Culture Lockdown, Nature Freedom: Respite for Biodiversity during the COVID Pandemic – A Limited Case Study in La Union, Philippines

Michael Armand P. Canilao[1]

1 University of the Philippines Manila

Funding: Self funding. Satellite imagery courtesy of DigitalGlobe Foundation.

Potential competing interests: No potential competing interests to declare.

Abstract

In dealing with treatment regimes for planetary health, a more nuanced approach to isolate the dialectics of nature-humanized and humans-naturalized may be possible by looking at case studies and areas of interest where the interregnum in human activities (culture lockdown) may have become an opening for biodiversity recovery. Such a recovery may best be characterized as nature freedom– a true instance of freedom in the Anthropocene. As quaternary consumers, the Kali or Brahminy kite serves as a beacon, signaling areas with intact biodiversity pyramids. The presence or absence may be a cue to the state of illegal wildlife trade and habitat loss in an area. The paper will present Kali or Brahminy kite observations logged using consumer off-the-shelf remotely piloted aircraft systems (COTS-RPAS) and compare this data with easing COVID-19 pandemic lockdown restrictions in La Union Province in the Philippines. As our communities transition to the new normal that looks a lot like the old normal, subordination of nature is once again the gameplay of autonomous humans.

Michael Armand P. Canilao

Associate Professor 4, Department of Behavioral Sciences, College of Arts and Sciences, University of the Philippines

Manila

Email: mpcanilao@up.edu.ph, migscanilao@gmail.com

ORCiD ID: 0000-0002-1364-0504

Keywords: Anthropocene, Brahminy kite, COTS-RPAS, Planetary Health, Dialectics.

Introduction

In his 2021 publication (pages 118-135), Andrew Dobson stated that,

> *COVID-19 is an Anthropocene event. Research suggests that the Anthropocene takeover of the planet is at the heart of zoonotic (species-jumping) diseases and their spread (Vidal, 2020). COVID-19 is not the first Anthropocene pandemic (the 1918 virus, e.g., had similar origins), but it is the first to be experienced, self-or semi-consciously, as a species-level, planet-wide event. The speed, nature, and extent of the human penetration of complex biophysical webs are also increasingly transformative, making COVID-19, if not unique, then at least the highest expression so far of our Anthropocene animal (heteronomous) condition. Logging, mining, population growth, deforestation, forest roadbuilding, and population increase are taking us into ever more remote parts of the planet and drawing ever more 'exotic species' into the web of human contact and commerce.*

Indeed, dialectical analysis shows that as we increasingly humanize nature, we also increasingly see nature naturalizing humans. Given the dialectics of nature and culture, let us shift gears and revisit the trophic levels of a consumer pyramid. Arguably fourth-level or quaternary consumers in an ecosystem are good indicators of intact biodiversity. In this illustration (see Figure 1), note that raptors in the environment serve as a beacon to biodiverse environments with intact producers, primary consumers, secondary consumers, and tertiary consumers. The presence of quaternary consumers like raptors can be a good proxy for flourishing ecosystems (see Canilao, 2023).

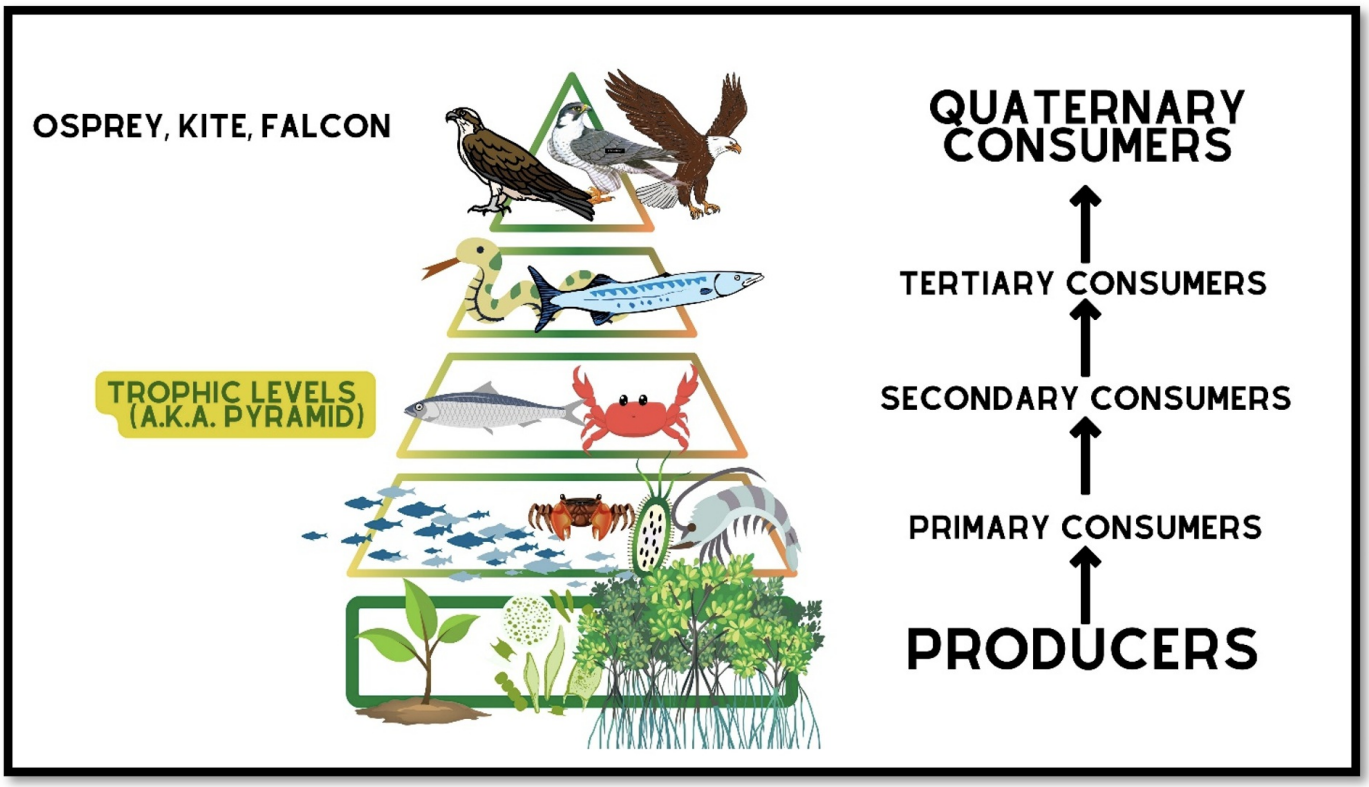

Figure 1. Raptors in the environment serve as a beacon to biodiverse environments with intact producers, primary consumers, secondary consumers, and tertiary consumers

In this paper, we consider the raptor Brahminy kite as the proxy for a flourishing ecosystem. The Brahminy kite is locally called the *Kali* or *Lawin*. It is also called the Red-backed sea eagle and Singapore bald eagle. The research site for this paper is the Baroro Delta in La Union Province of Northwestern Luzon (see Figure 2). Baroro River delta drains patches of forest formations, including Tropical Lower and Upper Montane Forests and massive Bambusa forests at its delta ridges.

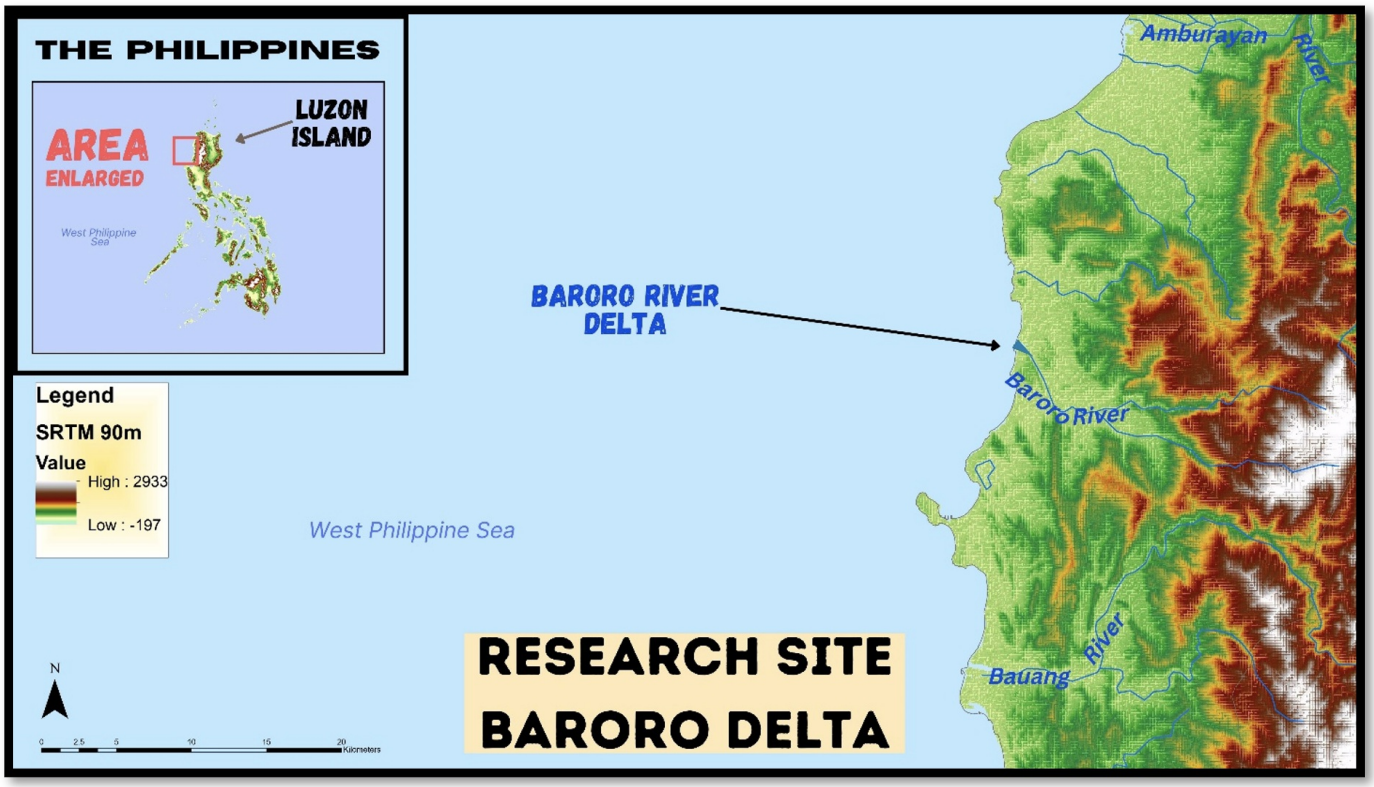

Figure 2. The research site for this paper: Baroro Delta in La Union Province of Northwestern Luzon (WGS 1984, SRTM is a product of NASA)

Method

The overarching method in this research is multiscalar, tapping on various platforms that allow observation at the macroscale, the mesoscale, and the microscale. The macroscale is accessible through the use of multispectral satellites, whereas the mesoscale is accessible through the use of remotely piloted aircraft systems (RPAS). Flying RPAS should be supported by the required licenses/ certification from the concerned agencies (in the Philippines, the Civil Aviation Authority of the Philippines, CAAP) backed with prior training and accumulated flight hours on RPAS operations. The microscale, on the other hand, is accessible through ground truthing of research sites.

The broader research effort itself has branched off into various aspects, including examining the utility of RPAS in raptor observations (see Canilao 2023). There I show how the use of compact RPAS, that are small and with less rotor blade noise, has largely mitigated the disturbance on raptors specifically the Brahminy kite therefore providing us with a new platform for research. Arguably the Brahminy kite views the drone or RPAS as a smaller bird.

False color composite (Near Infrared- Yellow- Coastal) of the Lower Baroro River System shows in deeper reds the Bamboo forests where the Kali is typically documented perched and engaging in various activities (see Figure 3). The use of this satellite combination allows us to distinguish so-called deep forest covers that provide what James Gibson in 1979 calls “hiding places” where the Kali withdraw to avoid human contact.

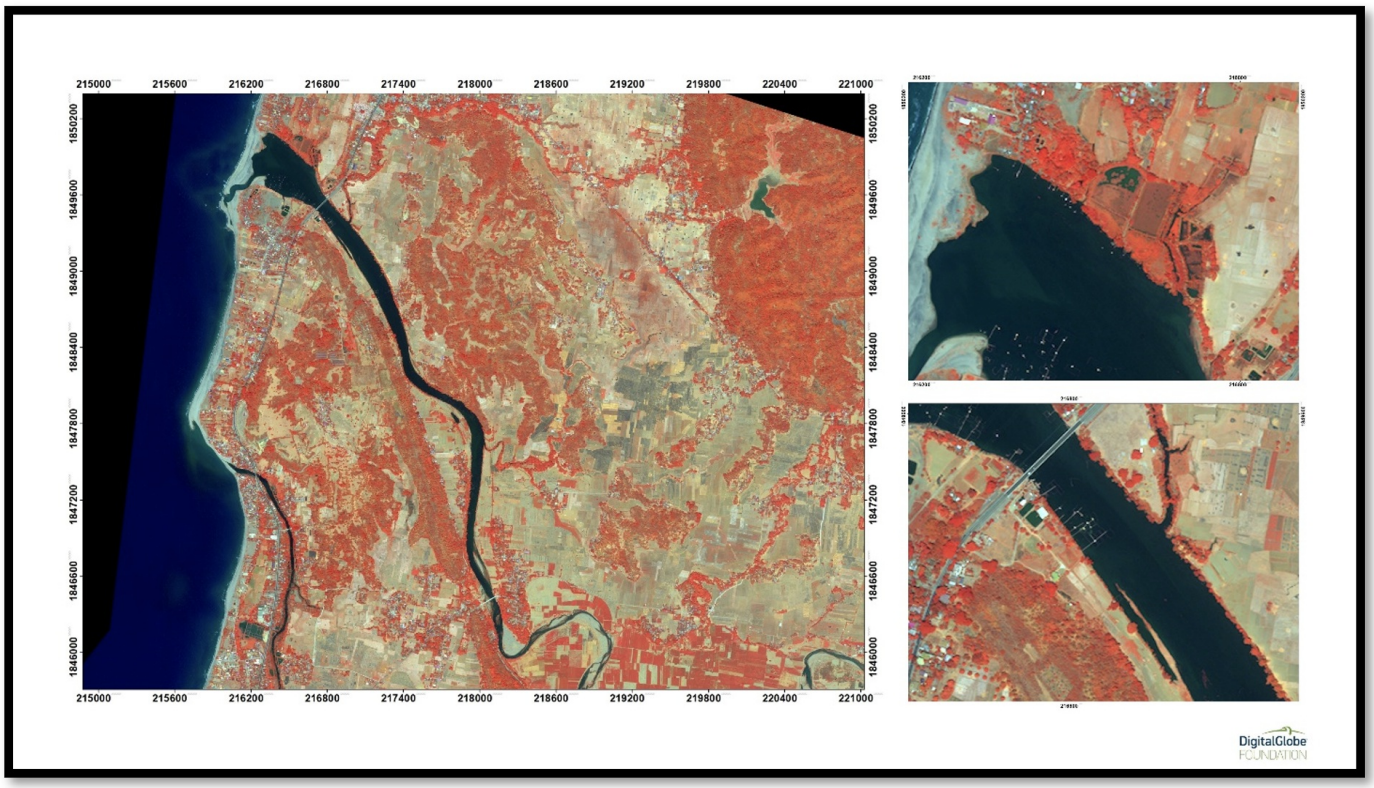

Figure 3. False color composite (Near Infrared- Yellow- Coastal) of the Lower Baroro River System show in deeper reds the Bamboo forests where the Kali is typically documented perched and engaging in various activities

This is an important macroscale glimpse into the advancement and withdrawal of the Kali in light of the COVID Pandemic. **Arguably, the Kali has advanced into more visible places during the height of the lockdown when human presence outside is highly reduced due to community quarantines and a high rate of active COVID cases. The Kali has come out and enjoyed areas that are typically saturated with human presence (author's emphasis).**

At the time of maximal sightings, the *Kali* was seen sunning on a ridge near the Baroro delta that is tucked in between human settlements and farms. On 22 January 2022, a brood of eighteen (18) Kali individuals was seen on this ridge. For the recording period, this was the greatest number of Kali individuals sighted in the area. In this paper, I use 13 data points on Kali or Brahminy kite sightings that appear to correspond to two crest and trough periods from January to June 2022 and August 2022 to February 2023 (see Table 1 and Figure 4). The periods crested on months when COVID active cases in La Union were high, and brahminy kite sightings were also high. The periods trough on months show low active COVID case counts and low Brahminy kite sightings. After the January sighting, it can be noted that while the visits were conducted regularly on an almost daily basis, the average monthly sightings show a noticeable decline from January to June 2022. Sightings were primarily documented utilizing COTS-RPAS imaging. Select footages of these sightings were also post-produced as video content that were then uploaded in the author's page: Eco Woke SEA on Facebook (https://www.facebook.com/ecowokesea/)

A slight increase in sightings was seen at the beginning of the second period of recording from August 2022 to February 2023 but declined later on. Correlation analysis was undertaken on two variables; brahminy kite sightings and COVID

active cases.

Data Elements

Month and Year	active Covid cases in La Union	Brahminy kite sightings
January 2022	210	18
February 2022	227	10
March 2022	19	8
April 2022	8	5
May 2022	3	3
June 2022	8	1
August 2022	242	5
September 2022	154	4
October 2022	138	3
November 2022	163	3
December 2022	64	2
January 2023	8	1
Febraury 2023	1	1

*no opportunity to record July 2022

Table 1. Data elements in the analysis: month and year, total active cases in La Union, and Brahminy kite sightings.

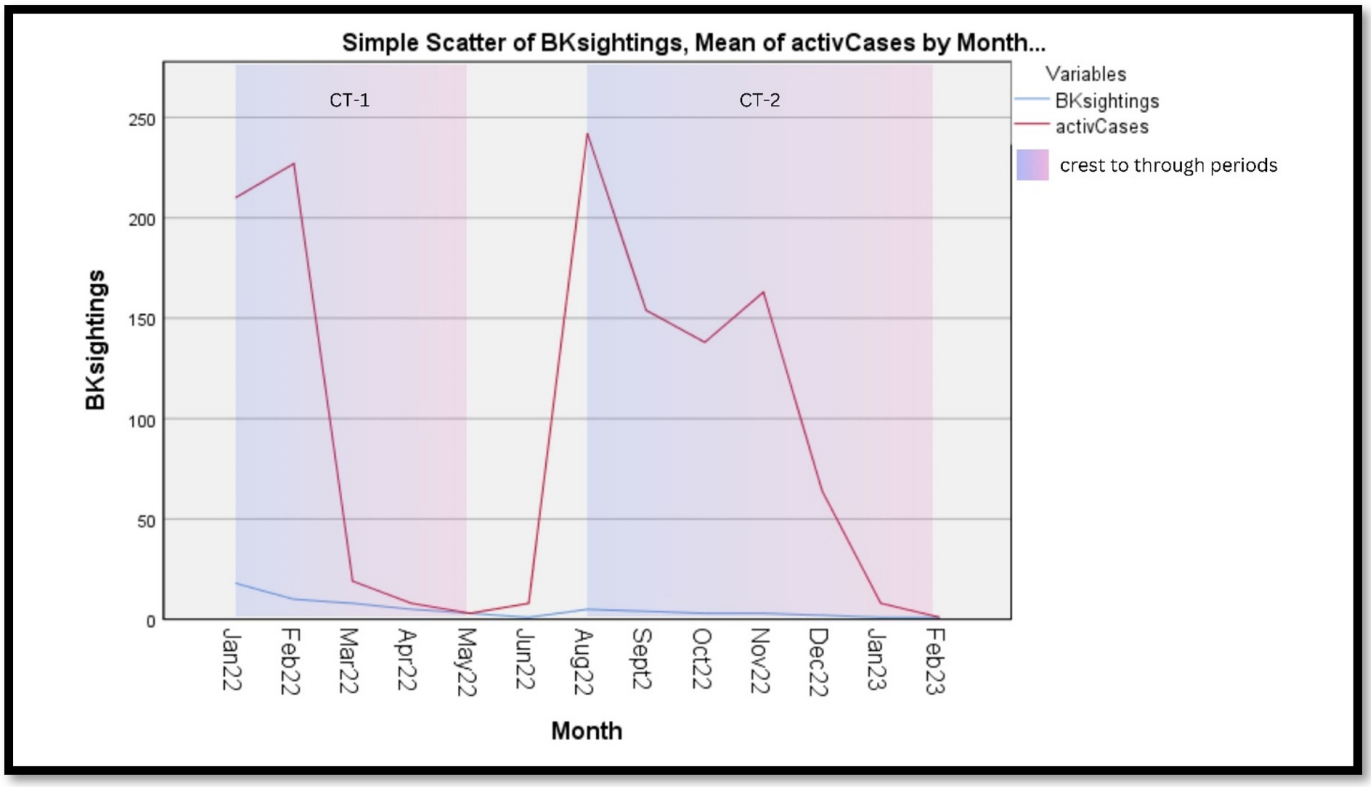

Figure 4. Thirteen 13 data points on Kali or Brahminy kite sightings and COVID total cases appear to correspond to two crest and trough periods from January to June 2022 and August 2022 to February 2023

COVID active cases tally is publicly available on the Facebook page (see Figure 5) of the Provincial Government of La Union, PGLU (https://www.facebook.com/LGULaunion). Enhanced Community Quarantine (ECQ) or lockdown was implemented on the Island of Luzon, including the Province of La Union, starting on 15 March 2020. The easing of the restrictions followed after increasing vaccination of residents in La Union, which in turn resulted in lower active cases of COVID.

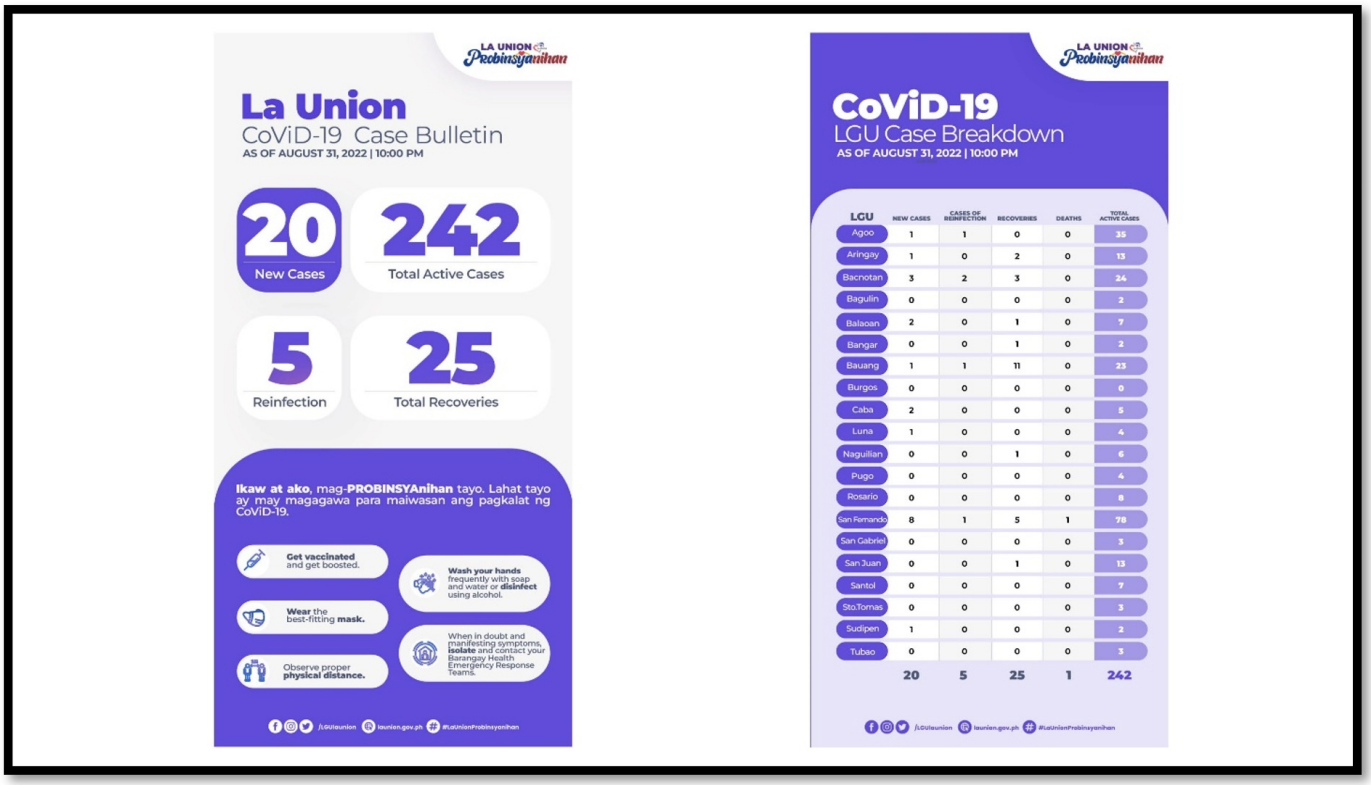

Figure 5. Infographics/ Situation Report showing various information, including a tally of COVID active cases posted on the Facebook public page (https://www.facebook.com/LGUlaunion) of the Provincial Government of La Union posted on 31 August 2022

Results

Exploratory statistics were undertaken on the thirteen data points. Brahminy kite sightings data had a skewness value of 1.051 and kurtosis at 1.088. Total active COVID cases had a skewness value of 0.969 and kurtosis at -1.811. Nonparametric correlation was the route pursued due to the characteristics of the data. As a precursor, continuous data points were transformed into ranked, ordinal data. Kendall's tau and Spearman's rho nonparametric correlation was computed (see Figure 6). Significant correlations of active COVID cases and brahminy kite sightings were at the 0.05 level (2-tailed) and were logged at 0.507 for Kendall's tau and at 0.646 for Spearman's rho. Because the sample size is smaller than 20, the Kendall's tau result was used. The Kendall's tau result of 0.507 indicates a positive and moderate correlation between total COVID cases and brahminy kite sightings significant at the 0.05 level.

Correlations

			Rank of BKsightings	Rank of activCases
Kendall's tau_b	Rank of BKsightings	Correlation Coefficient	1.000	.507*
		Sig. (2-tailed)	.	.021
		N	13	13
	Rank of activCases	Correlation Coefficient	.507*	1.000
		Sig. (2-tailed)	.021	.
		N	13	13
Spearman's rho	Rank of BKsightings	Correlation Coefficient	1.000	.646*
		Sig. (2-tailed)	.	.017
		N	13	13
	Rank of activCases	Correlation Coefficient	.646*	1.000
		Sig. (2-tailed)	.017	.
		N	13	13

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 6. Output of the correlation analysis.

Conclusion

It appears that the pandemic was a respite for biodiversity as epitomized by the propagation of quaternary consumers, notably the kali or Brahminy kites in the Baroro River delta of La Union. The end of lockdowns ushered in by increasing vaccination of La Union residents ("back to normal") and the reduction in total active cases of COVID correlates to decreasing Brahminy kite sightings in Baroro River Delta La Union. Sightings of Kali were maximal during the beginning of two periods in the study when community lockdowns were in place at La Union due to numerous active cases of COVID. There was a decrease in the sightings as lockdowns were lifted due to a reduction in the number of active COVID cases.

Secondary Analysis

This study is very preliminary in nature and was able to get a glimpse at two periods of crest and trough correlating to total active cases and Brahminy kite sightings that covered 13 months (one year) from 2022 to 2023. There is a need to compare the analysis with other quaternary species data on other research sites. At the moment, the analysis can only present the case in the Baroro delta of La Union over that one-year period.

Acknowledgements

This paper is an expanded analysis of a paper that was presented at the 3rd International Conference on Indigenous

Knowledge Systems and Practices IKSP at Universitas Ahmad Dahlan, Yogyakarta, Indonesia, from 5 to 7 June 2023. I would like to acknowledge the core international conference organizing committee of the 3rd IKSP, especially Dr. Ma. Teresa De Guzman, Ph.D., and Dr. Elli Nur Hayati, MPH Ph.D.

I would also like to acknowledge Dr. Emma Porio, Ph.D. (Coastal Cities at Risk in the Philippines, Ateneo de Manila University), Mayor Mary Jane "MJ" Ortega (former Mayor of San Fernando, La Union), Regional Director's Office, Environmental Management Bureau- Region 1 (Department of Environment and Natural Resources). The author also acknowledges the effort of the Provincial Government of La Union to provide publicly available infographics/ situation reports on COVID pandemic on their Facebook page https://www.facebook.com/LGULaunion.

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