The Historical Data Papers and the Geographical Information System as Tools for Mapping Settlement and Migration in the Ilocos Region

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ABSTRACT

This study explores intercultural interactions in different localities of Ilocos Sur and Ilocos Norte as our contribution to the now flourishing field of local historiography. It mines the Historical Data Papers (HDP) and undertakes mapping of the data culled through the Geographical Information System (GIS), a combination of sourcing and methods which, we believe, constitutes a different approach to local histories. Because it was created mainly as a convenient database, the HDP is seldom utilized by researchers, in large part owing to questions raised concerning its data gathering methods. But with easily accessible data covering wide geographical spaces, we found the HDP ideal for our own attempt at local historiography and mapping. Maps are significant tools for the presentation and analysis of data but are also still little-used for historical analysis. With the available technology and an interdisciplinary approach, however, mapping can truly enhance local history and intercultural studies. We focused on settlement and migration patterns and, with the latter in the picture, we were able to create additional maps portraying possible movements of the people around the said provinces. The resulting six maps portray migration as a constant part of the settlement of Ilocos Sur and Ilocos Norte. From the HDP findings, the most observable migratory movements were those of Ilocanos and Cordillerans (including the Tingguians and Itnegs). The migration maps themselves provide us with ample clues on the intercultural interactions between the Ilocanos and Cordillerans and to reimagine each community's sense of locality based on their perspectives and experiences rather than administrative or geopolitical demarcations.

Keywords: Geographical Information System (GIS), Historical Data Collection, Migration, Settlement, Ilocos Region

INTRODUCTION

Local histories have been a major trend in Philippine historical research for sometime now. We aim to contribute to local historiography by exploring the use of the Geographical Information System (GIS) in managing or presenting data about intercultural interactions in the Philippines, with particular focus on migration and settlements. Specifically, our study a) assessed, and experimented with, the applicability of the GIS on local history data; b) evaluated the Historical Data Papers (HDP) as a possible preliminary source for mapping; and c) created settlement and migration maps as future reference material for local historiography, research on intercultural interaction, and indigenous peoples' studies.

The Historical Data Papers (HDP) abound with background information on settlement and migration patterns for local communities; hence our focus here on narratives of migration and settlement which can account for demographic movements and possible intercultural interactions between and among communities in proximity to each other. Such narratives are relatively easy to map for those who might be interested in testing and duplicating the methodology. While not regarded as an archive of official local histories, the HDP was created by Executive Order No. 486, dated 7 December 1951, to serve as a convenient collection and compilation of data for those who wish to engage in local history research and writing. This convenience and accessibility through the National Library's Digital Collection proved useful during the drafting of our study, given the research restrictions brought about by the pandemic. The HDP also provided us with the data from relatively wide geographical areas crucial to the mapping aspect of our project.

For the maps, we relied on the Geographical Information System (GIS), the software available to us in the course of this research. In particular, Quantum GIS (QGIS), an open-source mapping software, along with its cohort of baseline maps (available both through the software and online), turned out to be quite handy for our purposes. Cartography, or the science/art of creating maps, is one of the primary methods in geography and its various sub-fields. Maps have also been valuable as tools for historians and anthropologists in their studies of the past and their studies of cultural community, respectively. The GIS has been at the forefront of new technologies in mapping. For historians and cultural heritage workers, the GIS can enable them to create a "landscape of memory" for their respective objects of research (Bodenhamer 2007). The GIS is a powerful tool to manage as well as analyze many pieces of information (Anselin, Appelbaum, Goodchild, and Harthorn 2000; Bodenhamer 2007).

With GIS, one can map vast amounts of data and then organize them in a way that can help us visualize the complexity of human behavior in any given space and time (Bodenhamer 2007). While mapping cannot replace scholarly examination and narrativity, it can assist greatly in the work of historical interpretation and subjecting the data to more plausible or accurate approximations (Bodenhamer 2007).

Our study was mainly limited to the data retrieved from the Historical Data Papers for Ilocos Sur and Ilocos Norte, to be further discussed in the succeeding sections. But we found ourselves at the mercy of the methods employed by those who wrote the HDP reports. Pertinent observations regarding these limitations are made here, but we had enough data for the mapping, even as the maps we produced, admittedly, would need further or future refining. Use of the HDP as our primary sources places our research in the timeline of the 1950s, a significant period, to our mind, for its focus on the post-war rehabilitation of the Philippines and the reconstruction of our historical archives or sources which were destroyed during WWII.

Ilocos Sur and Norte were of particular interest to us owing to our positionality as researchers in respect of them: one an Ilocano born in Ilocos Sur, and the other having an Ilocano parent from Vigan. Various municipalities in Ilocos Sur have also served as sites for both of us in previous and separate research projects. Ilocos Sur, Ilocos Norte, and La Union constitute the Ilocos Region, although various configurations also included Abra and parts of the Mountain Province. The recent political demarcation of Region I now also encompasses parts of Pangasinan as well (Savellano 2009; Scott 1896). The thin slice of land comprising Ilocos Sur and Ilocos Norte straddles the Western coastline, once dense forest, some cattle ranches, and several gold mines especially near the Caraballo or Cordillera mountains (Savellano 2009).

Various sources and studies which portray, in varying detail, the intercultural interactions in the said areas precede our own. In examining the origins of the Bago Igorots in his undergraduate thesis, Pawilen (2013) consulted several primary and secondary sources which recount the interactions between the Ilocanos and the Igorots, specifically in terms of translocal migration and trade relations. Sources cited in his study include Keesing (1962), Flameygh and Scott (1978), another book by Scott (1986), and Savellano (2009).

In what is recognized as one of the first extensive studies of the ethnolinguistic groups in Northern Luzon, Keesing (1962) covered the migration of Cordillerans to the Ilocos Region in areas known as rancherias. Most of the migrants were Tingguians from Abra. In the translation and analysis of an Ilocano-Igorot peace pact in 1820, Flameygh and Scott (1978) highlighted both the relationship

and geographical proximity between the Ilocanos and Igorots around Tagudin, Ilocos Sur and other parts or rancherias around the Amburayan River. In *Ilocano Responses to American Aggression, 1900-1901,* Scott (1986) specifically mentioned the Apayaos, Tinguians or Itnegs, and Igorots to be on generally good terms with the Ilocanos, even venturing as far as Vigan to trade with them. Savellano's history of Ilocos Sur (2009) observes the co-existence of the Tingguians and the Bago in the following areas: Nagbukel, Burgos, Banayoyo, Lidlidda, San Emilio, Salcedo, Galimuyod, Quirino, Gregorio Del Pilar, Cervantes, Sigay, Suyo, Sugpon, and Alilem.

For the Cordilleras, one estimate of the composition of Kalinga's population revealed the trans-migration of various ethnolinguistic groups to the region. While 64% of the population were Kalingans, 24% were Ilocanos from Cervantes and Tagudin, Ilocos Sur, and the rest were Bontocs, Tagalogs, Muslims, and Ytawis or Ibanag (Calimag 2016). The research of Van der Ploeg, Persoon, and Masipiquena (2007) documented Ifugao migration to and settlement in Sierra Madre areas, with accompanying maps of such settlements there.

In a 1996 Ethnographic Map of the Philippines drawn from the website of the National Commission on Indigenous People (Region 1), the indigenous cultural communities of the Cordillera Administrative Region and Region 1 are clustered together with the following groups: Bontoc, Balangao, Isneg, Tinguguian (Tingguian), Kankanaey, Kalanguya, Karao, Ibaloi, Ayangan (Kiangan), Ifugao, Tuwali, Kalinga, Yapayao (Apayao), Bago, Gaddang. The map did not specify which group occupied which territory or which group migrated to and settled in what area.

However, way before these mappings and the HDP of the 1950s, Cole (1909) extensively graphed the ethnolinguistic groups of Northern Luzon for his work "Distribution of the Non- Christian Tribes of Northwestern Luzon." Cole's map attempted to place the ethnolinguistic groups in specific municipalities. What was missing in these earlier and recent mappings, however, was the element of migration, only generally pointing out, as they do, where the ethnolinguistic groups could be found or where their ancestral domains lay.

Internal migration, or intra-country migration, has been studied for different parts of the Philippines. After WW II, Alegre and Morada (1988) found that there was no definite migration stream in Northern Luzon; there was a stream of migration from Southern Luzon and the Visayas; and there were streaming migrations between Visayas and the "frontier" areas of Mindanao. With these findings, Alegre and Morada failed to detect internal movements within the Cordillera and Ilocos Regions. In his work *Laws of Migration*, Ernest Ravenstein (1885) observed that internal migration within states were mostly "rural to

urban," as urban centers tended to teem with better opportunities for labor and trade, attracting peoples from the countryside. But in the case of Central Mindanao, most of the migrants came from the Visayas in search of livelihood opportunities and land acquisitions in its frontier areas (Arellano 2006).

Some critical remarks about mapping domains of habitation as well as migratory streams are in order here. The use of geospatial data or the GIS in studying migration and indigenous peoples has been perceived as a tool for either indigenous empowerment or for their colonial exploitation. Robin Roth (2009) has argued that the mapping platform or tool itself is not the concern; rather, how indigenous peoples and researchers may perceive their "home domain" or "dwelling" in geospatial representation and may differ from the perceptions of the state or its administrative borders is what ultimately matters. Pearce and Loius (2008) echo Roth's concern, contending that different languages and epistemologies may affect the outcome of efforts to map indigenous peoples' domains and movements. They point out that, since the 1970s, indigenous peoples have employed Western geospatial technologies such as satellite images, maps, and global positioning systems in documenting and asserting tribal domains or managing watersheds. Such was the case of *ahapua'a* resource management in Hawaii: cartographic language understood and expressed indigenously was in play. McMahon, Smith, and Whiteduck (2017) cite a similar phenomenon in their study of the First Nations in Canada: continuous engagements between the indigenous peoples and the State, or consortia between them (along with other stakeholders) could address the knowledge gaps. Both Roth (2009) and McMahon, et al. (2017) advocate for continued participatory research so as to better understand and undertake the mapping of indigenous peoples' domains through technology.

Lastly, geospatial technologies like GIS have been used in mapping migratory patterns, with provisions for qualitative and quantitative analyses, and the geospatial visual representation of movements, especially in inter- and intra-regional settings. For example, Holland and Plane (2001) explore qualitative and quantitative methods for mapping migratory patterns within the United States and analyze demographic movements and flows through visual representations of them. This study therefore provides maps in the study of local histories which are, arguably, more dynamic because of the migration data. Despite questions on the reliability of the HDP, its data are nonetheless culled from communities rooted in local history. We take the issues raised about the HDP as a resource to be an encouragement to do more mapping projects in the future, based on other and alternative sources for the comparison and enrichment of data.

Methodology

When former President Elpidio Quirino issued Executive Order (EO) No. 486, s. 1951, to launch the HDP, it was to address the destruction of the national archives during WW II around six (6) years prior. It was also to continue previous projects that collected local histories and cultural practices such as those envisioned by EO No. 2 and 136, dated 26 January 1911, and EO 136, dated 3 January 1938, whose cumulations were also mostly destroyed during the war. As appendix item (A) of EO 486 stated:

> The data gathered should be so compiled and arranged as to constitute convenient source materials for the use of those who may wish to write the history of the community … The local committee is not expected to write the history of the community. However, if it attempts to do so, the result of its labor will constitute one step forward in the intellectual advancement of the community.

Because the teachers with the Department of Education (or Bureau of Education as it was called in several of the reports) were deployed for the work of data cumulation and compilation, the project was able to cover wide geographical areas. This makes the HDP a truly convenient resource as it gathers the data from wide geographical areas in one place. The appendix provided the guidelines for the research to be undertaken, including the formation and composition of the local or municipal and provincial committees as well as the format and authentication of the reports. These committees were mostly to be composed of elementary and high school teachers and administrators. Item (A) of the appendix provides guidance on the conduct of research by the local committees:

> They may call together the wise old men and women of each barrio, sitio or district, who may have a wide knowledge of the life history and culture of the community and obtain the information from them and from the documents or records that they have in their possession. The records of the municipal or city government and those of the church may, in some cases must, be consulted. No possible sources of data should be overlooked.

Each report from the local or municipal level was to be divided into two parts: 1) the history of the place starting from the place name/s to the significant events of post-war rehabilitation; and 2) the folkways of the municipality from the personal beliefs of community members to folklore such as stories and proverbs, among others. The committees

were also instructed to affix their signatures and the signatures of their informant/s to the completed files. Under rigorous scrutiny, however, the resulting reports were found to be wanting in many respects. Several reports did not follow the prescribed format; not every barrio or municipality was represented; and not all were signed by the committee members or even the informants. Other reports did not enumerate or identify their informants; and sadly, the format had no provisions or instructions for the writers to discuss their research methods. The reports were just a retrieval and documentation of memories and practices of the localities, per the guidelines set out in the appendix of EO 486.

Another significant problem concerns the current state of the HDP: some of the online copies we consulted were not properly scanned, some have missing or damaged pages, or others were obviously misarranged. For academic researchers like ourselves, these are serious limitations, especially since no information is available about the mode of writing the reports, the choices of informants, and the extent of the data collected for the object communities. For Ilocos Sur for example, only five (5) of the 15 municipalities and 23 of the 125 Barrios offer explanatory accounts of their communities' origins, while for Ilocos Norte, only five (5) out of the 16 municipalities and 20 out of the 128 barrios do so. We noted the documents from Ilocos Norte to be better written as they followed the format prescribed by EO 486.

What consoles users of the HDP is that it is posted online and thus publicly shared. Its format and "survey-interview" mode can then be improved and duplicated by today's users who might be concerned to corroborate or correct its contents through contemporary sources, new archival and field work, and research through oral traditions. Using the GIS in processing the data is, of course, one of the ways to present and analyze what is available from the HDP.

We summarized and categorized our HDP sources into *Original Ilocano* or those whose stories clearly indicate the settlers' ancestry as Ilocano; *Migrant Ilocanos/IPs* or those whose narratives involve a migration process, either of Ilocanos from other lowland areas or indigenous peoples, whether their ethnicity is specified or not; *Itneg/ Tingguian* for those that specify their origins or identity from these groups as such; *Mountain Province IP* for those whose accounts identify settlers from what was once areas of the Mountain Province; and *Others* to represent those with no specified ethnolinguistic group or those who were neither of Ilocano nor Cordilleran origins. In using the GIS for this study, the graphic representations of the data were based on our interpretations of the information in the HDP, and were cross-referenced with other baseline maps available. Again, we could only map data drawn from the HDP sources. Irrespective of the sample size, mapping enabled us to represent the data in a more dynamically

visual way, providing glimpses of how the writers or informants viewed their local history and culture at the point of the HDP's compilation.

Results

Tabled below is our classification of each community for which HDP information is available. We based our annotations on the foregoing categories and, where relevant, included our observations and assumptions in parentheses for further reference.

**Table 1.** Collective Memories for Ilocos Sur Origins and Settlement.

Ilocos Sur	Original Ilocano	Migrant Ilocanos	Itneg/ Tingguian	Mountain Province IP	Others
Municipality			Burgos (rancheria) Magsingal Sto. Domingo	Sigay	Concepcion (tribe not specified) (Now Del Pilar) Sinait (seafarers)
Barrio	Mindoro, Vigan	Taliao, Burgos (folks from Luna) Sabangan Bato, Galimuyod (neighboring barrios and those from Candon) Fuerte, Caoayan (Survivors from a place called Pantay Tomas Pirac) Matue, Concepcion (lowlanders) Abaya, Galimuyod (migrants from Cabugao and Gon-gon-not, San Emilio, Ilocos Sur) Calongbuyan, Galimuyod (from the Poblacion or town center of Galimuyod) Rubio, Galimuyod (once owned by Don Miguel Carino of Candon, Ilocos Sur; people moved from Calongbuyan) Baybayading, Salcedo (people came from a place called Bakangan) Boguibog, Salcedo (first family came from Sigay, Ilocos Sur) Maynganay, Santa Maria (migrants from Nagtupacan and Banadero) San Pedro (people from Sta. Catalina, Mindoro, and other places)	Salvador, Candon Daldagan, Galimuyod Cadanglaan, Magsingal Ayusan Sur and Norte, Vigan Tabuculan, Santa (migrants from Patucannay)	Madarang, Salcedo	Anonang Mayor, Caoayan (sailors) Tobalina, Concepcion (Now Tubalina, Del Pilar) (Igorots) McKinley, Galimuyod (owned by Don Basilio Madarang of Candon, Ilocos Sur; verified by the people from Banbana-al, Candon, Ilocos Sur) Dinaratan, Salcedo (Guerillas and Busos or Igorots who use the place as a hideout) Ananaao, Concepcion Paoa, Vigan (name indicates settlers were Chinese pirates)

As previously noted, not all municipalities and barrios provided reports on their ethnic origins or settlements, and such gaps were also true of the reports from Ilocos Norte, as reflected in the following table.

Table 2. Collective Memories for Ilocos Norte Origins and Settlement.

Ilocos Sur	Original Ilocano	Migrant Ilocanos	Itneg/ Tingguian	Mountain Province IP	Others
Municipality	Batac Burgos	Banna (migrants from Paoay and Batac who were fleeing the Spaniards) Nueva Era (made up of 9 rancherias with migrants from Batac, Banna, Badoc, Abra, and Ilocos Sur)			Sarrat ("civilized Malay")
Barrio	Agaga, Burgos Der-ap-Saoit, Burgos Maglaoi, Currimao Santa Rosa, Sarrat Santiago, Sarrat Darasdas, Solsona Santiago, Solsona	Luzong, Bangui (Now Baduang, Pagudpud) (One sitio was settled by Tingguians, another by Ilocanos) Bobon, Burgos (migrants from Bacarra and Burgos town proper) San Juan, Sarrat (migrants from Laoag) San Manuel, Sarrat (migrants from San Nicolas, Sarrat) San Pedro, Sarrat (migrants from Laoag, Dingras, Batac, and nearby barangays of Sarrat)	Lanao, Bangui (Itnegs or Yapayaos) Dumalneg, Dingras (Itneg/Isnegs or Yapayaos; Rancheria) Cabittauran, Nueva Era (Rancheria) Caray, Nueva Era Santo Nino, Nueva Era Madalayap, Pasuquin	Madarang, Salcedo	Abaca, Bangui (once owned by a rich Spaniard who developed it as an abaca plantation; descendants didn't know how to manage it so they opened it to native settlers to be worked and and for their habitation) Dampig, Bangui (Aetas and Negritos)

The names of the barrios as well as the demarcation of territories may have changed over time, posing certain challenges in locating some areas in the map. Nonetheless, with the abovementioned data, we mapped their collective memories as follows:
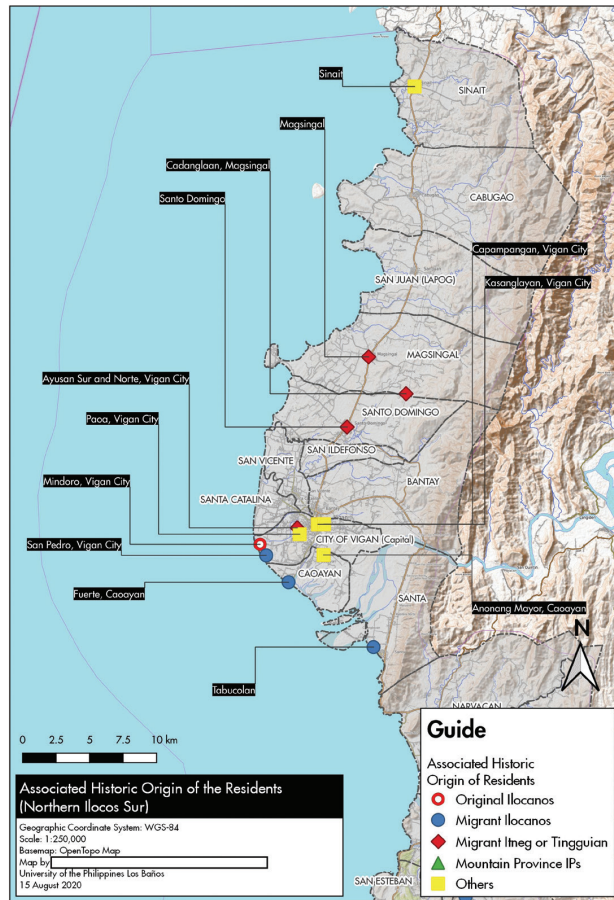
Map 1. Memories of the Settlement and Origins of the Communities in the First District of Ilocos Sur.

Except for the municipality of Santa, Ilocos Sur which was included due to scaling of the map, all others are the current municipalities under District 1. Based on the map, memories of settlement and origins in the First District or Northern part of Ilocos Sur reveal a mixture of Ilocanos, Itnegs, and other ethnolinguistic groups like the Kapampangan and the Chinese. The Ilocanos, whether as migrants or the only "original Ilocanos" in the map, settled along the shoreline, while the Itnegs or Tingguians could be found further up north and relatively farther from the shoreline along what is now the main

highway. One group of Itnegs settled near the provincial capital, as did other ethnolinguistic groups.

Migratory movements mapped below, with the district boundary between Caoayan and Santa, or the Abra River, for visual reference point, show four movements of Itnegs and three from other areas. The trajectory of these movement goes either near the national road or Vigan, the center of commerce. The longest path of migration for the Ilocanos was from Cabugao to Galimuyod, as indicated in the other map. Most Ilocano movements revolved around Vigan.
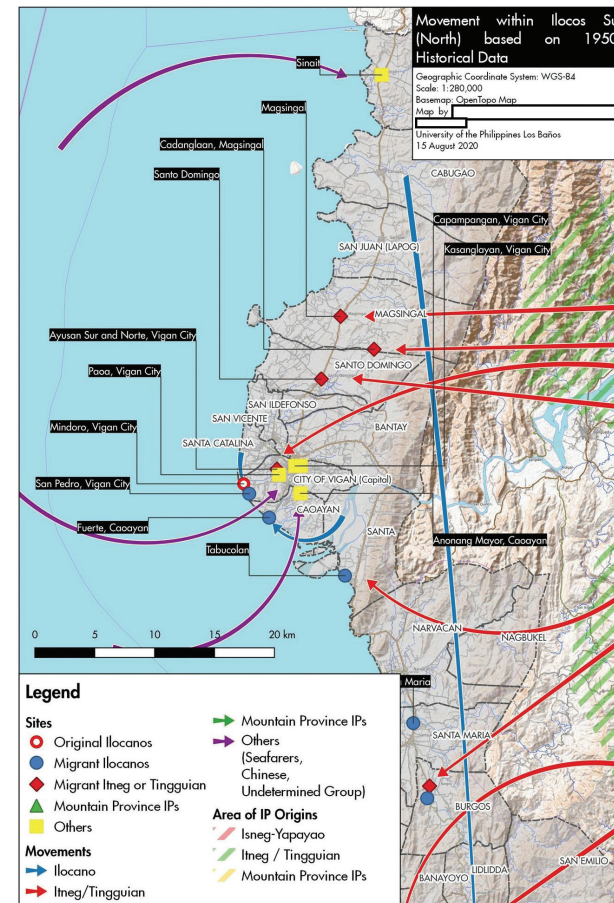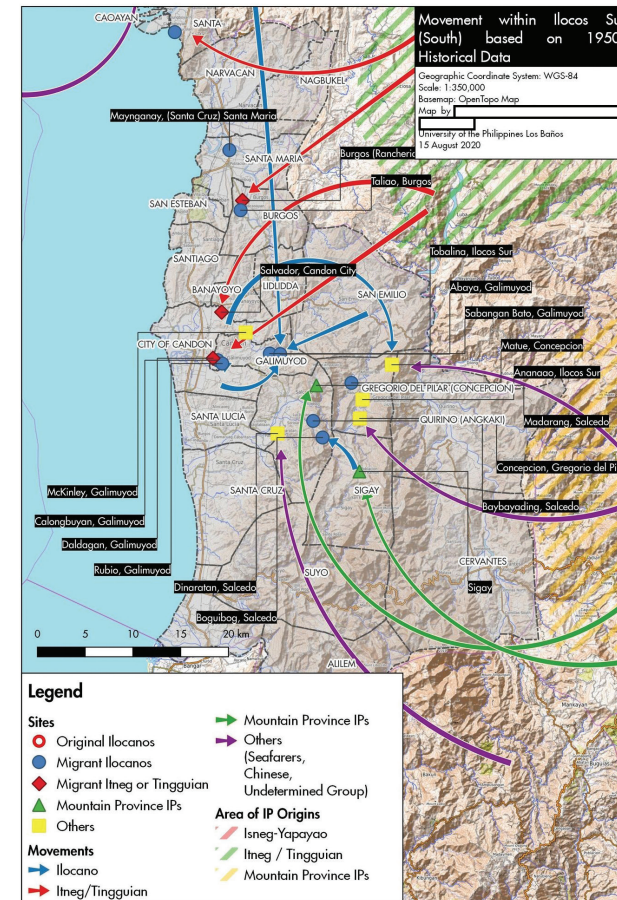

Map 2. Memories of Migration in the First District of Ilocos Sur.

There are more migration memories of Cordilleran indigenous people in the Second District of Ilocos Sur to the point that almost no marker for an original Ilocano settlement could be ascertained for this area. The Itnegs or Tingguians also seem to have settled closer to the shoreline compared to those in the first district, but these are still hillside or mountainous areas. Yet, some Ilocanos also settled far from the shoreline in the more mountainous areas, same with the other migrants who were either described as Igorots in general or even guerillas (see map below):
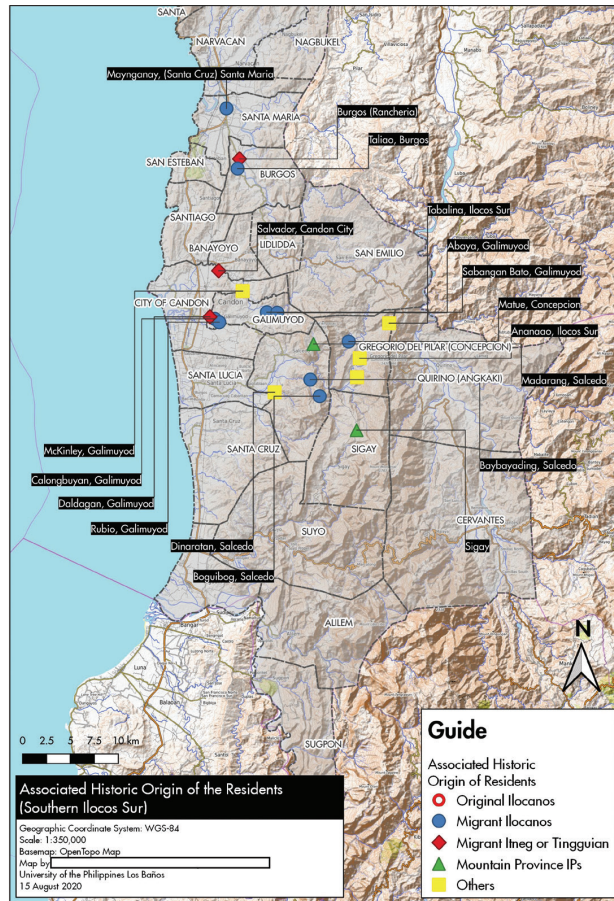
Map 3. Memories of Settlement and Origins of the Communities in the Second District of Ilocos Sur.

Movements in Ilocos Sur's District 2 tended to be both from the hinterlands to the shorelines as well as among indigenous communities. More migration from the Cordilleras, compared to the data for District 1, is also apparent. As noted earlier, the longest noticeable migration between District 1 and District 2 of Ilocos was from Cabugao to Galimuyod.

Map 4. Memories of Migration in the Second District of Ilocos Sur.

Compared to Ilocos Sur, there are more memories of Ilocanos as original settlers in the Ilocos Norte communities. While it may seem that they were dispersed from the shoreline to the hinterlands, one

must note that the cluster near Sarrat or Dingras followed the Padsan River. Migrant Ilocano communities also tended to be close to those with original Ilocano settlers, with three (Banna, Nueva Era, and Luzong) as the outliers. Itneg migrants likewise spread within Ilocos Norte and tended to gravitate toward the mountainous areas, even as most of the communities settled near the national road or followed the Padsan River Network.
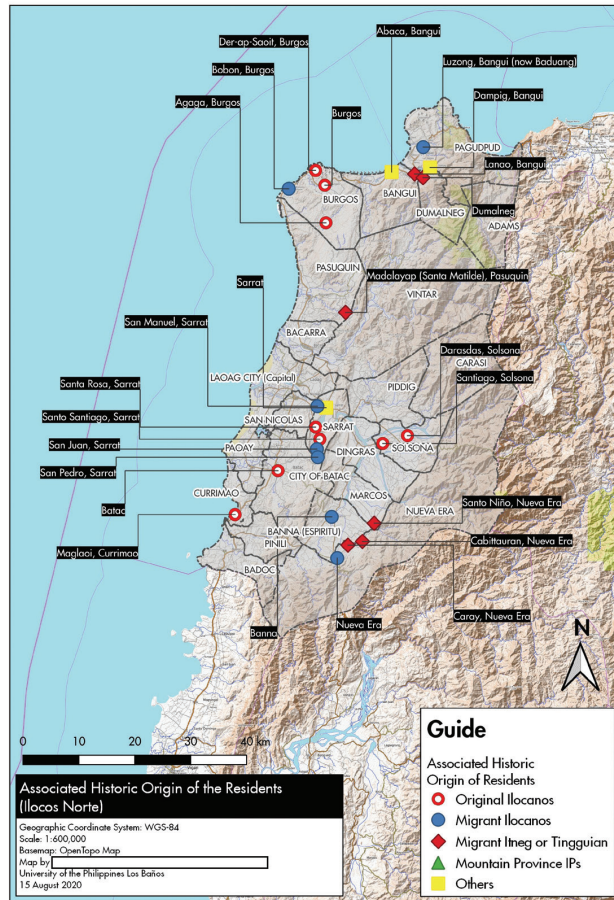
Map 5. Memories of Settlement and Origins of the Communities in the Province of Ilocos Norte.

The following map shows much more movement of Ilocanos in Ilocos Norte, with seven (7) from Abra and Apayao. Similar to the pattern in Ilocos Sur District 2, the indigenous Cordillerans moved toward the lowlands while the Ilocanos tended to move more inward.

Clearly, those who have memories of original Ilocano settlements did not migrate that much; and those who moved did so toward the shoreline or to the known centers of commerce.
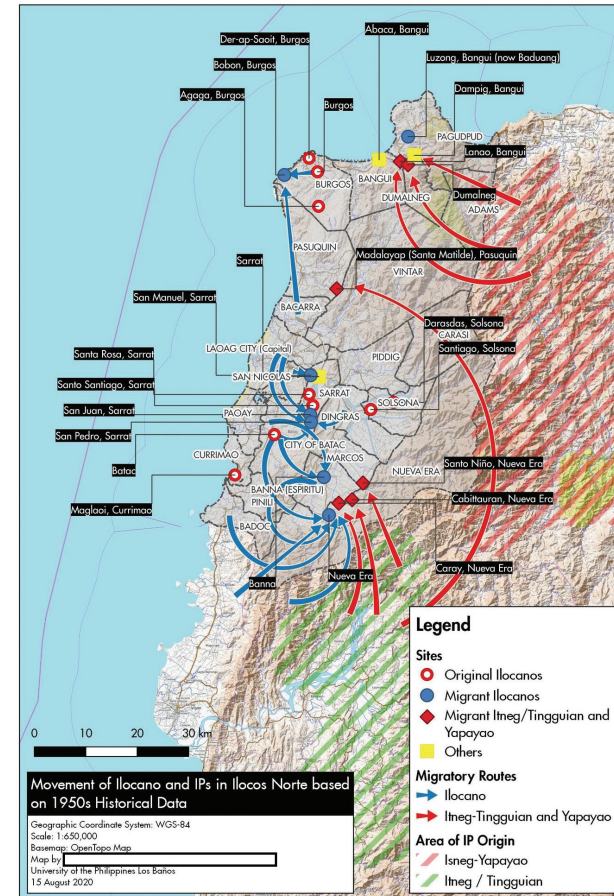
Map 6. Memories of Migration in Ilocos Norte.

Discussion

The data from HDP and our interpretation of them through GIS and mapping foreground migration as a major characteristic in the settlement of Ilocos Sur and Ilocos Norte, an intra- and trans-migration engaged in by the Ilocanos themselves, indigenous people from the Cordilleras, and other lowland ethnolinguistic groups.

According to the HDP reports, some of the reasons for these migratory movements include, but were not limited to, the following:

Natural calamities like floods for those around the Abra River (e.g. those from Santa, Ilocos Sur);

Livelihood-related reasons in search for better areas to farm or to trade (e.g. those who settled in Sarrat, Ilocos Norte);

Conflicts with other nearby communities or ethnolinguistic groups that pushed the people to seek more peaceful areas to settle or more tactically advantageous locations;

Colonial or political issues, e.g. the people fleeing the abuses of the friars or the *gobernadorcillos* of their former communities in an earlier time (such as the case of communities in Galimuyod, Ilocos Sur, and Dingras and Banna, Ilocos Norte).

Evident from the mapping is the pattern of settlement along river systems, although in the case of Santa, Ilocos Sur, settlement near the river made the communities more vulnerable to floods and landslides, making them migrate to other and safer areas. Nonetheless, the maps generally bear out the historic pattern of communities in the Philippines settling near rivers and other bodies of water. The maps also make visible the phenomena of migrations from the Cordilleras to the Ilocos Region. Comparison of this cartographic representation to the HDP reports suggests that these migratory movements were mainly economically-driven as people settled nearer the known trade routes. Closer look at the maps shows that not all migrant settlements located themselves near the national highway or the shoreline but on the region's relatively mountainous parts. We interpret such patterns to mean that these migrant communities had enough practicable access to the trading routes and posts; that they could expect, if not enjoyed, protection from the lowlanders; and they considered familiarity of environment, and proximity to the Cordilleras, as important to their choice of specific domicile.

Inland migrations by Ilocanos on account of their attempts to flee from abusive treatment by the colonizers (a reason memorially documented in the HDP reports) are discernible in the maps. The hinterlands were really the common areas to flee to for this purpose. The tactical advantages afforded by some of these geographical locations, and the possibilities they offered for a more peaceful existence, were also noted in the HDP reports, whether in respect of struggles against the colonizers or conflicts with other ethnolinguistic groups. The maps indicate that there was more migration from the Cordilleras to Ilocos Sur than to Ilocos Norte, owing perhaps to Ilocos Sur's nearer proximity to the Cordilleras. Consequently, Ilocos Norte seemed to have more "Original Ilocano" settlements than Ilocos Sur, on our reading and interpretation of the HDP data. Frequently mentioned are the Tingguians or Itnegs from Abra. The term "Igorot" seems have been used interchangeably in the HDP for the indigenous people from the Cordilleras, in general, or the people from the Mountain Province, in particular, also likely true for the place name "Mountain Province" to refer to either the Cordilleras or to Mountain Province itself, specifically.

At least four more insights regarding the narratives of settlement and migration in the Ilocos Region emerge from the HDP reports and the mappings. First, certain communities in Ilocos Sur and Norte continue to root their indigenous ancestry in the Cordilleras. Second, the Ilocanos themselves migrated out of the region to nearby provinces during or prior to the 1950s. Third, because of these migratory movements and the conceivable intercultural interactions among various ethnolinguistic group, the narratives and the maps debunk claims of isolation of certain of these communities due to geographical barriers. And finally, political-administrative boundaries demarcating the region's provinces were not necessarily restrictive or that determining in history as peoples tended to move around or across them.

Admittedly, our temporal positionality toward the subject might have skewed the mapping of the settlements and the migrations in certain ways. As we mapped them according to the country's current geopolitical borders, the shifting of such borders in history may qualify our findings, e.g. what we see as cross-border migration now could have been movements within borders in the past. For example, we attempted to cross-reference place names with other baseline maps issued by the state through the National Mapping and Resource Information Authority (NAMRIA), proprietary Google Maps, the open-source mapping platform OpenStreetMap (OSM), and archival topographic maps, particularly those of the Army Map Service of the United States Army, for spatial plotting. For determining the original areas of Cordilleran peoples, we used maps such as the "Distribution of the Non-Christian Tribes of Northwestern Luzon" (Cole 1909) and *Atlas ng mga Wika ng Filipinas* of the Komisyon para sa Wikang Filipino (Komisyon para sa Wikang Filipino n.d.). These maps marked out the approximate areas where the indigenous peoples could be located, with the former based on ethnographic research and the latter on geo-linguistic plotting.

For our work of cartographic interpretation, we plotted place names from the HDP and the current place names through cross-

referencing, and were able to determine approximate origin areas of the indigenous peoples, indicating these by the *polygon* tool and interpreted map stroke with broken lines so as to reflect approximate rather than determined areas. The destination places were indicated through the *points* tool, and the movements through the *lines* tool. But challenges in determining the locations and the consequent migrations of peoples using these tools remain. For Robin Roth (2009), the challenge of mapping indigenous communities does not lie in the method itself of plotting the locations of the places and spaces on maps; rather, care must be exercised that the concept of abstract space and place does not undermine the IPs' concept of their "dwelling place." Another challenge involves interpreting the migratory movements of the peoples through maps. Oral narratives may aid researchers in determining the trajectories and modes of such movements, seen in the case of the Ilonggos who migrated to Central Mindanao and whose movements were plotted through descriptions provided by the respondents (Arellano 2006). In the HDP reports, only the data for origin and destination, and not the precise movements of peoples, are documented and compiled, a limitation which we interpreted or addressed cartographically by drawing arrows from Point A to Point B.

CONCLUSION

For our project we deemed the Historical Data Papers useful for preliminary studies, data enrichment, and mapping projects. The reports proved of value for our mapping mainly because of the convenience of having data from wide geographical areas in one online-accessible place. However, we also acknowledge the validity of the concerns expressed about the accurateness and completeness of these reports. While one might find telling and arguably factual details in them, depending on the positionality of the researchers with respect to the local history that they were assigned to cover, preliminary studies and mapping should further reference and analyze sources other than these reports. Mapping narratives from the HDP (and other sources for that matter) using GIS software brings about a different layer for further research through its provisions for a visual guide to both the geopolitical contexts and the cultural/historical narratives of Philippine localities. Advanced options from GIS technology also enable us to do spatial analysis regarding traditional borders, the conceivable intercultural interactions of communities despite them, and human-environment relationships.

We subscribe to the idea that the GIS and maps are tools that can help us better understand local history, movements of peoples, and intercultural interactions among communities around the country. But mindful of certain limitations on how space and place are interpreted

using existing maps and how indigenous peoples, for example, interpret their spaces and places as their ancestral domains, we must reiterate the need to distinguish between national or legal borders and the perceived borders of the communities based on their languages, experiences, interactions, etc. Prudence dictates that researchers engage in more participatory research and enable the communities to forward their own concepts of space and place. We recommend that dialogue between the communities and researchers using Western technologies continue, with emphasis on how the tools available may better represent and serve the interests of such local communities, and especially of indigenous peoples. And while pinpointing settlement areas can be relatively easy in mapping, we go back to encouraging more research on routes of migration, trade, or other significant forms of interactions among the object communities. Perhaps this is where folklore, oral traditions, other written sources, and the GIS could further intersect.

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