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COMMUNITY ENGAGEMENT FRAMEWORK ON WILDLIFE CONSERVATION

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ABSTRACT
The involvement of the community in the conservation efforts of wildlife is essential. This study aims to identify the factors that enable the engagement of the community in wildlife conservation. A survey was conducted in Monkayo, Davao de Oro. 150 research respondents were chosen using a stratified random sampling technique. Exploratory Factor Analysis is used to identify these factors. Based on the study's findings, four factors comprise a practical community engagement framework. These are streamlining community values and perspectives, consideration of community dynamics, multi-sectoral participation, and perceived benefits.

Keywords:
community engagement, wildlife conservation, Exploratory Factor Analysis

INTRODUCTION

Wildlife conservation is a critical issue that has gained increased attention in recent years due to the rapid decline of many animal species worldwide. Community engagement is key in addressing this issue, as local communities can significantly support conservation efforts. However, there is a need for a framework that guides community engagement in wildlife conservation efforts to ensure that they are effective, sustainable, and mutually beneficial to both the community and conservation initiatives.

Monkayo, Davao de Oro, is a first-class municipality in Davao de Oro. It has a total area of 60,961 hectares, and 54.68% is forestland. This percentage translates to a total area of 36,934.29 hectares. This vast forestland is home to various wildlife. However, the wildlife population is dwindling with rapid urbanization and the harnessing of forest resources.

The active participation and assistance of the local community are frequently crucial for the success of wildlife conservation efforts (Vannelli et al., 2019). This research aims to develop a community engagement framework for wildlife conservation applicable in various contexts, including protected areas, community-managed conservation areas, and wildlife corridors. The framework will be crafted based on the factor analysis from the responses of research respondents residing in Monkayo, Davao de Oro.

The ultimate goal of this research is to provide a practical and actionable framework that can help conservation practitioners and local communities work together to protect and conserve wildlife while promoting sustainable livelihoods for local communities. This research is crucial in addressing the current crisis facing many wildlife populations and ensuring their survival for future generations.

METHOD

This research is a quantitative study. The data are gathered from a survey among Monkayo, Davao de Oro residents using stratified random sampling. Exploratory Factor Analysis is used to identify the factors that comprise the community engagement framework. The underlying factors of several observable variables are frequently found via exploratory factor analysis (Auerswald & Moshagen, 2019).

Data Collection Method
The study used a modified questionnaire validated by professionals who are competent in the field. The data were gathered using the online platform (Torrentira, 2020). A link to the online survey questionnaire was sent to randomly selected research respondents. Research respondents accomplished the survey questionnaire remotely.

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Data Analysis
The strength of partial correlations between variables was evaluated using the Keiser Meyer-Olkin measure of sample adequacy. The identity of the correlation matrix was further tested using Bartlett's test of Sphericity. The number of factors to be retained in a factor analysis or principal components analysis was finally determined using the Scree test.

RESULTS AND DISCUSSION
This section shows the analysis and interpretation of the gathered data.

KMO and Bartlett's Test. Table 1 presents the results of the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO score of .779 indicates that the samples exhibit strong correlations, making them suitable for factor analysis. In addition, Bartlett's test of Sphericity yielded a value of 6232.413 and a significance level of less than .001, which indicates that the data is appropriate for creating a community engagement framework on wildlife conservation. Furthermore, rejecting the null hypothesis based on Bartlett's test of Sphericity implies that there is indeed a community engagement framework for wildlife conservation.

Table 1. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.779
Bartlett's Test of Sphericity	Approx. Chi-Square	6232.413
	df	435
	Sig.	.000

Scree Plot. Figure 1 illustrates the total variance and Eigenvalues plotted against all factors in a graphical manner. The Scree Plot indicates the decreasing trend of Eigenvalues and determines the suitability of each component based on its significance. This scree plot is a valuable tool in deciding the number of factors to be retained, where the inflection point is where the curve flattens. In this study, the curve becomes flatter at component number three since Eigenvalues of less than one start to appear. If the items of each dimension fall below the minimum threshold, the dimension will be eliminated.

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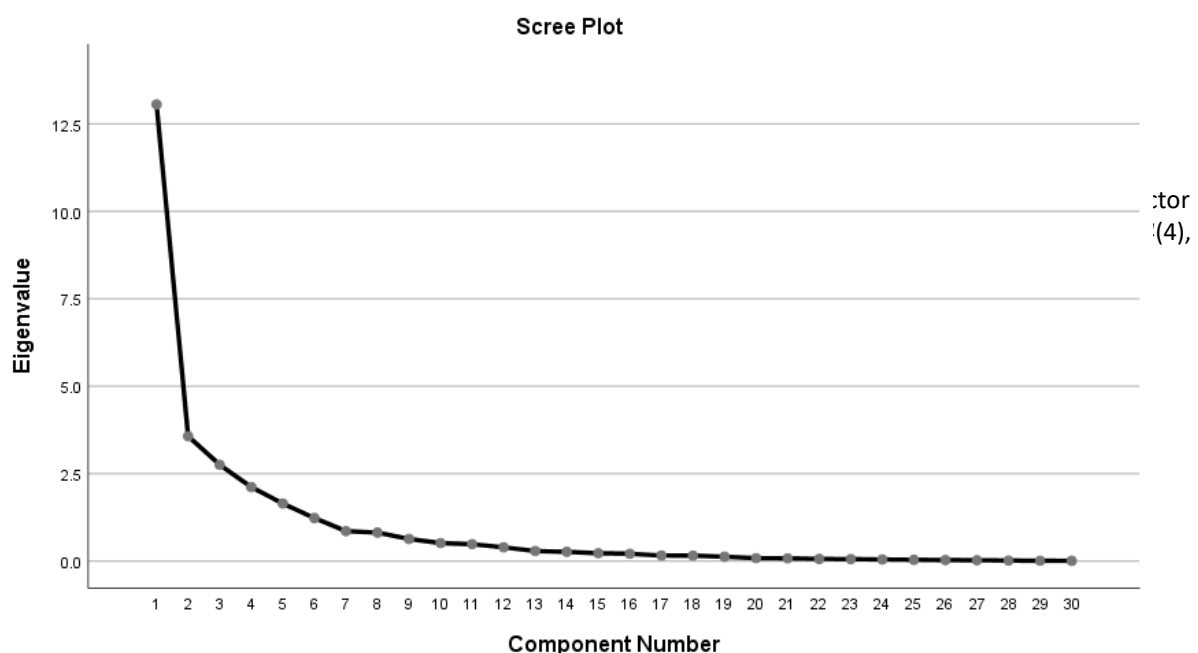
Figure 1. Graphical Explanation of Total Variance

Rotated Component Matrix

Table 2 presents the attributes that, when grouped, will make "Streamlining of community values and perspectives" a factor. Item No. 30 has the highest loading value (.897), while Item No. 24 has the lowest loading value of .503. All these items highlight the importance of community values and perspectives in wildlife conservation. This factor affirms the study conducted by Bennett & Dearden (2014). It was noted that conservation success is frequently dependent on local support, which is heavily impacted by views of the effects on local communities and attitudes toward management and governance. Attempts to regulate wildlife should start by changing human behaviors and fostering a collaborative culture (Dubois, Fenwick, Ryan, Baker, Baker, Beausoleil, & Fraser, 2017).

Table 2. Rotated Component Matrix with Grouped Attributes of Streamlining Community Values and Perspectives

Factor	Attributed	Loading
Streamlining of community values and perspectives	Item 30. Wildlife conservationists should engage in continuous dialogue with local communities to build trust and foster cooperation.	.897
	Item 22. The community engagement framework should prioritize the protection of wildlife species that are of cultural significance to local communities.	.857
	Item 20. The community engagement framework should incorporate the perspectives of local communities in the development of conservation strategies.	.852
	Item 29. Community engagement in wildlife conservation can help to mitigate conflicts between humans and wildlife.	.827
	Item 28. The community engagement framework should aim to promote environmental education and awareness.	.820
	Item 21. The community engagement framework should be adaptive and flexible to accommodate changing community needs.	.652
	Item 25. The community engagement framework should promote the participation of local communities in decision-making processes.	.649
	Item 26. Wildlife conservationists should prioritize the establishment of partnerships with local communities.	.648
	Item 27. The community engagement framework should be responsive to the needs and concerns of local communities.	.634
	Item 7. Local communities play a critical role in the conservation of wildlife.	.633
	Item 24. Community-based wildlife conservation initiatives can help to build social capital in local communities.	.503
	Item 19. Community engagement in wildlife conservation can lead to the development of sustainable livelihoods for local communities.	.525

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Table 3 identifies "Consideration of community dynamics" as a factor. The attributes that make up this factor are eleven items from the survey. These attributes include the adaptive and flexible characteristics of the engagement framework. It has a loading value of .650. The item with the highest loading value is the provision of resources to local communities (.837). The item with the lowest loading value is trust between wildlife conservationists and local communities (.501). The identified factor resonates with the findings of the study conducted in 2014. Cumming & Allen (2017) noted that people influence the viability of social-ecological systems. In the agenda for ecosystem service research, a socio-cultural approach to valuing ecological services is being promoted more frequently (Scholte, Van Teeffelen, & Verburg, 2015).

Table 3. Rotated Component Matrix with Grouped Attributes of Consideration of Community Dynamics

Factor	Attributed	Loading
Consideration of community dynamics	Item 21. The community engagement framework should be adaptive and flexible to accommodate changing community needs.	.650
	Item 25. The community engagement framework should promote the participation of local communities in decision-making processes.	.625
	Item 26. Wildlife conservationists should prioritize the establishment of partnerships with local communities.	.513
	Item 27. The community engagement framework should be responsive to the needs and concerns of local communities.	.543
	Item 7. Local communities play a critical role in the conservation of wildlife.	.595
	Item 17. Wildlife conservationists should provide resources and support to local communities to engage them in conservation efforts.	.837
	Item 9. Engaging local communities in wildlife conservation can lead to the development of effective conservation strategies.	.834
	Item 13. The community engagement framework should be inclusive and representative of all stakeholders.	.717
	Item 5. Community engagement can increase the public's awareness of the importance of wildlife conservation.	.698
	Item 18. Community-based wildlife conservation initiatives can provide economic benefits to local communities.	.590
	Item 8. Community engagement is necessary to build trust between wildlife conservationists and local communities.	.501

Table 4 provides the list of six attributes from the survey. When grouped, they will identify "Multi-sectoral participation" as a factor. These attributes include the participation of women and youth, with the highest loading value of .858. The economic benefits to local communities are also one of the attributes with the lowest loading value (.590). This identified factor affirms the study conducted in 2013. Chirenje, Giliba, & Musamba (2013) found that Community involvement and management are currently essential topics in policy and discussions related to decision-making, particularly for managing natural resources. Including transdisciplinary science-stakeholder policy approaches in policy creation and management through the involvement of science-based institutions is vital (König, Kiffner, Kramer-Schadt, Fürst, Keuling, & Ford, 2020). We must involve multiple sectors, consider complexity and uncertainty, and include stakeholders to promote coexistence between humans and wildlife (Jiren, Riechers, Kansky, & Fischer, 2021). The results suggest that initiatives to involve stakeholders in protected area management should focus on making the processes more unbiased and recognizing and resolving biodiversity-related conflicts (Young, Jordan, Searle, Butler, Chapman, Simmons, & Watt, 2013).

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Table 4. Rotated Component Matrix with Grouped Attributes of Multi-Sectoral Participation

Factor	Attributed	Loading
Multi-sectoral participation	Item 18. Community-based wildlife conservation initiatives can provide economic benefits to local communities.	.590
	Item 16. The community engagement framework should ensure the active participation of women and youth.	.858
	Item 11. The community engagement framework should include the active participation of local communities.	.826
	Item 23. Community engagement in wildlife conservation can lead to the empowerment of local communities.	.792
	Item 19. Community engagement in wildlife conservation can lead to the development of sustainable livelihoods for local communities.	.721
	Item 12. The community engagement framework should be inclusive and representative of all stakeholders.	.668

Table 5 presents "Perceived benefits" as a factor. This factor comes from the five attributes culled out from the survey. The attribute with the highest loading value is the better outcomes of community participation in wildlife conservation (.920). The trust between the wildlife conservationist and the local communities has the lowest loading value (.541). This factor affirms the study conducted in Nepal in 2015. The results emphasize the significant role of the reserve's economic advantages in promoting the local community's welfare (Sharma, Rasul, & Chettri, 2015). Community programs for natural resource management can restore wildlife and benefit local communities financially (Störmer, Weaver, Stuart-Hill, Diggle, & Naidoo, 2019).

Table 5. Rotated Component Matrix with Grouped Attributes of Envisioned Benefits

Factor	Attributed	Loading
Perceived benefits	Item 5. Community engagement can increase the public's awareness of the importance of wildlife conservation.	.587
	Item 3. Community participation in wildlife conservation can lead to better outcomes.	.920
	Item 4. Community engagement in wildlife conservation helps in the preservation of wildlife habitats.	.851
	Item 2. Community engagement in wildlife conservation is vital to ensure its success.	.690
	Item 8. Community engagement is necessary to build trust between wildlife conservationists and local communities.	.541

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Study Framework.

Presented in Figure 2 is the framework made based on the findings of the study. The identified factors in the community engagement framework on wildlife conservation are the following: Streamlining of Community Values and Perspectives, Consideration of Community Dynamics, Multi-sectoral Participation, and Perceived Benefits.

Figure 2. Study Framework

CONCLUSION

Based on the study's findings, using the Exploratory Factor Analysis, four identified factors make a practical community engagement framework for wildlife conservation. These factors are streamlining community values and perspectives, consideration of community dynamics, multi-sectoral participation, and perceived benefits.

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