Faunal Remains Recovered from the Old Kiyyangan Village, Kiangan, Ifugao

Charmaine P. Ledesma[1], Noel Amano[2], and Stephen B. Acabado[3]

Abstract Ethnographic and ethnohistoric sources support the view that the Ifugao (northern Philippines) subsistence system is based on intensive rice agriculture, supported by swidden field and farm-raised animals. These sources also suggest that pigs provided the primary protein source of the Ifugao. Recent archaeological datasets from Old Kiyyangan Village, an early Ifugao settlement dated between ca. 1000 years before present (ybp) and abandoned at ca. 200 ybp, however, contradict this perspective. As a case in point, Philippine deer (*Cervus mariannus*) dominated the faunal remains at the site, comprising 70% of the recovered materials; domesticated and wild pig comes second at a surprisingly low 25% incidence. This paper argues that although the pre-contact Ifugao seem to have practiced animal domestication and intensive wet-rice cultivation, they still carried out a broad-spectrum economy, exploiting the resources available to them. This work adds to the increasing evidence that highland Southeast Asian subsistence patterns are complementary, rather than specialized, systems. In addition, I suggest that the low incidence of the domesticate in the archaeological record is indicative of its ritual significance, as supported by ethnographic information.

Keywords subsistence; Ifugao; faunal remains; hunting; ritual

Ifugao is a 262,820-hectare landlocked province with an area of 2,518 square meters located in the Cordillera Administrative Region (CAR) of Northern Luzon (Administrative Office of the Ifugao Province 2012) (Acabado, this volume:iii, Figure 1). The province has three distinct geographic regions that differ in climate and terrain. The eastern region is a low-lying plate with a warm climate (Dulawan 2011). The western and northern regions have the most rugged terrains, having the elevation that can go up to 6,000 meters above sea level. Most of the rice terraces are located in the central region because of the moderate climate at 1,000 to 2,000 meters above sea level. Kiangan, the area of excavation, is located at the center of Ifugao Province (Dulawan 2011).

Ifugao is famous for its practice of intensive wet-rice farming. Early ethnographic accounts however demonstrate that they had not only depended on intensive agriculture and domesticated animals, such as pigs and chickens, but also carried out a broad-spectrum economy, utilizing the resources available to them (Barton 1922; Beyer 1955; Conklin 1954). This has been supported by recent archaeological excavations which revealed a wide array of faunal remains resources found in Ifugao's dense forests. This paper presents the results of the faunal analysis of the 2012 excavations of the Ifugao Archaeological Project (IAP). It examines the means of and shifts in subsistence of the early Ifugaos in terms of raising, foraging, processing, and their consumption of animals. It also looks at early Ifugao interactions with the environment through some of their cultural practices, such as their everyday rituals, involving animals.

Animals in Ifugao Culture

Analysis of faunal remains in archaeological sites determine animal distribution and frequencies on a certain area at a certain time, helping trace evolutionary patterns and explain ecological changes, especially cataclysmic ones that have greatly affected their habitat. Reitz and Wing (2008) note four general purposes of animals in the human landscape: (1) in subsistence and diet; (2) for utilitarian purposes, with almost every part of an animal being exhausted for raw materials; (3) to supply labor; and (4) incorporation into the social structure and cultural practices.

Animals (domesticated and non-domesticated) play important roles in Ifugao subsistence and rituals. Based on multiple ethnographic interviews, such as in the origin myths of Bugan and Wigan, where animals are depicted as essential in establishing status, providing additional sustenance in

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times of scarcity, and appeasing ancestors throughout the planting and harvesting cycles of rice. One version of these myths, as told by a priest of the Puitan district, tells of how Kabunian, or the "skyworld" have provided rice to the people of Kiangan (Barton 1955 in Maher 1984:116, 118):

> Wigan of Kiyyangan (Kiangan) went hunting in the hunting ground near Kiyyangan. With his dog he pursued the game. As time passed unnoticed, the chase took him so far as the forest of Kabunian. There Wigan of Kiyyangan met Wigan of Kabunian, who was also hunting in his own forest at Kabunian. At the meeting place, both Wigan of Kiyyangan and Wigan of Kabunian were able to kill the animals they hunted. Wigan of Kabunian began eating the uncooked meat from the animal he hunted. Wigan of Kiyyangan said, "Why are you eating uncooked meat?" "Yes, this is what I do," answered Wigan of Kabunian. "Wait, I will show you what to do," said Wigan of Kiyyangan. Wigan of Kiyyangan made fire by friction. He cut a bamboo tube and put pieces of meat in it with water and put it upon the fire. He cut another bamboo tube and put in it the rice Wigan of Kabunian had brought along for food. He put in water and places this tube also upon the fire. He said, "Let us wait for a while until it is cooked."... In a few minutes when the food had cooled, Wigan of Kiyyangan said, "Let us eat and you taste the meat and rice I have cooked." Wigan of Kabunian took some of the food and tasted it. He was very surprised by how delicious the meat and rice were, with the meat as tasty as the rice.
>
> "After the hunters had eaten a hearty meal, they chewed betel nuts. Wigan of Kabunian said, "I buy your fire with my rice, let us go to my house at Kabunian that you can take the rice." They went to the house of Wigan of Kabunian and Wigan of Kiyyangan was given the rice. "Take you the rice to your home at Kiyyangan, perform the *lo-ah* sacrifice before planting the rice seeds on the seed bed. Perform, too, the *lohwang* ritual before transplanting the rice seedling in your rice field at Kiyyangan." Wigan of Kiyyangan said, "Yes, that shall be done." Wigan of Kiyyangan took the rice home to Kiyyangan. He perfomed the *lo-ah* and sowed the rice seeds. Soon the rice seedlings had grown tall, ready for transplanting. Wigan of Kiyyangan performed the ritual of *lohwang*, and then the rice seedlings were transplanted. The rice of Wigan of Kiyyangan grew well and fast and there was a bountiful harvest. Wigan of Kiyyangan became rich so that rice was in excess and animals plentiful.

Most Ifugao oral histories revolve around the planting and harvesting of rice, the venerated crop. Every ritual however, requires animal sacrifices. The *lo-ah*, a ritual performed before sowing rice, involves offering a chicken to the skyworld dieties so that they (the dieties) will allow the seeds to germinate well and be protected from pests and calamities (Ananayo 2012). Other rituals involved the slaughtering of pigs, such as the *numbolo'cha* in the village of Mayawyaw (Lambrecht 1932 in Maher 1984). These are just two of the many rituals surrounding the annual agricultural cycle in Ifugao.

Domesticates such as pigs and chickens were considered as food, but their main purpose were to be sacrificial offerings during rituals. In addition to this, Barton (1922:391, 421) notes that hunting was also a regular activity among the early Ifugaos. Deer and wild pigs were among the animals being hunted, while dogs were hunters' companions.

Methodology

The place of excavation is the Old Kiyyangan Village in Kiangan, Ifugao, an important site in Ifugao origin myths. According to oral history, the place is known to be the first settlement of the people who populated Ifugao. The site is ideal for habitation due to the abundant water supply brought by the Ibulao and Ambangal Rivers, with a relatively level terrain and favorable climate.

Five trenches were excavated in the IAP 2012 field season (Figure 1). Trenches 1, 2 and 5, located near the Ambangal River, were excavated to determine the extent of the settlement towards the river. Trenches 3 and 4 were located farther inland in the middle of the rice field, where a house used to stand, according to the land owner. The stratigraphic profile of these trenches signify a longer occupational period (Figure 2).

The faunal remains were recorded and collected within the context of standard archaeological provenance, including feature descriptions, soil composition, map and stratigraphic profile views (Baker et al. 2008). They covered about 2% of the total number of the artifacts and ecofacts recovered from the five trenches (Acabado et al. 2012). An almost complete set of dog teeth from a young canine was found inside a pot near the river in Trench 5 (Figures 3 and 4). The rest of the

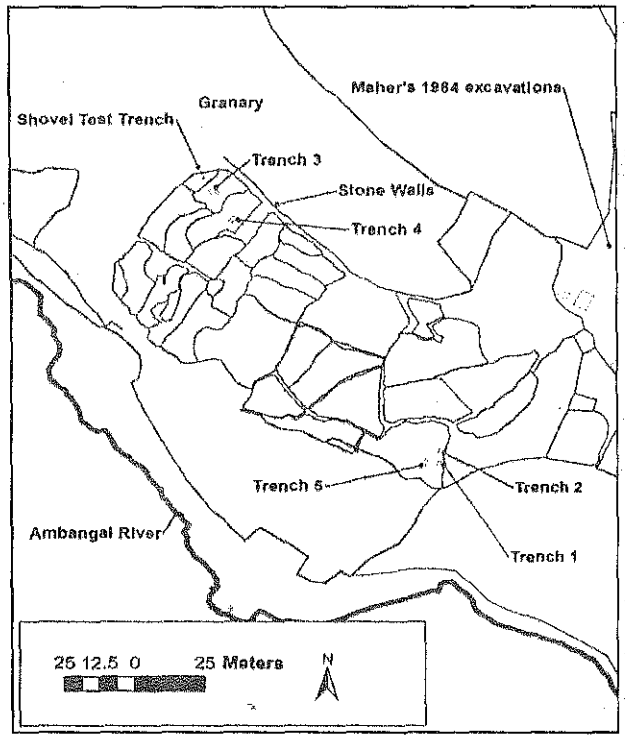

Figure 1. Map of the excavation site (Baguilat Property) in Kiangan, Ifugao (adapted from Acabado 2012:6, Figure 3).

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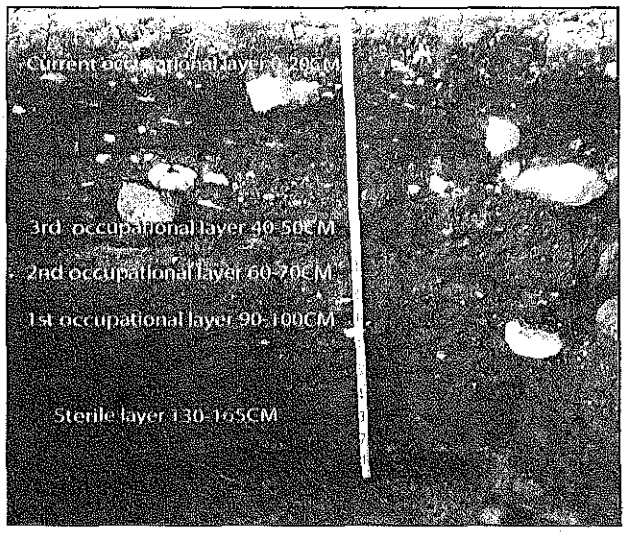

Figure 2. Trench 3 stratigraphic profile (image courtesy of IAP 2012).

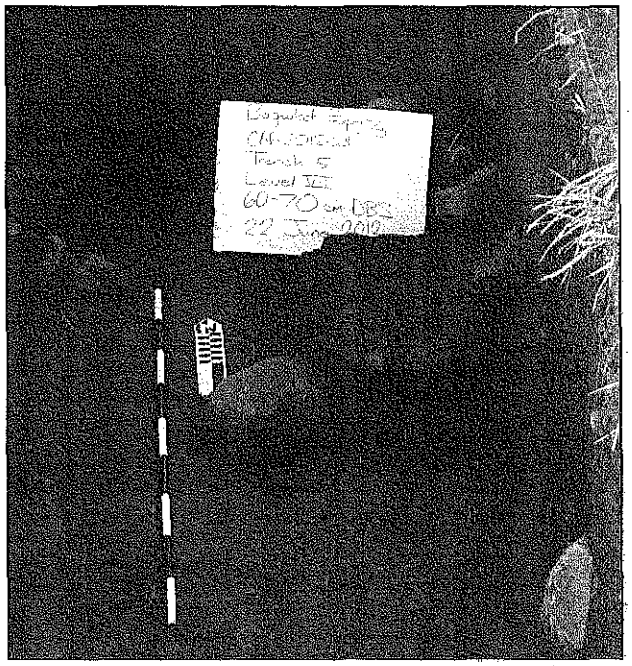

Figure 3. Pot in Trench 5 containing canine remains near the Ambangal River (S. B. Acabado, IAP 2012, adapted from Ledesma et al. 2013).

remains were from the other four trenches. The abundance of each type of animal present in the assemblages were quantified through the standard Number of Identified Specimens (NISP) and Minimum Number of Individuals (MNI), to provide near estimates of the entire faunal assemblage (Renfrew and Bahn 2008; Baker et al. 2008).

Taphonomical analysis of these remains answers questions regarding the process of disarticulation of the

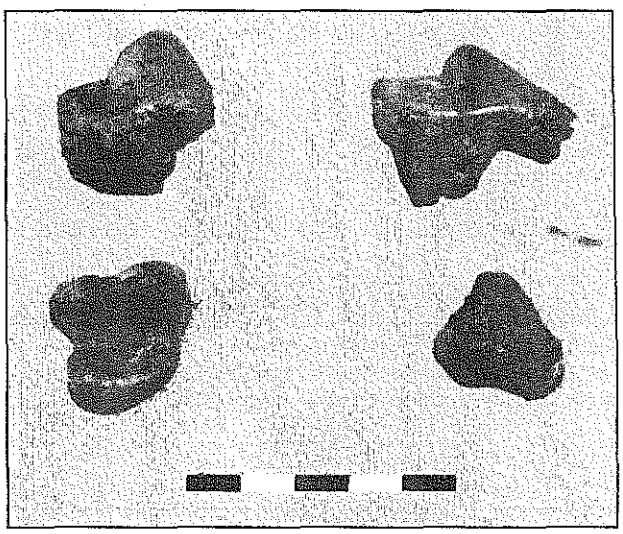

Figure 4. Canine teeth recovered in the pot (Trench 5) (N. Amano, 2012, adapted from Ledesma et al. 2013).

bones considering their use as food, whether or not these were used as ornaments, and if they show signs of non-cultural modifications (Figure 5).

RESULTS AND DISCUSSION

Deer (*Cervus mariannus*) dominated faunal assemblage, comprising almost 70% of all the animal bones recovered at the sites (Figures 6 and 7). Pig (*Sus*) remains come in at a surprisingly low 26% incidence. Most of the suid remains were from young pigs, with the majority of them killed before they even reach two years of age. Both wild and domestic pigs (Figure 8 and 9) are present in the assemblage. Chicken (*Gallus gallus*) bones were found only one meter below the surface of one excavation trench (Figure 10). Water buffalo (*Bubalus bubalis*) remains indicate a wide range of kill-off time, suggesting that there were no specific ages for their deaths. Other animal remains recovered were from rats, monitor lizards, and fish.

Animals in the Subsistence Practices of the Early Ifugao

The subsistence pattern of early Ifugaos revolve around an agricultural system of mixed farming that includes management of *muyong* (private forests), inter-cropping in both swidden and pond-field cultivation, and of course, livestock, such as pigs and chickens (Acabado 2010). They also supplement this through hunting. There was a wide variety of animal remains recovered that were characteristic of the area's fauna. Barton (1922:391) states that "hunting is important in all those districts that are near a grassy uninhabited region of considerable extent, notably in Mayaoyao, and neighboring districts in Babuyan, Amdangale, Lagaue, [and] Kiangan".

One aspect of Ifugao agroecology that needs to be considered here is the forest cover that could also supply the wild animals in the area. There are two types of forested areas: *inalahan/hinuob*, which is the "upslope public forest

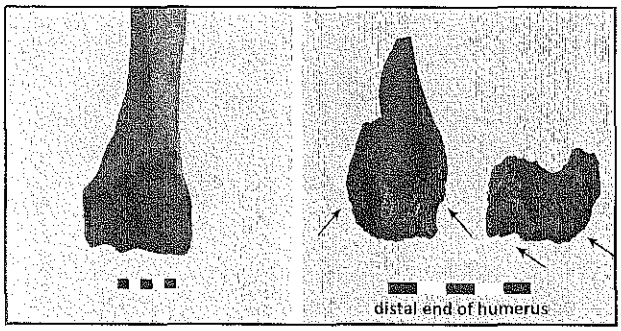

Figure 5. Right: distal end of a deer humerus; Left: distal ends of a humerus that have probably been gnawed on by dogs as a result of humans throwing food refuse (N. Amano, 2012).

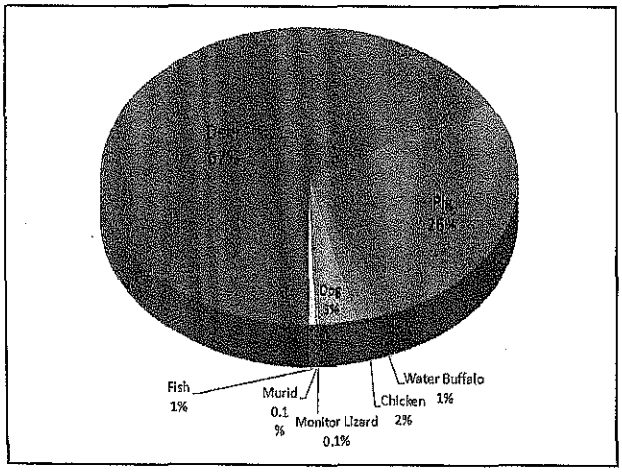

Figure 6. Faunal composition of Baguilat property excavation in Kiangan, Ifugao (adapted from Ledesma et al. 2013).

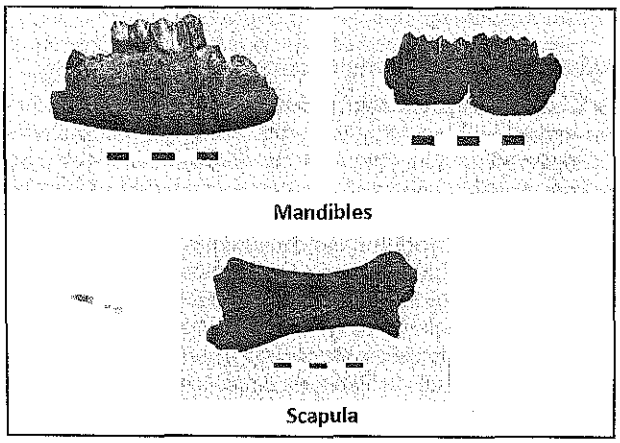

Figure 7. Samples of deer bones collected on site (N. Amano, 2012; top right and bottom photos: adapted from Ledesma et al. 2013).

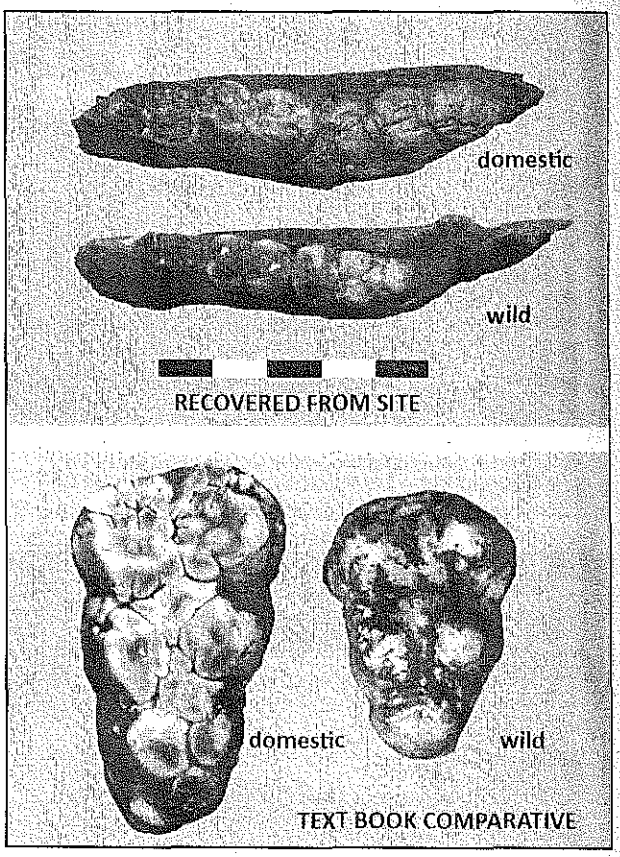

Figure 9. Textbook comparatives are used to distinguish wild from domestic dentitions excavated at the site. Note that teeth from domestic pigs are much larger in size (Ochoa 2009) (top image: N. Amano, 2012, adapted from Ledesma et al. 2013; bottom photo: adapted from Amano 2011:73).

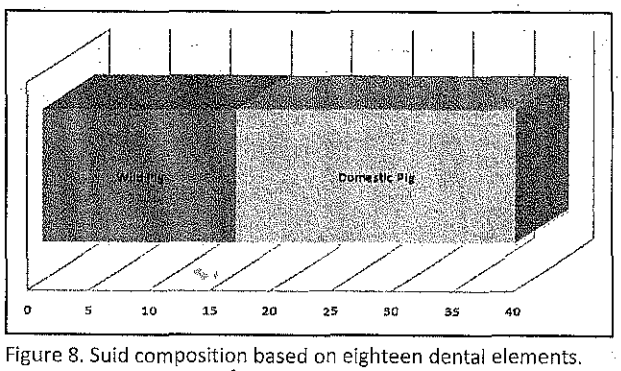

Figure 8. Suid composition based on eighteen dental elements.

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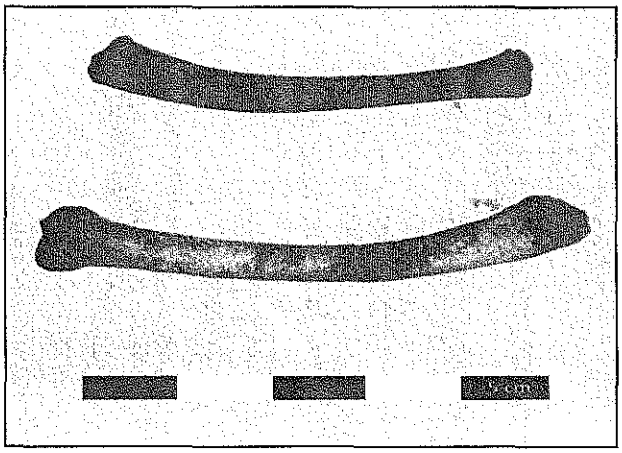

Figure 10. Chicken bones found in only one excavation trench, one meter below surface (N. Amano, 2012).

often composed of open access communal areas," and *muyong/pinugo*, "the privately owned woodlots managed with definite boundaries" (Acabado 2010: 82). According to Conklin (Dove 1983:517), "these woodlots located above the terraces are important in conservation and management of indigenous flora, most importantly in the protection against landslides", and serve as good water sources for irrigating the terraces (Acabado 2010). These woodlots also provide variety of plants and trees that are idyllic for ungulates, such as deer, to roam and survive. A balance of grasses, ground plants, and shrubs are needed in order for these ruminants to survive (Chaplin 1971).

Early Ifugaos hunt "between the rice harvest ending in July and the spading time beginning in October or November" (Barton 1922:393), during the less strenuous periods of the rice cycle. In stalking their prey, early Ifugao men arm themselves with spears, along with their dogs to assist them during their hunt. Barton (1922:392) took account of an Ifugao hunting event:

> Arrived at the hunting grounds, the dogs are dismissed with the cry "hoois! esa! hoois! esa!" According as the dogs are well-trained and valiant, one or two or three are sent together, the others beings sent in other directions. The dogs scour the region until one or another picks up a 'hot' trail. When this happens, the other dogs turn from their courses so as to meet their companions at a point ahead of the quarry. The men also scatter out at points ahead of the dogs or at points at which the hunted animal is likely to run. If the animal be a deer, the hunter keeps quite until the dogs come near, when he either bounds to within spear-throwing distance, or, if his dogs be valiant, encourages them by cries to catch hold of the deer, in which case the animal is quickly dispatched... If the animal chased is a wild pig, it runs only till very angry, cornered, or seized, when it came to bay; in which case the dogs bay around it till the men come up and spear it.

Although deer meat was frequently consumed, as evidenced by remains with possible butchering marks (Figure 11), pig remains also showing possible butchering marks (Figure 12) were also found in the Kiangan faunal assemblage. Most of

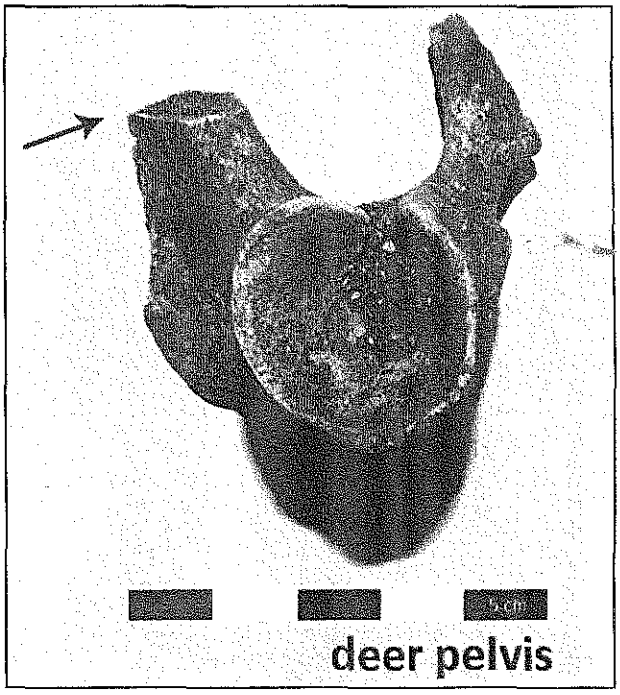

Figure 11. Deer pelvis with a clean cut mark (N. Amano, 2012).

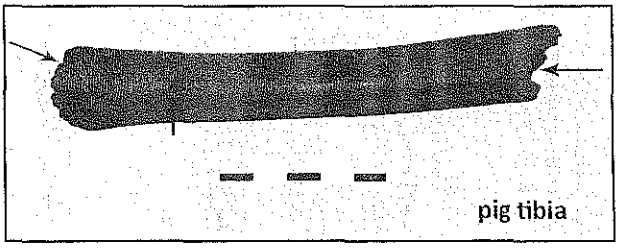

Figure 12. Pig tibia with evidence of chop marks, cut marks, and clean cuts (N. Amano, 2012, adapted from Ledesma et al. 2013).

the suid bones were from young domesticate sucklings less than two years old. One reason why early Ifugaos can afford this is because domesticated pigs are easily grown and bred (Griffin 1998). In addition, pigs also provide a more reliable supply of meat as they are "more closely integrated with the rural economy...and may be raised in comparatively small spaces including within the settlement itself" (O'Connor 2013:7). Pigs, like chicken, however, are not staples in the Ifugao diet, but rather reserved for feasts and rituals.

Evidence of the process of consumption, disarticulation, and division into smaller pieces were also noted in the faunal analysis. The cut marks on bones suggest that metal tools have been used for butchery. Almost all of the excavated body parts from deers and pigs are represented, suggesting that whole carcasses were being brought to the site, or the animals were being killed at the site. Small animal bones from rats, lizards, and fish were also present, but rare. Fish could have come from the nearby Ambangal River (Figure 13), and

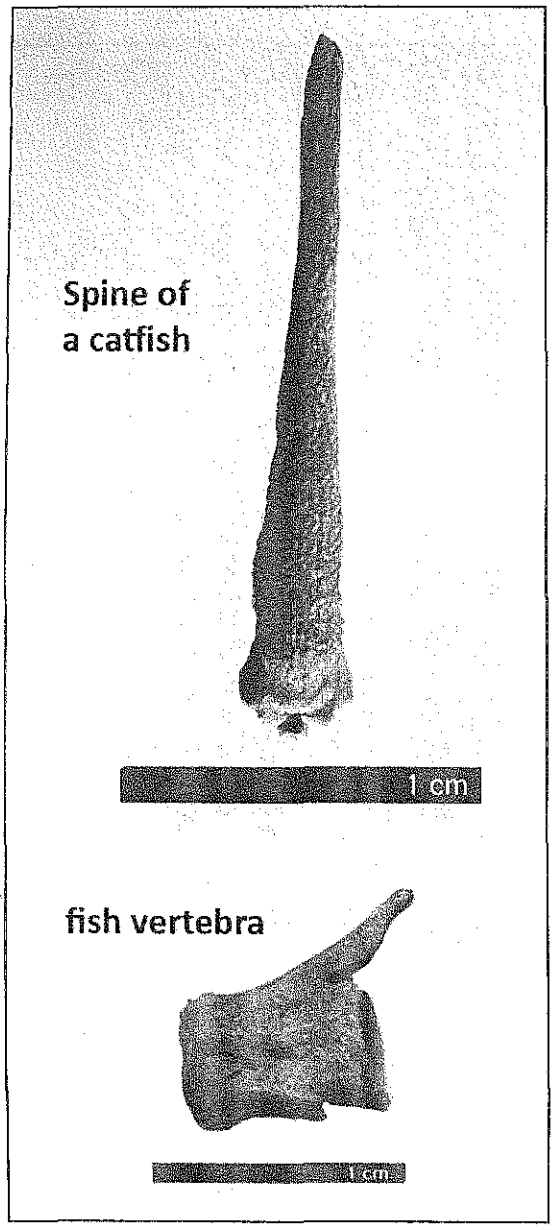

Figure 14. Dorsal spine of a catfish and a fish vertebra (N. Amano, 2012).

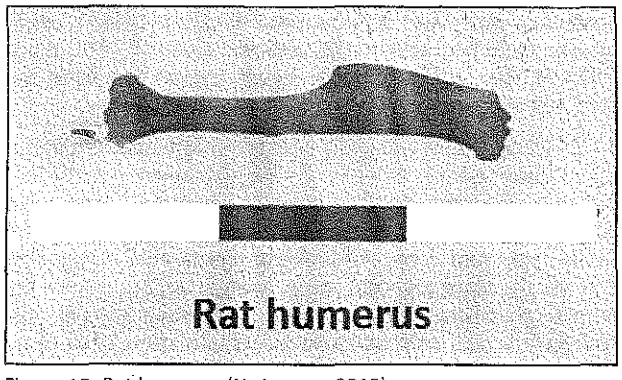

Figure 15. Rat humerus (N. Amano, 2012).

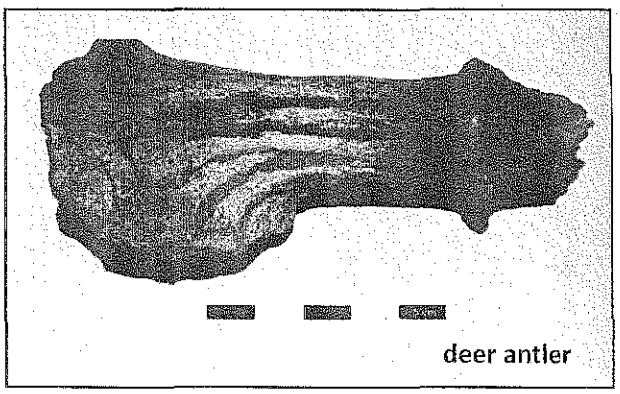

Figure 16. Naturally shed deer antler (N. Amano, 2012).

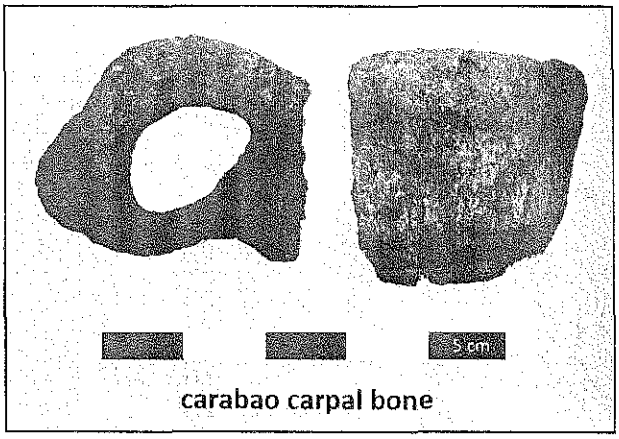

Figure 17. Hollowed-out carpal bone of a water buffalo. Note the distinct line at the bottom of the bone indicating that someone had shaved or sliced that part off (N. Amano, 2012, adapted from Ledesma et al. 2013).

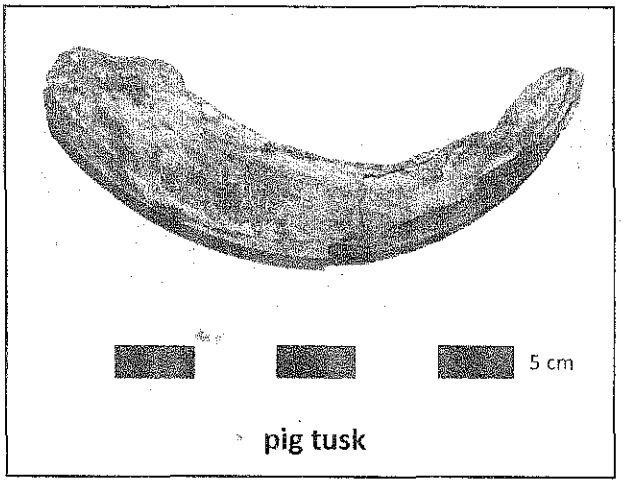

Figure 18. Pig tusk with evidence of polishing (N. Amano, 2012, adapted from Ledesma et al. 2013).

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Table 1. Rituals performed during the Ifugao agriculture cycle (adapted from UNESCO 2008:23-27).

RITUAL	DESCRIPTION	OFFERINGS
Lukya	September – Farmers start weeding and clearing rice fields; ritual of supplication on prayer to Rice-Giver Gods and the jealous deities as a preemptive action against *bitil* (starvation)	Two or three full-grown chickens
Hagnong	October – Placates the gods who might get disturbed or displeased with the land preparation activities	Two to four chickens
In-apuy	Serves to "fire up" or magically increase the rice in the granaries from the previous agricultural year	Four chickens
Hopnak/Panal	November – announce to the gods the start of seed-bedding activities	Three to four chickens
Lokan di Binong-o an Datag	To ensure that the seedling will sprout and grow and that rats and birds will leave them to be	One chicken served to the *mangipatang* (seed-bedder)
Bolnat	Performed during transplanting to magically increase the seedlings in the seedbeds	Two or three chickens
Kulpi	March – to protect the newly-planted rice from a host of rice diseases; highlighted by a five-month abstinence for the *mumbaki*	Two or three chickens
Tikom	April-May – *mumbaki* calls on the gods to "close" the mouths and beaks of rice predators so that instead of attacking the mature rice plants these animals will feed on *runo* shoots	Two or three chickens
Kultud	May – performed when the rice grains are maturing, to hasten ripening	One young chick
Hongot	June-July – rice prestige ritual during harvest season	A pig and eight fully-grown chickens or two pigs
Tuldag	August – performed so that the jealous deities and fairies may "return" the rice they have "stolen" during harvest time	A pig or two or three chickens
Ubaya	August – ask blessings form the gods for fuller harvests in the *camote* swidden patches and the rice fields and for good health of livestock	
Danglot	To bless the household after the *tuldag* or *ubaya* rituals	A chicken or duck
Kahiw	August – end of agriculture cycle	No animals are killed. *Mumbaki* instead uses the *tangtang* or ceremonial pig jaw skin

rats from the rice fields (Figure 14). Bones of monitor lizards show signs of cut marks, suggesting that they may had also been considered as food source.

Aside from food, the early Ifugao also utilized animals for aesthetic purposes, exercising their creativity into exhausting animal parts for body ornaments. Figure 15 shows a deer antler naturally broken off from the skull, suggesting that someone had collected the antler when the deer was already dead, probably for house decoration. Figure 16 is a modified, hollowed-out wrist bone from a water buffalo, the purpose of which is still unclear. Figure 17 is a pig tusk that had polishing marks, probably used as an armlet.

Domesticated animals, on the other hand, were only consumed by early Ifugaos during rituals. They were not only symbols of prestige and power, but also as appeasement to the spirits. Ifugaos believed that "the spirits use the invisible spiritual part of the animal only, leaving the flesh for human beings" (Barton 1922:421). Pigs, in addition, are used to create alliances, find a mate, pay debts, settle disputes, and impress other members of the village (Hayden 2003). Barton (1930:65-66) illustrates this:

> Two years ago, Eagle had become involved in a domestic triangle… He had to pay a heavy indemnity to the husband, all of which he had raised from his brothers and sisters except two "bamboo-size" pigs—two pigs, that is, of girth equal to that of a large bamboo. These he had to borrow from Pitch Pine [his older brother]. At a moderate rate of interest, he now owes four pigs of breeding size of two hogs.

Here is another incident Barton (1930:134) encountered during one of his interviews:

> It was doubly hard to get the priests of my home village to tell me about the war deities. They would not even mention their names unless I would provide a chicken for sacrifice.

Animal sacrifices are also necessary in Ifugao's annual cycle of farming. Each five major stages (weeding, land preparation, sowing and planting, seed selection, and harvest) have associated rituals, some more elaborate than the others (Table 1).

Ifugao Landscape in View of Historical Ecology

In understanding the dynamic relationship between humans and the environment, anthropologists use historical ecology as a framework for explaining cultural and ecological phenomena. They view the environment as a "material manifestation" (Crumley 1996:6) of humans, landscapes which are "synthetic cultural products" that change the "milieu in which those populations survive and sustain themselves" (Anschuetz et al. 2001:160-161). Landscapes show how humans regard their environment by utilizing the resources it offers, developing it to suit their needs and traditions, and changing it as time progresses and technological innovations push them forward. Balée (1998:14) further emphasizes that "historical ecology focuses on the interpenetration of culture and the environment, rather than on the adaptation *of* human beings *to* the environment." This means that culture and the environment are not two exclusive entities. They have a mutual relationship that benefits one another. Humans exploit the other for food while involuntarily increasing the number of non-human species by enhancing their ecological niches, and consequently affecting biodiversity. Anthropogenic fires, for example, actually encourage the replenishing of plants and animals in an area (Balée 1998).

Bearing in mind the Old Kiyyangan landscape, animal remains serve as proxy indicators of the minutiae of Ifugao life. The creation of public and private forests, for one, permitted wild animals to stay and thrive in a healthy environment, providing additional sustenance to the Ifugaos. The wood needed to cook their food and build their houses and pig pens come from the same forests. The early Ifugaos were able to make use of all the resources around them, and in effect, changed the environment to their advantage. The magnificent terraces in Ifugao are one example of this great human-environment collaboration.

Conclusion

In telling the history of the Old Kiyyangan Village, analyzing animal remains is important in order to understand the relationship between humans and their environment. They inform us of the human diet including the consumption of rice, vegetables and other root crops, as well as the procurement and processing of animals for food. Moreover, animals introduce us to the rich culture history that surrounds Ifugao. Willey (Anschuetz et al. 2001:168) succinctly states that "settlement patterns not only reflect the natural environment but they also are shaped directly by cultural needs." With this statement in mind, we can argue the following: (1) the early Ifugaos not only relied on intensive wet-rice cultivation, but they also carried out a broad-spectrum economy that involved hunting, fishing, and raising of domesticated animals; (2) the Ifugao's agricultural system reflects a beneficial relationship between humans and their environment that is complementary rather than specialized; and (3) domesticated animals, as supported by both ethnographic and archaeological data, signify the importance of rituals performed in the daily life of the Ifugaos.

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