

Spatio-Temporal Dynamique Of Farmers And Herdsmen Conflict Incident In Nigeria North-Central (2015-2018)

[Dynamique Spatio-Temporelle De L'occurrence Du Conflit Entre Agriculteurs Et Bergers Dans Le Centre-Nord Du Nigéria (2015-2018)]

GARBA Mustapha¹, OKPUVWIE EJUVWEYERE Jonathan², TOKO MOUHAMADOU Inoussa^{3*}

¹MGIT Students, Department of Geographic Information Science (GIS). African Regional Institute for Geospatial Information Science and Technology (AFRIGIST). Obafemi Awolowo University Campus. Off Road 1, PMB: 5545, Ile-Ife, Osun State. Nigeria. +234 806 685 1845, mustygd@gmail.com.

²MGIT Students, Department of Geographic Information Science (GIS). African Regional Institute for Geospatial Information Science and Technology (AFRIGIST). Obafemi Awolowo University Campus. Off Road 1, PMB: 5545, Ile-Ife, Osun State. Nigeria. +234 817 376 1233, okpuvwie37@yahoo.com.

³Associate Professor (AFRIGIST) and Maître de Conférences (CAMES). Department of Geographic Information Science (GIS). African Regional Institute for Geospatial Information Science and Technology (AFRIGIST). Obafemi Awolowo University Campus. Off Road 1, PMB: 5545, Ile-Ife, Osun State. Nigeria. +234 703 237 2859, toko.inoussa64@gmail.com/tinoussa@hotmail.com.



Abstract – In the North-Central of Nigeria, the conflicts between farmers and Fulani herdsmen have exacted a heavy humanitarian toll with thousands killed and tens of thousands displaced in Nigeria. The aim of this study is to identify farmers and herdsmen conflict hotspots using Geospatial Technology for sustainable peace and populations better life of local and surrounding populations. The methodology used is based on the use of ArcGIS Spatial Analyst Tool to analyse the conflicts locations. Also, a simple statistical analysis through Microsoft Excel allowed to analyse the incident data for, 2015-2018 farmers and herdsmen conflict incident obtained and their GPS Points collected from ACLED. The farmers and herdsmen conflict incidents maps locations of 2015, 2016, 2017 and 2018, are the main results of the study. In conclusion through these maps, this study highlighted the relevance of Geospatial Technology on the specific location of conflict or war incident. Because it is very crucial in every geographic location as such points could be where security agencies will give keen attention to in order to prevent future occurrence of conflict incident.

Keywords – Farmers, Fulani Herdsmen, Violence, Places, Trend, Years, Nigeria North-Central.

Résumé – Au centre-nord du Nigéria, les conflits entre agriculteurs et bergers Fulani ont fait des milliers de morts et des dizaines de milliers de déplacés au Nigéria. L'objectif de cette étude est d'identifier les zones de conflit des agriculteurs et bergers en utilisant la Technologie Géospatiale pour une paix durable et une meilleure vie des populations locales et environnantes. La méthodologie utilisée est basée sur l'utilisation de l'outil Spatial Analyst d'ArcGIS pour analyser les zones de conflits. De plus, une simple analyse statistique au moyen de Microsoft Excel a permis d'analyser les données sur les incidents pour les éleveurs et agriculteurs de 2015-2018 et leurs points GPS recueillis auprès de l'ACLED. Les principaux résultats de l'étude sont les cartes des incidents de conflit des agriculteurs et éleveurs de 2015, 2016, 2017 et 2018. En conclusion, à travers ces cartes, cette étude a souligné la pertinence de la Technologie Géospatiale sur le lieu spécifique du conflit où incident de guerre. Car, dans chaque zone géographique, de tels points pourraient être ceux sur qui les organismes de sécurité accorderont une attention particulière afin d'éviter la survenance future d'un incident de conflit.

Mots-clés – Agriculteurs, Bergers Peulh, Violence, Endroits, Allure, Années, Centre-Nord Du Nigéria.

I. BACKGROUND

Farmers and herdsmen clashes are feuds that have led to wanton destruction of lives and properties over the years largely across Africa and Nigeria in particular [1]. Besides, the Global Terrorism Index (GTI) recently placed the Nigeria's herdsmen as the world's fourth deadliest militant group for having accounted for about 1,229 deaths in 2014. While Boko Haram was associated with about 330 casualties in the first quarter of 2016, the Fulani herdsmen accounted for nearly 500 deaths and have shown no sign of slowing down. As such, it has been predicted that the Fulani herdsmen might well surpass Boko Haram as Nigeria's most dangerous group [2]. Herdsmen remain a formidable armed group Furthermore, the Farmer-Herder conflicts have resulted in a humanitarian crisis and grown in frequency across Nigeria. They have spread and intensified over the past decade and currently are a threat to national survival [1]. Fulani-farmer conflict linked to poverty, migration, inequality. The impacted states are those of the North-Central Nigeria such as Benue, Taraba, and Plateau. Farmer-Herder conflicts have grown in frequency across Nigeria [3]. The major research question of this study is "How the conflicts between herdsmen and farmers have been occurred in the North-Central of Nigeria from 2015 to 2018?". And as main hypothesis, the recurrent clashes between herdsmen and farmers in Nigeria are a conflict of interests over resource (pasture and fresh water for cattle) acquisition or control. So, the aim of this study is to identify farmers and herdsmen conflict hotspots using Geospatial Technology for a sustainable peace and populations better life in the North-Central Nigeria. This aim cannot be achieved without the following objectives:

- *Analyse Farmers and Herdsmen conflict incidents spatial distribution in 2015,*
- *Analyse Farmers and Herdsmen conflict incidents spatial distribution in 2016,*
- *Analyse Farmers and Herdsmen conflict incidents spatial distribution in 2017 and,*
- *Analyse Farmers and Herdsmen conflict incidents spatial distribution in 2018.*

Herdsmen are owners or keepers of herds of animals like cattle. They usually move their herds from one place to another in search of pasture and fresh water. In Nigeria, it is predominantly the occupation of the Fulani ethnic group. In other words, they own and rear cattle for commercial purposes [4]. Crisis is inevitable as long as we live together, especially in a multi-ethnic, cultural and religious community like Nigeria. However, violence leaves us with various forms of retardation and underdevelopment resulting from the destruction of lives, farmland and property. The competition between farmers and herdsmen, however, has often times turned into serious hostilities and social friction in many parts of Nigeria [1].

II. MATERIAL AND METHODS

2.1 Study Area

2.1.1 Geographical and administrative locations

The North-Central is one of the six geopolitical zones in Nigeria and it consists of the States of Benue, Kogi, Kwara, Nasarawa, Niger, and Plateau, as well as the Federal Capital Territory (FCT). North-Central Nigeria lies approximately between 3° and 14°E and latitude 7° and 10°N [5]. The region is made up of six states namely Benue, Kwara, Niger, Plateau, Nassarawa, Kogi and Abuja the federal capital Territory as shown in figure 1. It constitutes the food basket of Nigeria. It is bordered in the North by the republic of Niger in the east, by republic of Cameroon and in the west by Benin republic.

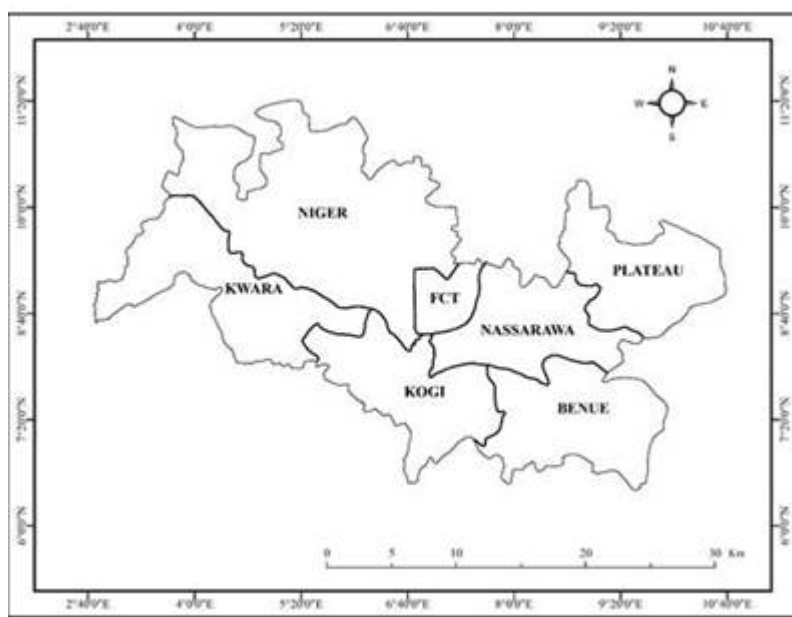


Figure 1. States of Nigeria North-Central.

2.1.2 Biophysical characteristics

The tropical savannah climate characterized by wet and dry condition affects most parts of North-Central Nigeria. Temperature is generally high in the region [6]. The soils are generally characterized by a sandy surface horizon overlying a weakly structured clay accumulation [7]. The major vegetation is basically the Guinea Savannah Zone (90% of the land mass). This vegetation belt is mainly of deciduous trees with grasses and shrubs [8]. The geology is characterised by deep sedimentation which commenced with the marine Neocomian [9]. An extensive drainage forms tributaries that flow from the Benue River and River Niger [7].

2.2. Material

Data and sources

Table 1 present the description of data used.

Table 1. Description of data used

Data	Data Type	Year	Source
Farmers and Herdsmen conflict incident data in North-Central Nigeria	Secondary	2015-2018	ACLED*
GPS Points of farmers and herdsmen conflict incident in North Central Nigeria	Secondary	2015-2018	ACLED
Nigerian Shapefile/ Administrative Map of the study area	Secondary	1972	OSGOF

*ACLED = Armed Conflict Location & Event Data Project, in Nigeria.

2.3 Methods

ArcGIS Spatial Analyst Tool is the method of data analyses used to analyse the farmers and herdsmen conflicts incident locations. And the method of simple statistical analysis with Microsoft excel was used to analyse the incident data.

2.3.1 Identification of conflict incident locations in the North-Central

To use the GPS point’s data in the ArcGIS software the data needs to be converted to a compatible format as follows: The farmers and herdsmen conflict incident GPS point data collected from the Armed Conflict Locations and Event Data were computed in Microsoft excel sheet and saved as comma delimited (csv). That file format was exported to ArcGIS where the converted points data were processed. Then the incident locations were displayed on the study area map after which the farmers and herdsmen conflict incident locations map was produced per year for the period 2015-2018.

2.3.2 Determination of conflict trend in the North-Central

A time series is a collection of observation made sequentially in time, where seasonal trends of various parameters are plotted or considered. Time series plots are useful for detecting trend and seasonal variation in a data set. This can help for the prediction of famers and herdsmen conflict incidents. And through this proper strategies or preventive measures for combating the problem could be put in place by the government. The incident data were grouped into various states in the study area and was computed in Microsoft excel sheet. Then the trend analysis within the study period (2015-2018) was determined and the results were presented on chart. With the aid of trend analysis chart one can clearly see if the conflict is increasing or decreasing over time.

III. RESULTS

3.1 Farmers and Herdsmen conflict incident spatial distribution in North-Central of Nigeria between 2015 and 2018

3.1.1 Spatial distribution of conflict incident in 2015

Figure 2 shows in 2015 the spatial distribution of Farmers and Herdsmen conflict incident in North-Central. The analysis of figure 2 indicates that in 2015, the frequency of conflict incident occurrence is more in the States of Benue (23) and Plateau (11).

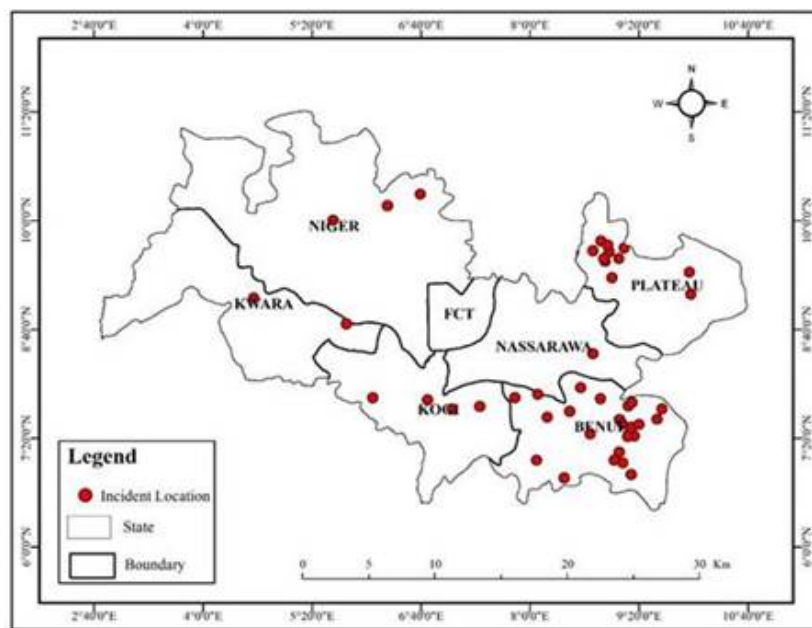


Figure 2. Spatial distribution of conflict incident in Nigeria North-Central (2015).

3.1.2 Spatial distribution of conflict incident in 2016

Figure 3 shows in 2016 the spatial distribution of Farmers and Herdsmen conflict incident in North-Central. Figure 3 indicates that in 2016, the frequency of conflict incident occurrence in Benue State is 4 for the north, 2 for the west, 3 for the south and 2 for the east.

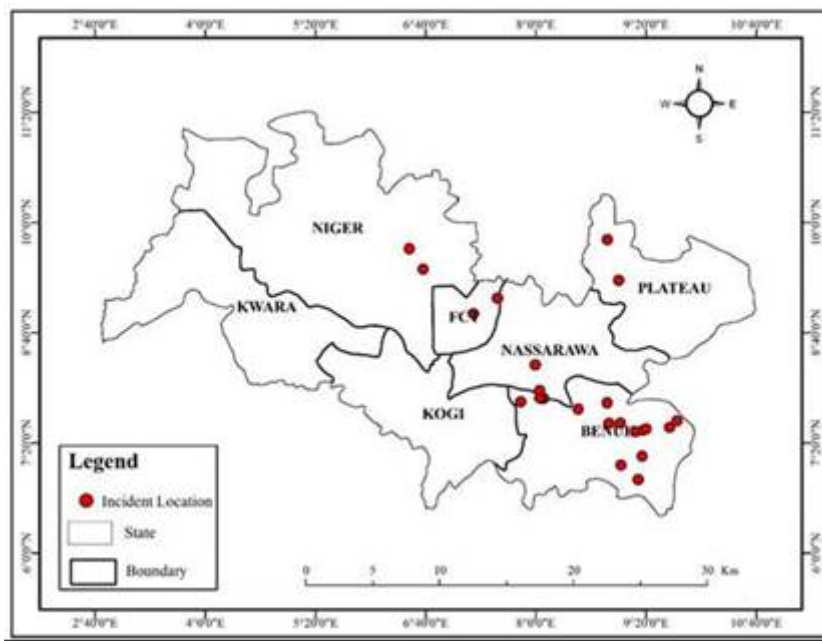


Figure 3. Spatial distribution of conflict incident in Nigeria North-Central (2016).

3.1.3 Spatial distribution of conflict incident in 2017

Figure 4 shows in 2017 the spatial distribution of Farmers and Herdsmen conflict incident in the North-Central. The analysis of this map 4 is showing that in 2017, the frequency of conflict incident occurrence is still more only in Benue state and spread all over the state with 4 in west, 1 in north, 1 in middle, 4 in east and 2 in the south. This frequency is 5 in the north-west of Plateau State.

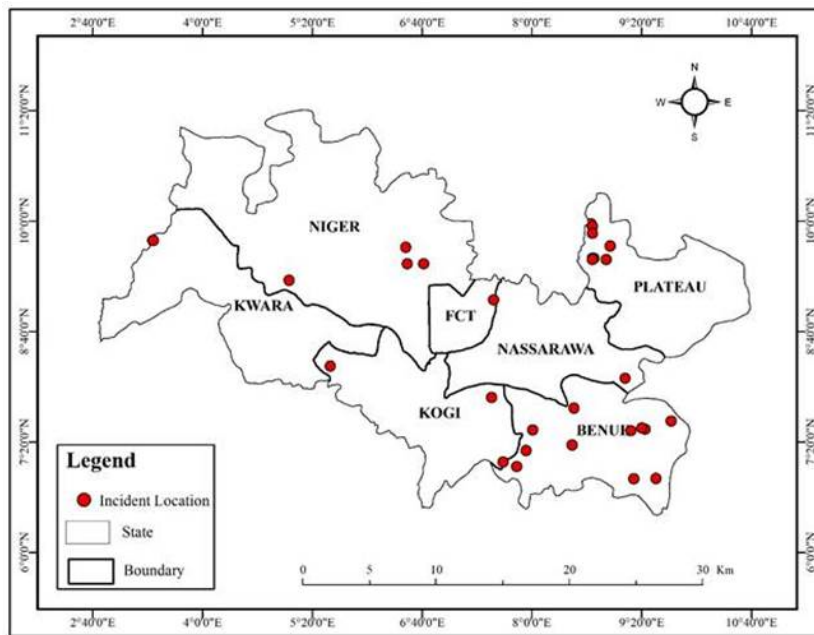


Figure 4. Spatial distribution of conflict incident in Nigeria North-Central (2017).

3.1.4 Spatial distribution of conflict incident in 2018

Figure 5 shows in 2018 the spatial distribution of Farmers and Herdsmen conflict incident in North-Central. In figure 5 the frequency of conflict incident occurrence is still more in Benue state but, in the South-East of Nassarawa State, important incident

locations have been observed. This situation means that the two states Benue and Nassarawa have similar problems.

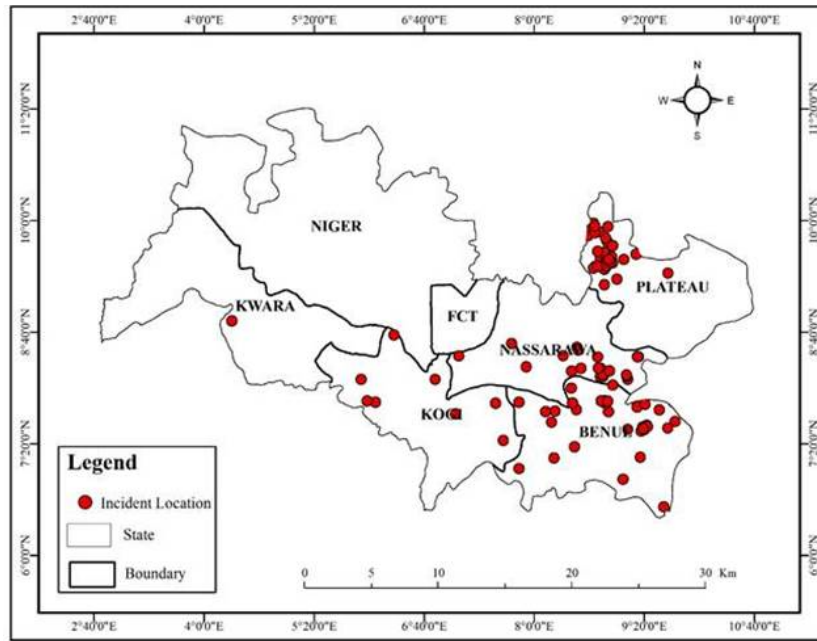


Figure 5. Spatial distribution of incident in Nigeria North-Central (2018).

3.1.5 Cumulative spatial distribution of conflict incident between 2015 and 2018

Figure 6 shows the cumulative spatial locations of Farmers and Herdsmen Incident in North-Central between 2015 and 2018. In figure 6 the frequency of conflict incident occurrence is still more respectively in the states of Benue (more than 65), Plateau (more than 40) and Nassarawa (more than 25) than the others states. This results indicate that these three states have similar socio-economic problems.

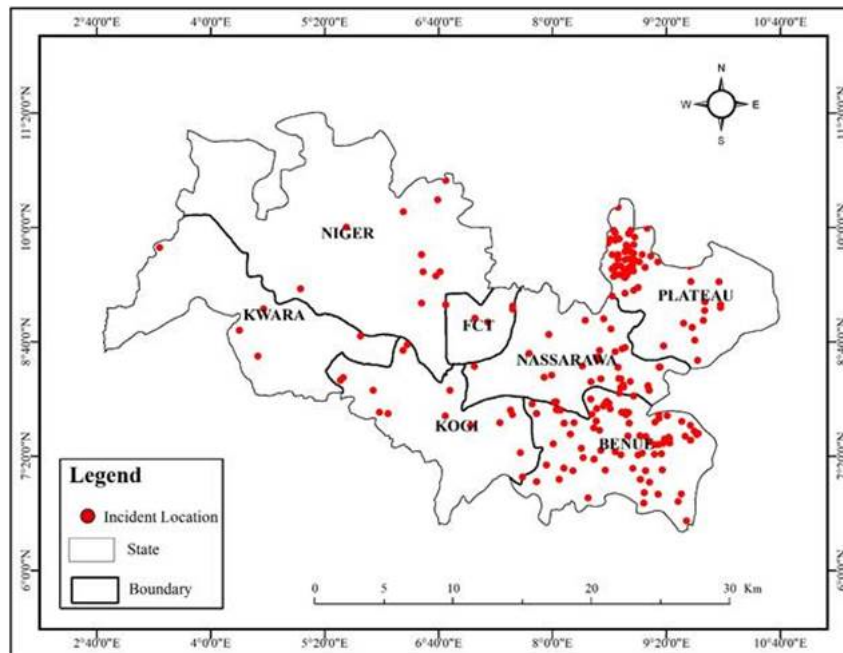


Figure 6. Cumulative spatial pattern of Farmers and Herdsmen conflict incident spatial distribution in Nigeria North-Central (2015 - 2018).

IV. DISCUSSION

4.1 Origin of conflict between Farmers and Herdsmen in Nigeria North-Central

Through this study one can notice that, a problem does not exist in a vacuum and every problem was caused by something. A good number of factors gave rise to farmers and herdsmen conflict in Nigeria. Scholars have identified some fundamental causes of farmers and herdsmen conflict in Nigeria; land use which also involves scarcity of land resources, ethnic and religious differences were among the major factors ([10], [11], [12], [13]). Other identified causes of clashes between farmers and herdsmen includes; destruction of crops by cattle, burning of rangelands, increasing rate of cattle theft, decline in internal discipline and social cohesion and inadequacy of grazing resources ([14], [15], [1]). Fulani herders established friendly relationships with community members, and they shared culture and ideology by sharing resources such as land and water. Strong social networks between the Fulani herders and local cattle dealers, politicians, and landowners were established. However, migration routes and grazing zones were not protected for the Fulani herders, and the herders often had conflicts over land allocation [16]. All these causes have negative effects on population lives in the North-Central of Nigeria.

4.2 Effectiveness of National Police and other Security agencies face to crime combating in Nigeria

In the North-Central of Nigeria, the analysis of spatial pattern of farmers and herdsmen conflict issues clearly revealed that the degree of incident which could help government in making necessary decisions for intervention in combating the challenge. But, [17], in their study in Ife-Central LGA (Ile-Ife), mentioned that 61.1% of the total responses of the respondents expressed their dissatisfaction with the performances of the police and other security agencies in their effort to combat crime. While 35.3% of the respondents were happy with the performances of the police and other security agencies. Conversely, 3.6% of the respondents were indifferent about their performances. They concluded clearly that, the residents in Ife-Central LGA are not generally satisfied with the performances of the police and other security agencies in their quest to curb crime in the study area.

V. CONCLUSION

Through this study, one can understand how violent conflicts between herdsmen and farmers in Nigeria have escalated in recent years, which threatened people's lives and the country's stability. Because, this conflict has led to the destruction of lives and properties in Nigeria; it has also affected the Nigerian economy adversely, the destruction of farm produce and killing of cows have not fared well with the Nigerian economy, psychological wellbeing of victims' relatives and survived victims of the attacks have been distorted adversely.

The finding reveals that within the study period (2015-2018), the highest conflict incident between the farmers and herdsmen was 106 and this occurred in Plateau state. While majority of the incident recorded happened in Benue state followed by Plateau state. The finding also shows that the incidents were clustered in some locations and this is an indication that the conflict occurred repeatedly in some areas within certain states. The sum total conflict incidents recorded within the study period was 405. In 2017 and 2018 there was no conflict between farmers and herdsmen in FCT. Similarly in 2015 Kogi and Kwara states have no incident and in 2017 only Niger state didn't record any incident. It is only Benue, Nasarawa and Plateau states that experienced farmers and herdsmen conflict in every year from 2015 to 2018.

This study recommends that the federal government should ensure that state governments should provide ranching in their respective states; the Nigerian stakeholders should call the herdsmen and farmers together to resolve the conflict. Furthermore government should intensify efforts to provide grazing reserves.

VI. ACKNOWLEDGMENT

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