennett & Robinson (2000) human population density is high. Population depends on wildlife for its major source of protein. In relation to this, the study conducted by Rao et al. (2005) wild fish appeared to be the most prevalent source of animal protein relative to wild or domestic meat (livestock). Proteins are considered as part of the dietary components of hunters as they consumed.

Mostly in the study sites, Philippine Warty Pig was used in tradition, for medicine, and rarely used in religion and others. Stegeman (1938), explained the preference for wild meat was reportedly based on taste. People believed that wild meat is not contaminated like the meat of domestic animals that villagers refuse to eat. Majority of the respondents hunted Philippine Warty Pig for personal consumption, while others hunted for recreation, trade, and retaliation. Such findings are like the study of Stegeman (1938) which reported in Arunachal Pradesh, northeastern India Mishmi, Myers (2000) reported food as the main reason for hunting, followed by money, rituals/customs, and interest in hunting and retaliatory killing of crop-raiding animals. Cash income was an important reason for hunting by Myers (2000). Also, according to Nijhawan & Mihu (2020) (22 responses) reported ritual as the main inspiration for hunting.

### CONCLUSION

Majority of respondents are in the age bracket of 29–37 years old and males are more aware in Philippine Warty Pig in the area. Poverty and lack of permanent jobs are the major drivers for illegal hunting of the Philippine warty pig in the vicinity. Several indigenous people in the community were observed to be violators of national and local policies. Meanwhile, the community are aware of the highly diverse wildlife and the presence of the

Philippine Warty Pig in their locality. Though there are national policies to address the declining number of Philippine Warty Pig and other wildlife, there are various local practices, cultural beliefs, and tradition that possess threats and disturbances to the already vulnerable Philippine warty pig population in Datal Bad. Further, continuous occurrence of various local threats and disturbances in Datal Bad can lead to the local extinction of the said species. Therefore, a strong information drive campaign and the establishment of local policies that was specific to the conservation of Philippine Warty Pig is necessary. In addition, community-based wildlife conservation management is also important to directly involved local communities in the preservation and protection of the vulnerable Philippine Warty Pig. These actions are very essential since the community in Datal Bad specifically those who hunt Philippine Warty Pig are very open and willing to be involved in conservation, protection, and research activities which could positively impacts Philippine Warty Pig population.

### REFERENCES

Aiyadurai, A., N.J. Singh & E.J. Milner-Gulland (2010). Wildlife hunting by indigenous tribes: a case study from Arunachal Pradesh, north-east India. *Oryx* 44(4): 564–572. <https://doi.org/10.1017/S0030605309990937>

Stegeman, L.C. (1938). The European wild boar in the Cherokee national forest, Tennessee. *Journal of Mammalogy* 19(3): 279–290. <https://doi.org/10.2307/1374565>

Bennett, E.L. & J.G. Robinson (2000). Hunting of wildlife in tropical forests: implications for biodiversity and forest peoples. The World Bank Environment Department Papers 76: 1–28.

Blouch, R.A. (1995). Conservation and research priorities for threatened suids of South and Southeast Asia. *IBEX Journal of Mountain Ecology* 3: 21–25.

British Psychological Society (2000). Research methods in clinical Psychology: an introduction to students and practitioners (2nd edition). John Wiley & Sons, Chichester.

Buckley, R. (2004). *Environmental Impacts of Ecotourism*. CABI publishing.

Cabanas, A.J.C., A.P.O. de Guia, R.S. Vega & J.C. Dimalibot (2022). Occurrence and Distribution of Philippine Warty Pig (*Sus philippensis* Nehring, 1886) in Mt. Banahaw de Tayabas, Luzon Island, Philippines. *Philippine Journal of Science* 151(5): 1605–1621. <https://doi.org/10.56899/151.05.06>

Cardiff, P., A. Karač & A. Ivanković (2012). Development of a finite volume contact solver based on the penalty method. *Computational Materials Science* 64: 283–284. <https://doi.org/10.1016/j.commatsci.2012.03.011>

Cariño, T.F. (1998). Interactive and health and conservation program for deer (*Cervus mariannus*) and wild pig (*Sus philippensis*) at the proposed sanctuary in Sitio Mambolo, Bo. Salpad, San Nicolas, Pangasinan. PhD Thesis. College of Veterinary Medicine, University of the Philippines Los Baños.

Cosico, R.S.A., L.M. Florece, R.G. Visco & J.B. Balatbat (2017). Farmer's Assessment of Impacts of Philippine Warty Pig (*Sus philippensis* Nehring) depredation on Agroforestry System in Mt. Makiling Forest Reserve, Laguna, Philippines. *Ecosystems and Development Journal* 7(1): 3–13.

**Department of Environment and Natural Resources-Biodiversity Management Bureau (2020).** Philippine red list of threatened wild fauna. Biodiversity Conservation Society of the Philippines.

**Gamalo, L.E.D., S.M.E. Cabrera, N.C.L. De Los Reyes, A.E. De Cadiz, J.B. Chavez Jr, A.F.M. Raganas & M.N.R.M. Quibod (2023).** Inventory of terrestrial vertebrate wildlife species in a private-owned forest patch in Tagum City, Mindanao, Philippines. *Biodiversitas Journal of Biological Diversity* 24(2): 1104–1116. <https://doi.org/10.13057/biodiv/d240250>

**Hassan, A. (2015).** Environmental performance and voluntary disclosure on specific environmental activities: an empirical study of carbon vs. non-carbon intensive industries. Legitimacy proactive approach. *International Journal of Sustainable Economy* 7(4): 243–261. <https://doi.org/10.1504/IJSE.2015.073406>

**Esselstyn, J.A., P. Widmann & L.R. Heaney (2004).** The mammals of Palawan Island, Philippines. Proceedings of the biological society of Washington 117(3): 271–302.

**International Union for Conservation of Nature Red List (2016).** The International Union for the Conservation of Nature Red List. <http://www.iucnredlist.org/>. Accessed 08 August 2023

**Johnson, M. (2005).** The utilization of knowledge and knowledge Utilization in sustaining environmental resources, 124–137 pp.

**Food and Agriculture Organization of the United Nations (2011).** *Caramel Colours. Combined Compendium of Food Additive Specification, Monograph 11:* 1817–7077.

**Kellert, S.R. & M.O. Westervelt (1984).** Children's attitudes, knowledge and behaviors towards animals. *Children's Environments Quarterly* 1(3): 8–11.

**Meijaard, E. & M. Melletti (2017).** Philippine Warty Pig *Sus philippensis* (Nehring, 1886), pp. 157–161. In: Meijaard, E. & M. Melletti (eds.). *Ecology, Conservation and Management of Wild Pigs and Peccaries*. Cambridge University Press, Cambridge. <https://doi.org/10.1017/9781316941232.017>

**Myers, N., R.A. Mittermeier, C.G. Mittermeier, G.A. Da Fonseca & J. Kent (2000).** Biodiversity hotspots for conservation priorities. *Nature* 403(6772): 853–858. <https://doi.org/10.1038/35002501>

**Mildenstein, T.L. (2002).** Habitat selection of large flying foxes using radio telemetry: targeting conservation efforts in Subic Bay Philippines. Masters Theses. Graduate School Department. University of Montana.

**Nijhawan, S. & A. Mihu (2020).** Relations of blood: hunting taboos and wildlife conservation in the Idu Mishmi of Northeast India. *Journal of Ethnobiology* 40(2): 149–166. <https://doi.org/10.2993/0278-0771-40.2.149>

**Oliver, W.L. (1995).** The taxonomy, distribution and status of Philippine wild pigs. *IBEX, Journal of Mountain Ecology* 3: 26–32.

**Prokop, M. (2009).** Slovakian pupils knowledge of, and attitude towards bird. *Anthrozoos* 21: 221–235. <https://doi.org/10.2752/175303708X332035>

**Racey, P.A. (2003).** Landowners' responses to an endangered species act Listing and implications for encouraging conservation. *Conservation Biology* 17: 1638–1649. <https://doi.org/10.1111/j.1523-1739.2003.00258.x>

**Rao, M., T. Myint, T. Zaw & S. Htun (2005).** Hunting patterns in tropical forests adjoining the Hkakaborazi National Park, north Myanmar. *Oryx* 39(3): 292–300. <https://doi.org/10.1017/S0030605305000724>

**Sedlock J.L. (2010).** Synopsis of Philippine mammals. The field museum of natural of natural history in co-operation with the Philippines department of environment and natural resources protected areas and wildlife bureau. Retrieved from [http://www.fieldmuseum.org/philippine\\_mammals](http://www.fieldmuseum.org/philippine_mammals). Accessed 08 August 2023.

**Tanalgo, K.C. (2017).** Wildlife hunting by indigenous people in a Philippine protected area: a perspective from Mt. Apo National Park, Mindanao Island. *Journal of Threatened Taxa* 9(6): 10307–10313. <https://doi.org/10.11609/jott.2967.9.6.10307-10313>

**Villegas, J.P., J.R. Rosales & J.C. Ibañez (2022).** Conservation and Population Status of the Philippine Warty Pig (*Sus philippensis*) within the Obu Manuvu Ancestral Domain in Davao City, Mindanao Island, Philippines. *Sylvatrop, The Technical Journal of Philippine Ecosystems and Natural Resources* 32(1): 1–14.

**Villegas, J.P., J.R. Rosales, G. Tampos & J.C. Ibañez (2023).** Inventory and abundance of non-volant mammals and birds in the unprotected regions of the Mount Apo Range, Philippines. *Journal of Threatened Taxa* 15(4): 22927–22939. <https://doi.org/10.11609/jott.8213.15.4.22927-22939>

**Appendix I. Survey questionnaire (Modified from: Sedlock (2010)).****PHILIPPINE WARTY PIG AWARENESS AND CONSERVATION PRACTICES IN  
SITIO DATAL BAD, WEST LAMIDAN****A. Socio-demographic Profile of the Respondents**

Name (optional): \_\_\_\_\_

Age: \_\_\_\_\_

Number of Siblings: \_\_\_\_\_

Gender: \_\_\_\_\_

Educational Attainment:

( ) Elementary Level  
 ( ) Elementary Graduate  
 ( ) High School Level  
 ( ) High School Graduate  
 ( ) College Level  
 ( ) College Graduate  
 ( ) Vocational Graduate

Occupation/Sources of Income

( ) Farmer  
 ( ) Paid laborer  
 ( ) Vendor  
 ( ) None  
 ( ) Other Sources: \_\_\_\_\_

Monthly Income/Month: \_\_\_\_\_

**B. Knowledge on Philippine warty pig**

Please indicate how much you aware or unaware with the following statements about Philippine warty pig conservation by tick (✓) one box on each row.

4: Highly aware

3: Aware

2: Unaware

1: Highly Unaware

Particulars	Highly Aware	Aware	Unaware	Highly unaware
	4	3	2	1
1 Are you aware of Philippine warty pig in your area?				
2 Are there Philippine warty pig near your barangay that you are not allowed to hunt?				
3 Have you received information about Philippine warty pig conservation?				
4 I am aware about on how to conserve Philippine warty pig?				
5 I am aware that there are efforts from the local government to conserve Philippine warty pig?				
6 I am aware on an Act Protecting the Philippine warty pig /Wildlife passed by the government?				
7 I am aware of MENRO and Barangay policy about Philippine warty pig Conservation.				
8 Human activities have significant impact on Philippine warty pig Conservation				
9 I am aware about the services and benefits that rendered by the Philippine warty pig				
10 I am aware on the different program about Philippine warty pig conservation.				

**C. Awareness on Philippine warty pig**

- How many Philippine warty pigs are there in your area? Please Specify \_\_\_\_\_
- Is there Philippine warty pig near your barangay that you are not allowed to touch?  
 Yes  
 No  
 Why \_\_\_\_\_
- How many Philippine warty pigs did you see in the forest when you visited?  
 None  
 Few (less than 50; individuals were scattered throughout the forest)  
 Many (hundreds of Philippine warty pig)  
 A lot (thousands of Philippine warty pig)
- What is the largest number of Philippine warty pig you have seen in a forest?  
 No forest experience  
 0–10  
 10–100  
 100–1,000  
 1,000–10,000  
 10,000+

5. How does this number of Philippine warty pig compare to what you saw in the forest during the Ramos presidency (between 1992–1998)?  
 I/we did not visit the cave then  
 Less  
 Same  
 More  
 Not applicable (e.g., too young)
6. Do you think the community should do anything to regulate Philippine warty pig hunting?  
 Yes  
 No  
How? \_\_\_\_\_
7. Did you follow these recommendations?  
 Yes  
 No
8. Did you follow the community management guidelines?  
 Yes  
 No
9. Philippine warty pig in your area.  
 Still abundant  
 Decreased

#### D. Common activities of the locals in Datal Bad, West Lamidan, Don Marcelino, Davao Occidental

The following are the list of activities that you may do, for each one that you do regularly. Please tick (v) one box on each row.

		Highly Aware	Aware	Unaware	Highly unaware
		4	3	2	1
1	Did you perform activities in forest?				
2	Hunt Philippine warty pig in the forest				
3	Sold Philippine warty pig in the market				
4	Hunting or persecution of Philippine warty pig				
5	Hunting Philippine warty pig for pleasure				
6	Make Philippine warty pig as food				
7	Make Philippine warty pig as medicine				
8	Sold Philippine warty pig in the market				
9	Make Philippine warty pig as a pet				
10	Destruction of Philippine warty pig habitat				
11	Making or creating noise inside/ beside the forest				
12	Leave waste inside the forest				
13	Follow Wildlife protection policy				

1. How you do you use the forest?  
 Tourism and Recreation  
 Religious purposes/rituals  
 Collecting Philippine warty pig for food  
 Others: \_\_\_\_\_
2. In the last six (6) months (In a typical six months), how often did you visit the forest for other purposes?  
 Never  
 Once  
 Weekly  
 Monthly Other: \_\_\_\_\_
4. Philippine warty pig Use/Perception/Beliefs  
 Medicine  
 Tradition  
 Religion  
 Philippine warty pig as pest  
 Other use\_\_\_\_\_
5. Would you be willing to work with researchers and MENRO personnel to help manage Philippine warty pig in your area?  
 Yes  
 No

6. What would you need to manage the forest in a reliable fashion?

**D. Local Threats and Disturbances to Philippine warty pig**

1. Activity near the forest site.  
 Quarrying  
 Kaingin or charcoal mining  
 Farming  
 Construction  
 Waste disposal or other land fill  
 War  
 Others\_\_\_\_\_
2. Entry to forest and other utilization.  
 Military use  
 Religious observances  
 Dwelling sites  
 Farming  
 Hunting or retaliation  
 Research  
 Tourism and recreation  
 Others\_\_\_\_\_
3. What hunting method do/did you use? \_\_\_\_\_





Mr. Jatishwor Singh Irungbam, Biology Centre CAS, Branišovská, Czech Republic.  
Dr. Ian J. Kitching, Natural History Museum, Cromwell Road, UK  
Dr. George Mathew, Kerala Forest Research Institute, Peechi, India  
Dr. John Noyes, Natural History Museum, London, UK  
Dr. Albert G. Orr, Griffith University, Nathan, Australia  
Dr. Sameer Padhye, Katholieke Universiteit Leuven, Belgium  
Dr. Nancy van der Poorten, Toronto, Canada  
Dr. Karen Schnabel, NIWA, Wellington, New Zealand  
Dr. R.M. Sharma, (Retd.) Scientist, Zoological Survey of India, Pune, India  
Dr. Manju Siliwal, WILD, Coimbatore, Tamil Nadu, India  
Dr. G.P. Sinha, Botanical Survey of India, Allahabad, India  
Dr. K.A. Subramanian, Zoological Survey of India, New Alipore, Kolkata, India  
Dr. P.M. Sureshan, Zoological Survey of India, Kozhikode, Kerala, India  
Dr. R. Varatharajan, Manipur University, Imphal, Manipur, India  
Dr. Eduard Vives, Museu de Ciències Naturals de Barcelona, Terrassa, Spain  
Dr. James Young, Hong Kong Lepidopterists' Society, Hong Kong  
Dr. R. Sundararaj, Institute of Wood Science & Technology, Bengaluru, India  
Dr. M. Nithyanandan, Environmental Department, La Al Kuwait Real Estate. Co. K.S.C., Kuwait  
Dr. Himender Bharti, Punjabi University, Punjab, India  
Mr. Purnendu Roy, London, UK  
Dr. Saito Motoki, The Butterfly Society of Japan, Tokyo, Japan  
Dr. Sanjay Sondhi, TITLI TRUST, Kalpavriksh, Dehradun, India  
Dr. Nguyen Thi Phuong Lien, Vietnam Academy of Science and Technology, Hanoi, Vietnam  
Dr. Nitin Kulkarni, Tropical Research Institute, Jabalpur, India  
Dr. Robin Wen Jiang Ngiam, National Parks Board, Singapore  
Dr. Lional Monod, Natural History Museum of Geneva, Genève, Switzerland.  
Dr. Asheesh Shivam, Nehru Gram Bharti University, Allahabad, India  
Dr. Rosana Moreira da Rocha, Universidade Federal do Paraná, Curitiba, Brasil  
Dr. Kurt R. Arnold, North Dakota State University, Saxony, Germany  
Dr. James M. Carpenter, American Museum of Natural History, New York, USA  
Dr. David M. Claborn, Missouri State University, Springfield, USA  
Dr. Karen Schnabel, Marine Biologist, Wellington, New Zealand  
Dr. Amazonas Chagas Júnior, Universidade Federal de Mato Grosso, Cuiabá, Brasil  
Mr. Monsoon Jyoti Gogoi, Assam University, Silchar, Assam, India  
Dr. Heo Chong Chin, Universiti Teknologi MARA (UiTM), Selangor, Malaysia  
Dr. R.J. Shiel, University of Adelaide, SA 5005, Australia  
Dr. Siddharth Kulkarni, The George Washington University, Washington, USA  
Dr. Priyadarshan Dharma Rajan, ATREE, Bengaluru, India  
Dr. Phil Alderslade, CSIRO Marine And Atmospheric Research, Hobart, Australia  
Dr. John E.N. Veron, Coral Reef Research, Townsville, Australia  
Dr. Daniel Whitmore, State Museum of Natural History Stuttgart, Rosenstein, Germany.  
Dr. Yu-Feng Hsu, National Taiwan Normal University, Taipei City, Taiwan  
Dr. Keith V. Wolfe, Antioch, California, USA  
Dr. Siddharth Kulkarni, The Hormiga Lab, The George Washington University, Washington, D.C., USA  
Dr. Tomas Ditrich, Faculty of Education, University of South Bohemia in Ceske Budejovice, Czech Republic  
Dr. Mihaly Foldvari, Natural History Museum, University of Oslo, Norway  
Dr. V.P. Uniyal, Wildlife Institute of India, Dehradun, Uttarakhand 248001, India  
Dr. John T.D. Caleb, Zoological Survey of India, Kolkata, West Bengal, India  
Dr. Priyadarshan Dharma Rajan, Ashoka Trust for Research in Ecology and the Environment (ATREE), Royal Enclave, Bangalore, Karnataka, India

#### Fishes

Dr. Neelesh Dahanukar, IISER, Pune, Maharashtra, India  
Dr. Topiltzin Contreras MacBeath, Universidad Autónoma del estado de Morelos, México  
Dr. Heok Hee Ng, National University of Singapore, Science Drive, Singapore  
Dr. Rajeev Raghavan, St. Albert's College, Kochi, Kerala, India  
Dr. Robert D. Sluka, Chiltern Gateway Project, A Rocha UK, Southall, Middlesex, UK  
Dr. E. Vivekanandan, Central Marine Fisheries Research Institute, Chennai, India  
Dr. Davor Zanella, University of Zagreb, Zagreb, Croatia  
Dr. A. Biju Kumar, University of Kerala, Thiruvananthapuram, Kerala, India  
Dr. Akhilesh K.V., ICAR-Central Marine Fisheries Research Institute, Mumbai Research Centre, Mumbai, Maharashtra, India  
Dr. J.A. Johnson, Wildlife Institute of India, Dehradun, Uttarakhand, India  
Dr. R. Ravinesh, Gujarat Institute of Desert Ecology, Gujarat, India

#### Amphibians

Dr. Sushil K. Dutta, Indian Institute of Science, Bengaluru, Karnataka, India  
Dr. Annemarie Ohler, Muséum national d'Histoire naturelle, Paris, France

#### Reptiles

Dr. Gernot Vogel, Heidelberg, Germany  
Dr. Raju Vyas, Vadodara, Gujarat, India  
Dr. Pritpal S. Soorae, Environment Agency, Abu Dubai, UAE.  
Prof. Dr. Wayne J. Fuller, Near East University, Mersin, Turkey  
Prof. Chandrashekher U. Rironker, Goa University, Taleigao Plateau, Goa, India  
Dr. S.R. Ganesh, Chennai Snake Park, Chennai, Tamil Nadu, India  
Dr. Himansu Sekhar Das, Terrestrial & Marine Biodiversity, Abu Dhabi, UAE

**Journal of Threatened Taxa** is indexed/abstracted in Bibliography of Systematic Mycology, Biological Abstracts, BIOSIS Previews, CAB Abstracts, EBSCO, Google Scholar, Index Copernicus, Index Fungorum, JournalSeek, National Academy of Agricultural Sciences, NewJour, OCLC WorldCat, SCOPUS, Stanford University Libraries, Virtual Library of Biology, Zoological Records.

NAAS rating (India) 5.64

#### Birds

Dr. Hem Sagar Baral, Charles Sturt University, NSW Australia  
Mr. H. Biju, Coimbatore, Tamil Nadu, India  
Dr. Chris Bowden, Royal Society for the Protection of Birds, Sandy, UK  
Dr. Priya Davidar, Pondicherry University, Kalapet, Puducherry, India  
Dr. J.W. Duckworth, IUCN SSC, Bath, UK  
Dr. Rajah Jayopal, SACON, Coimbatore, Tamil Nadu, India  
Dr. Rajiv S. Kalsi, M.L.N. College, Yamuna Nagar, Haryana, India  
Dr. V. Santharam, Rishi Valley Education Centre, Chittoor Dt., Andhra Pradesh, India  
Dr. S. Balachandran, Bombay Natural History Society, Mumbai, India  
Mr. J. Praveen, Bengaluru, India  
Dr. C. Srinivasulu, Osmania University, Hyderabad, India  
Dr. K.S. Gopi Sundar, International Crane Foundation, Baraboo, USA  
Dr. Gombobaatar Sundev, Professor of Ornithology, Ulaanbaatar, Mongolia  
Prof. Reuven Yosef, International Birding & Research Centre, Eilat, Israel  
Dr. Taej Mundkur, Wetlands International, Wageningen, The Netherlands  
Dr. Carol Inskip, Bishop Auckland Co., Durham, UK  
Dr. Tim Inskip, Bishop Auckland Co., Durham, UK  
Dr. V. Gokula, National College, Tiruchirappalli, Tamil Nadu, India  
Dr. Arkady Lelej, Russian Academy of Sciences, Vladivostok, Russia  
Dr. Simon Dowell, Science Director, Chester Zoo, UK  
Dr. Mário Gabriel Santiago dos Santos, Universidade de Trás-os-Montes e Alto Douro, Quinta de Prados, Vila Real, Portugal  
Dr. Grant Connette, Smithsonian Institution, Royal, VA, USA  
Dr. P.A. Azeez, Coimbatore, Tamil Nadu, India

#### Mammals

Dr. Giovanni Amori, CNR - Institute of Ecosystem Studies, Rome, Italy  
Dr. Anwaruddin Chowdhury, Guwahati, India  
Dr. David Mallon, Zoological Society of London, UK  
Dr. Shomita Mukherjee, SACON, Coimbatore, Tamil Nadu, India  
Dr. Angie Appel, Wild Cat Network, Germany  
Dr. P.O. Nameer, Kerala Agricultural University, Thrissur, Kerala, India  
Dr. Ian Redmond, UNEP Convention on Migratory Species, Lansdown, UK  
Dr. Heidi S. Riddle, Riddle's Elephant and Wildlife Sanctuary, Arkansas, USA  
Dr. Karin Schwartz, George Mason University, Fairfax, Virginia.  
Dr. Lala A.K. Singh, Bhubaneswar, Orissa, India  
Dr. Mewa Singh, Mysore University, Mysore, India  
Dr. Paul Racey, University of Exeter, Devon, UK  
Dr. Honnavalli N. Kumara, SACON, Anaikatty P.O., Coimbatore, Tamil Nadu, India  
Dr. Nishith Dharaiya, HNG University, Patan, Gujarat, India  
Dr. Spartaco Gippoliti, Socio Onorario Società Italiana per la Storia della Fauna "Giuseppe Altobello", Rome, Italy  
Dr. Justus Joshua, Green Future Foundation, Tiruchirappalli, Tamil Nadu, India  
Dr. H. Raghuram, The American College, Madurai, Tamil Nadu, India  
Dr. Paul Bates, Harison Institute, Kent, UK  
Dr. Jim Sanderson, Small Wild Cat Conservation Foundation, Hartford, USA  
Dr. Dan Challender, University of Kent, Canterbury, UK  
Dr. David Mallon, Manchester Metropolitan University, Derbyshire, UK  
Dr. Brian L. Cypher, California State University-Stanislaus, Bakersfield, CA  
Dr. S.S. Talmale, Zoological Survey of India, Pune, Maharashtra, India  
Prof. Karan Bahadur Shah, Budhanilkantha Municipality, Kathmandu, Nepal  
Dr. Susan Cheyne, Borneo Nature Foundation International, Palangkaraya, Indonesia  
Dr. Hemanta Kafley, Wildlife Sciences, Tarleton State University, Texas, USA

#### Other Disciplines

Dr. Aniruddha Belsare, Columbia MO 65203, USA (Veterinary)  
Dr. Mandar S. Paingankar, University of Pune, Pune, Maharashtra, India (Molecular)  
Dr. Jack Tordoff, Critical Ecosystem Partnership Fund, Arlington, USA (Communities)  
Dr. Ulrike Streicher, University of Oregon, Eugene, USA (Veterinary)  
Dr. Hari Balasubramanian, EcoAdvisors, Nova Scotia, Canada (Communities)  
Dr. Rayanna Helleni Santos Bezerra, Universidade Federal de Sergipe, São Cristóvão, Brazil  
Dr. Jamie R. Wood, Landcare Research, Canterbury, New Zealand  
Dr. Wendy Collinson-Jonker, Endangered Wildlife Trust, Gauteng, South Africa  
Dr. Rajeshkumar G. Jani, Anand Agricultural University, Anand, Gujarat, India  
Dr. O.N. Tiwari, Senior Scientist, ICAR-Indian Agricultural Research Institute (IARI), New Delhi, India  
Dr. L.D. Singla, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana, India  
Dr. Rupika S. Rajakaruna, University of Peradeniya, Peradeniya, Sri Lanka  
Dr. Bharat Baviskar, Wild-CER, Nagpur, Maharashtra 440013, India

#### Reviewers 2021–2023

Due to paucity of space, the list of reviewers for 2021–2023 is available online.

The opinions expressed by the authors do not reflect the views of the Journal of Threatened Taxa, Wildlife Information Liaison Development Society, Zoo Outreach Organization, or any of the partners. The journal, the publisher, the host, and the partners are not responsible for the accuracy of the political boundaries shown in the maps by the authors.

Print copies of the Journal are available at cost. Write to:  
The Managing Editor, JoTT,  
c/o Wildlife Information Liaison Development Society,  
43/2 Varadarajulu Nagar, 5<sup>th</sup> Street West, Ganapathy, Coimbatore,  
Tamil Nadu 641006, India  
ravi@threatenedtaxa.org

## Articles

### Measuring people's attitude towards conservation of Leopard *Panthera pardus* (Mammalia: Carnivora) in the foothills of Himalayan region

– Megha Rani, Sujeet Kumar Singh, Maximilian L. Allen, Puneet Pandey & Randeep Singh, Pp. 25283–25298

### Empirical evidence of Tiger *Panthera tigris* (Mammalia: Carnivora: Felidae) dispersal towards south from Similipal Tiger Reserve to Kudliha Wildlife Sanctuary: potential implications for its conservation in the Greater Similipal Landscape

– Harshvardhan Singh Rathore, Jagyandatt Pati, Samrat Gowda, D.N. Sai Kiran, M. Yogajayananda, Yadvendradev V. Jhala, Manoj V. Nair, Bivash Pandav & Samrat Mondol, Pp. 25299–25304

### Philippine Warty Pig *Sus philippensis* Nehring, 1886: level of awareness and conservation practices in Datal Bad, West Lamidan, Don Marcelino, Davao Occidental, Philippines

– Pedro M. Avenido, Pp. 25305–25317

### Understanding Human-Nilgai negative interactions in India: a systematic review through print media report analysis

– Chandrapratap Singh Chandel, Sangeeta Madan, Dhruv Jain, Lallianpuii Kawlni, Vishnupriya Kolipakam & Qamar Qureshi, Pp. 25318–25329

### Harmonizing ecology and society: an integrated analysis of vulture conservation in the Nilgiri Biosphere Reserve, India

– S. Manigandan, H. Byju & P. Kannan, Pp. 25330–25344

### Nesting habits of Baya Weaver *Ploceus philippinus* (Linnaeus, 1766) on power and television cables in the agricultural landscape of Kallakurichi district, Tamil Nadu, India

– M. Pandian, Pp. 25345–25359

### Factors influencing the occurrence of the House Sparrow *Passer domesticus* (Linnaeus, 1758) (Aves: Passeriformes: Passeridae) in Bhavnagar, Gujarat, India

– Foram P. Patel, Pravinsang P. Dodia & Deven M. Mehta, Pp. 25360–25372

### Waterbird diversity of Saman Wetland Complex in Uttar Pradesh: a crucial site for the India's National Action Plan on migratory birds

– Omkar Joshi, Nisha Singh & P. Sathiyaselvam, Pp. 25373–25384

### First record of two species of venomous snakes *Bungarus suzhenae* and *Ovophis zayuensis* (Serpentes: Elapidae, Viperidae) from India

– Jason Dominic Gerard, Bitupan Boruah, V. Deepak & Abhijit Das, Pp. 25385–25399

### Bio-ecology of the bush cricket *Tarbinskiellus portentosus* (Lichtenstein, 1796) (Insecta: Orthoptera: Gryllidae): a relished edible insect in Nagaland, India

– Patricia Kiewhuo, Lirikum Jing, Bendang Ao & Lakhminandan Kakati, Pp. 25400–25409

### Addition to the liverwort flora (Marchantiophyta) of Arunachal Pradesh, India

– Nonya Chimyang, Pherkop Mossang, Anshul Dhyani, Heikham Evelin, Prem Lal Uniyal, Devendra Singh, Meghna Paul & S.K. Nasim Ali, Pp. 25410–25421

## Communications

### A preliminary assessment of the bat fauna (Mammalia: Chiroptera) of Murien National Park, Mizoram, India: distribution, morphology, and echolocation

– Uttam Saikia & Rohit Chakravarty, Pp. 25422–25432

### First record of albinism in Lesser Woolly Horseshoe Bat *Rhinolophus beddomei* (Chiroptera: Rhinolophidae) with an updated list of chromatic aberrations in bats in India

– Pratiksha Sail & Manoj R. Borkar, Pp. 25433–25439

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

June 2024 | Vol. 16 | No. 6 | Pages: 25283–25494

Date of Publication: 26 June 2024 (Online & Print)

DOI: 10.11609/jott.2024.16.6.25283-25494

### First record of *Garra kempfi* Hora, 1921 (Cypriniformes: Cyprinidae) from Lohandra River of Nepal

– Jash Hang Limbu, Dipak Rajbanshi, Laxman Khanal & Ram Chandra Adhikari, Pp. 25440–25445

### Earthworm (Oligochaeta) diversity of Kumaun Himalaya with a new record of *Drawida japonica* (Michaelsen, 1892) (Moniligastridae) from Nainital, Uttarakhand, India

– Shikha Bora, Deepak Chandra Melkani, Ajay Kumar, Mansi Arya, Kulbhushan Kumar, Netrapal Sharma & Satpal Singh Bisht, Pp. 25446–25452

### Woody flora of Karumpuliyuthu Hill, Tenkasi, Tamil Nadu, India: a checklist

– K. Lalithalakshmi, A. Selvam & M. Udayakumar, Pp. 25453–25460

## Short Communications

### First record of Croaking Gourami *Trichopsis vittata* (Cuvier, 1831) from West Bengal, India

– Sujal Dutta, Bakul Biswas & Bibhas Guha, Pp. 25461–25464

### *Lasioptera sharmai*, a new species of gall midge (Diptera: Cecidomyiidae) feeding on *Leea indica* (Vitaceae) in India

– Duraikannu Vasanthakumar, Rajiv Loganathan & Palanisamy Senthilkumar, Pp. 25465–25469

### *Epipogium* Borkh. (Orchidaceae): a new generic record for Andhra Pradesh, India

– P. Janaki Rao, J. Prakasa Rao & S.B. Padal, Pp. 25470–25473

### *Physcomitrium eurystomum* Sendtn. (Funariaceae): a rare species recorded for Assam, India

– Twinkle Chetia & Himu Roy, Pp. 25474–25477

## Notes

### First photographic evidence of Mainland Serow *Capricornis sumatraensis thar* (Bechstein, 1799) in Raimona National Park, Assam, India

– Dipankar Lahkar, Mohammad Firoz Ahmed, Bhanu Sinha, Pranjal Talukdar, Biswajit Basumatary, Tunu Basumatary, Ramie H. Begum, Nibir Medhi, Nitul Kalita & Abishek Harihar, Pp. 25478–25481

### Design and field installation of automated electronic Asian Elephant signage for human safety

– Sanjoy Deb, Ramkumar Ravindran & Saravana Kumar Radhakrishnan, Pp. 25482–25485

### First nesting record of Black-necked Stork *Ephippiorhynchus asiaticus* (Aves: Ciconiiformes) in Kumana National Park, Sri Lanka

– W.D.C.N. Gunathilaka, B.K.P.D. Rodrigo, D.M.A. Kumara, E.G.D.P. Jayasekara & W.A.D. Mahaulpatha, Pp. 25486–25488

### Mugger Crocodile *Crocodylus palustris* (Lesson, 1831) predation on Brown Fish Owl *Ketupa zeylonensis* (J.F. Gmelin, 1788), with notes on existing literature regarding their predation on birds

– Jon Hakim & Jack Pravin Sharma, Pp. 25489–25491

### New distribution records of two jumping spiders of the genus *Stenaelurillus* Simon, 1886 (Araneae: Salticidae) from Gujarat, India

– Subhash I. Parmar, Pranav J. Pandya & Dhruv A. Prajapati, Pp. 25492–25494

## Publisher & Host



Threatened Taxa