Module 2: Early Ifugao Diet and Environment

I. Objectives

A. Pangkaalaman (comprehension)

1. To identify plants and animals present in the Old Kiyyangan Village 1000 years ago
2. To discuss early Ifugao diet through plant and animal remains from the Old Kiyyangan Village archaeological record
3. To illustrate how early Ifugaos utilized their environment
4. To discuss key archaeology terms, methods, and concepts

B. Pandamdamin (values)

1. To appreciate how early Ifugaos' resourcefulness harnessed the environment
2. To find significance in Ifugaos' relationship with the environment

C. Pangkasanayan (proficiency)

1. To develop critical thinking skills and apply observation, reasoning, speaking, and writing skills
2. To interpret soil stratigraphy and understand its importance in studying the past

II. Main themes

Old Kiyyangan Village topics discussed in Module 2 that relate to "Pamumuhay ng mga sinaunang Pilipino" or Early Filipino life:

1. Relationship between early Ifugaos and the environment
2. How early Ifugaos utilized the environment

III. Overview

Ifugao culture history background

Excavated animal and plant remains from Old Kiyyangan Village can tell us about early Ifugao **diet** before Spanish colonization. By studying the animal and plant remains, data shows that early Ifugaos were consuming a wide variety of food and extensively utilizing the environment and its resources. Early Ifugaos were not dependent on rice farming alone, but also sustained themselves through fishing by the river, hunting in the forest, and raising domesticated animals.

Archaeology at Old Kiyyangan Village revealed that most of the animal remains were deer bones followed by that of pigs. Although most of the pig bones were from **domesticated** (farm-raised) pigs, there were also bones from wild pigs in Old Kiyyangan (Figure 1). This signifies that while early Ifugaos raised animals, they were mainly hunting animals (deer and wild pigs) as their source of meat (Figure 2). Anthropologist Roy Barton noted that early Ifugaos hunt in between rice harvests. They used spears and were accompanied by their dogs. In addition, early Ifugaos managed the forest into communal (*inalahan/hinuob*) and private (*muyong*) areas for conservation purposes, which protected their fields from landslides and allowed wild animals to flourish.

Early Ifugaos not only used animals for food but also for other purposes. For instance, pigs, chickens, and dogs were not raised for everyday consumption, but used as sacrificial offering for all kinds of ritual ceremonies and special occasions. The bones have cut and chop marks indicating that metal tools were used to butcher the animals (Figure 3). Domesticated animals

were also used to show status or rank in the community. According to Ifugao historian Lourdes S. Dulawan, social display of early Ifugao material wealth included animals in terms of the amount of food he or she prepared for the community during prestige feasts, like the *uyauy* and the *hagabi*. Lastly, animal bones were also used as jewelry. Archaeologists found evidence of polished or smoothed bone rings that early Ifugaos used as as armlets or bracelets (Figure 4).

Archaeologists also find remains of ancient plants from Old Kiyyangan Village. When plants decompose, they leave certain elements in the ground as well. But unlike animal bones, most of the plant remains can only be seen microscopically in a laboratory (Figure 5). The Old Kiyyangan plant remains were **charcoal residues** from broken pieces of cooking pots. After examining the charcoal, archaeologists found that each pottery piece contained different plant remains. One pottery piece contained remains of starchy crops that could be from taro (Tulwali- pihing), yam (Tuwali- gatuk), breadfruit (Filipino- kolo'), and arrowroot (Filipino- uraro). The other pottery piece contained food sources that are found all over Southeast Asia (including the Philippines), such as millet (Filipino- budbud) and sugarcane (Filipino- tubo'). Based on the stratigraphy (Figure 6), archaeologists found taro remains in the early (older) bottom layers and rice remains in the late (younger) upper layers. This means that early Ifugaos seemed to be primarily growing and eating taro before rice. The soil layer corresponding to taro was dated to about 700-900 years ago, while the layer that contained rice was 150-310 years ago.

Early Ifugaos also used plants for a variety of purposes: for building Ifugao houses (*bale*) (Figure 7), for carving wood objects, and for weaving. Plants also indicate social status in the Ifugao society. Rice, for example, is the most revered crop in Ifugao. Ritual ceremonies are held throughout the planting and harvesting cycle of rice (Figure 8).

Vocabulary
Diet - The kinds of food that a person or a community habitually eats
Domesticated - Kept as animals in the farm; plants that Ifugaos cultivated as food
Charcoal residue - Burnt plant material remains

Archaeology background
Archaeology is the study of the past through material remains left by human activity. Understanding soil stratigraphy is one of the most important archaeological methods used to interpret the past over periods of time. Archaeologists associate **artifacts** in relation to each other and in relation to time. To an archaeologist, the different layers of soil provide a timeline of the history of a place and the artifacts serve as material evidence or proof in interpreting these soil layers.

Stratigraphy is the sequence of soil layers that archaeologists study when they excavate a site. Archaeologists study soil stratigraphy in order to create a narrative or a history of the archaeological site. By carefully analyzing the sequence of soil layers and the associated artifacts, archaeologists can recount the historical timeline or chronology of a site, describe human activity and land-use over time, and even, identify human and natural events like warfare and floods.

Human activities and naturally decaying organic materials create these soil layers over time. Imagine a sliced piece of multi-layered cake, where the bottom layer is the oldest and the topmost layer the youngest (Figure 9). The further up the soil layer, the younger it is. The **topsoil** layer is the most recent layer and the current ground people walk on. In archaeology, this ordering of soil layers is called the **Law of Superposition**. Typically, we find older objects or artifacts in the bottom layers and more recent artifacts at the top. When artifacts are found deeper into the ground, the older they usually are. Archaeologists nevertheless have to keep an eye on any signs of disturbance in the layers that could mislead their interpretation. These disturbances maybe caused by underlying roots from nearby trees, by animals like rats that can move artifacts from its original place, and by every day human activity as well.

The Old Kiyyangan stratigraphy has seven soil layers. Layer VII is the oldest at 1.6 meters below the ground. Assuming there are no disturbances in layer VII, associated artifacts should be older than the rest of the artifacts found in the upper layers. The artifacts should also be a bit older than 700-900 years old. Remains of taro were found in layers V and VI 700-900 years ago, and rice remains were found in layer II 150-310 years ago. Animal bones were found throughout all layers of soil. The Old Kiyyangan stratigraphy tells us that as early Ifugaos settled the Old Kiyyangan Village, they primarily supported themselves by extensively using the land and its resources. Chronology of OKV tells us that land-use changed over time from taro ponds to rice terraces. The presence of both wild and domesticated animal bones throughout all layers indicates that early Ifugaos were not dependent on domesticated animals alone. Further analysis of animal remains shows that there were more wild animal bones compared to domesticated ones, which demonstrates that they were mostly hunting for their meat.

Vocabulary

Archaeology – The study of the past through material remains left behind by human activity
Artifact – Material or object made by humans; artifacts are usually portable
Stratigraphy – The study of soil layers to determine the corresponding age of each layer
Topsoil – Top layer of soil, usually the modern layer in archaeology stratigraphy; the ground people currently walk on
Law of superposition – The ordering of soil layers according to time, where the bottom layers are older than the upper layers

IV. Archaeology activity

Understanding soil stratigraphy in archaeology

(Archaeology activity adapted from University of Hawai'i at Mānoa ANTH151: Emerging Humanity course)

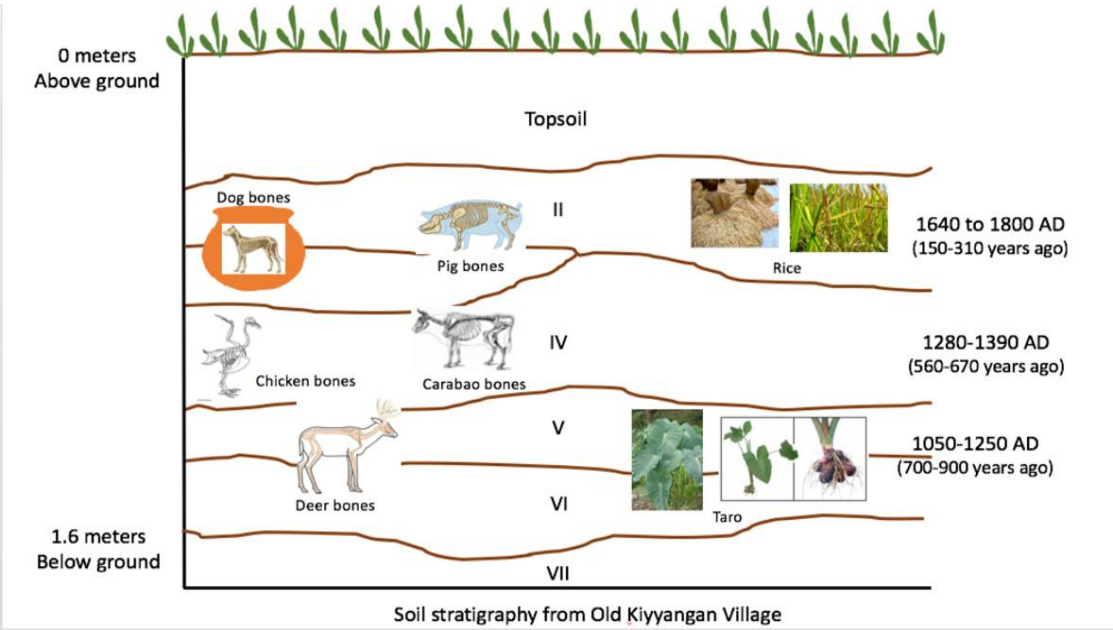
Materials

- Soil stratigraphy chart and laminated cutouts
- Old Kiyyangan Village pictures
- Colored markers
- Tape

Procedure

Divide the class into groups of approximately 4 or 5 students. Each group is given laminated cutouts of plants and animals to stick to their stratigraphic chart of Old Kiyyangan Village. During discussion, students are encouraged to draw and take notes on their charts. For example, while explaining the topsoil, students should draw what they think are found in this layer (answer: modern trash, rocks, roots). After the discussion, each group consults their

chart to answer the questions on their worksheet. Students should work together, and should be free to draw on their charts and discuss their answers. The teacher reviews the questions and answers with the entire class.



Soil stratigraphy from Old Kiyyangan Village (OKV) with properly placed laminated cutouts

Questions:

1. Looking at the Old Kiyyangan stratigraphy, what is the oldest layer?
2. What is the youngest layer?
3. Looking at the animal bones found at OKV, what kind of animals did early Ifugaos eat?
4. What other ways did early Ifugaos use the animals they hunted?
5. How many years ago did evidence of rice start to show in the Old Kiyyangan stratigraphy?
6. Look at the Old Kiyyangan stratigraphy. What kind of crop or plant were early Ifugaos eating in the oldest layers (Layers V and VI)?
7. What is the most sacred crop or plant in Ifugao culture?
8. What do you find in the topsoil layer?
9. What do you think the dog bones in the pot mean?

Answers:

1. Oldest – Layer VII
2. Youngest – Layer I (top soil)
3. Wild Pigs, domesticated pigs, deer, chicken, carabao
4. Jewelry, house decoration, feasts
5. 150-310 years ago
6. Taro. Early Ifugaos subsisted on taro before rice was introduced to the area.
7. Rice
8. Modern materials – candy wrapper, broken plates, plastic, bottles
9. Since the dog was found inside the pot, they could mean that it was a ritual burial.

See sample archaeology worksheet on page 7.

V. Process (Structure and rationale of the module)

A. Paghahanda (Getting ready – introducing the module in class)

Rationale: Module 2 focuses on the animal and plant remains excavated at Old Kiyyangan Village to explain the relationship between early Ifugaos and the environment. Animal and plant remains inform how early Ifugaos utilized the environment in terms of subsistence (feeding the community), food processing (ways of preparing food), and agriculture. This module emphasizes early Ifugaos' extensive use of the environment and its faunal and plant resources.

B. Paglinang ng aralin (Making sense of the module)

Ifugao culture history background:

The Ifugao culture history background in this module summarizes plant and animal remains found in Old Kiyyangan Village. Information from this section may be used to address topics in early Filipino way of life (pamumuhay ng sinaunang Pilipino at paraan ng ikabubuhay) and environmental adaptation (pag-aangkop sa kapaligiran). Plants and animals can also be used to discuss early Filipino beliefs (sinaunang relihiyon) regarding ceremonial offerings during rituals and feasts.

Archaeology background:

The archaeology section of this module uses the Old Kiyyananan Village (OKV) stratigraphy to describe the environment 1000 years ago and to explain land-use over time. For example, we can say that the Ifugao's environment was different 1000 years ago, when the region was more intensively forested and wild animals were more accessible. We draw this conclusion from the recovery of large numbers of wild pig and deer bones recovered from the earliest stratigraphic layers of our excavations at OKV. Ifugao management of land changed through time as well: we see evidence of taro (and no rice) in the lowest stratigraphic layers, and rice appears in layers that date from the last 300 years. From this pattern, we conclude that Ifugaos shifted from taro to intensive rice farming in the 17th century AD. Students learn to use empirical patterning in the archaeological record to draw conclusions about ancient behavior.

Archaeology activity:

The goal of this activity is to show students how archaeologists provide context and meaning to a place, and how archaeologists base their knowledge claims on empirical evidence. This activity works well when the stratigraphic chart is used alongside the class discussion. The activity provides a visual aide for both discussion and in-class activity, and students are expected to complete a worksheet after participating in the activity.

VI. Importance/significance of lesson

Through archaeology, we learn that early Ifugaos had a wide variety of food sources. Early Ifugao resourcefulness showed that they not only relied on rice cultivation alone, but were also hunting, fishing, and raising farm animals. They mainly hunted wild animals as their source of meat and raised farm animals for special occasion and ritual ceremonies. They were also primarily growing and eating taro before they started growing rice.

This type of subsistence or way of living to nourish the community reflects a complementary relationship between early Ifugaos and the environment, where both benefit from one another. There is archaeological evidence that early Ifugaos were indeed using domesticated or farm animals during ritual ceremonies and that these animals were symbols of prestige or social status in the early Ifugao community.

VII. Evaluation

This section can be given either as in-class assignment or homework depending on remaining classroom time.

Direction: Using the information you learned today, make a poster that best illustrates the title, “Early Ifugao life”. Students will work in the same group and present their posters in class. Teacher can put them up in class.

Takeaway: By creating the poster, students review the lesson they just learned. By drawing the Ifugao environment with rice, taro, the wild and domesticated animals, etc., students remember a part of Ifugao culture history and the past environment.

VIII. Summative test

Answers:

I. Matching type
   a. A
   b. C
   c. D
   d. E
   e. B

II. Multiple choice
   1. D
   2. A
   3. D
   4. B
   5. C

See summative test on page 8.

Sample Worksheet

MODULE 2 WORKSHEET

UNDERSTANDING SOIL STRATIGRAPHY IN ARCHAEOLOGY

We are going to learn how archaeologists understand and interpret an archaeological site.

Directions:

Listen to the discussion. Take notes and follow the discussion in order to answer this worksheet. Each group must consult the stratigraphic chart of Old Kiyyangan Village (OKV) and work together to answer the questions below. Students are free to draw on their charts and discuss their answers.

Questions:

1. Looking at the Old Kiyyangan stratigraphy, what is the oldest layer?
   Layer VII

2. What is the youngest layer?
   Layer I – top soil

3. Looking at the animal bones found at OKV, what kind of animals did early Ifugaos eat?
   Wild Pigs, domesticated pigs, deer, chicken, carabao

4. What other ways did early Ifugaos use the animals they hunted?
   Jewelry, house decoration, feasts

5. How many years ago did evidence of rice start to show in the Old Kiyyangan stratigraphy?
   15-310 years ago

6. Look at the Old Kiyyangan stratigraphy. What kind of crop or plant were early Ifugaos eating in the oldest layers (Layers V and VI)?
   Taro. Early Ifugaos subsisted on taro before rice was introduced to the area.

7. What is the most sacred crop or plant in Ifugao culture?
   Rice

8. What do you find in the topsoil layer?
   Modern materials – candy wrapper, broken plates, plastic, bottles

9. What do you think the dog bones in the pot mean?
   Since the dog was found inside the pot, it could mean a ritual burial

Summative Test

I. Matching type

____ 1. Stratigraphy	a. The study of soil layers to determine the corresponding age of each layer
____ 2. Law of superposition	b. Top layer of soil, usually the modern layer in archaeology stratigraphy; the ground people currently walk on
____ 3. Diet	c. The ordering of soil layers according to time, where the bottom layers are older than the upper layers
____ 4. Archaeology	d. The kinds of food that a person or a community habitually eats
____ 5. Topsoil	e. The study of the past through material remains left behind by human activity

II. Multiple choice

1. What were the livelihoods of early Ifugaos?

    a. Rice farming
    b. Raising pigs and chickens
    c. Hunting in the forest
    d. A, B, and C

2. What type of animal did early Ifugaos eat the most?

    a. Wild pig
    b. Farm pig
    c. Chicken
    d. Fish

3. Aside from food, what other uses did animals have?

    a. Farming
    b. Hunting
    c. Animal bones for jewelry
    d. All of the above

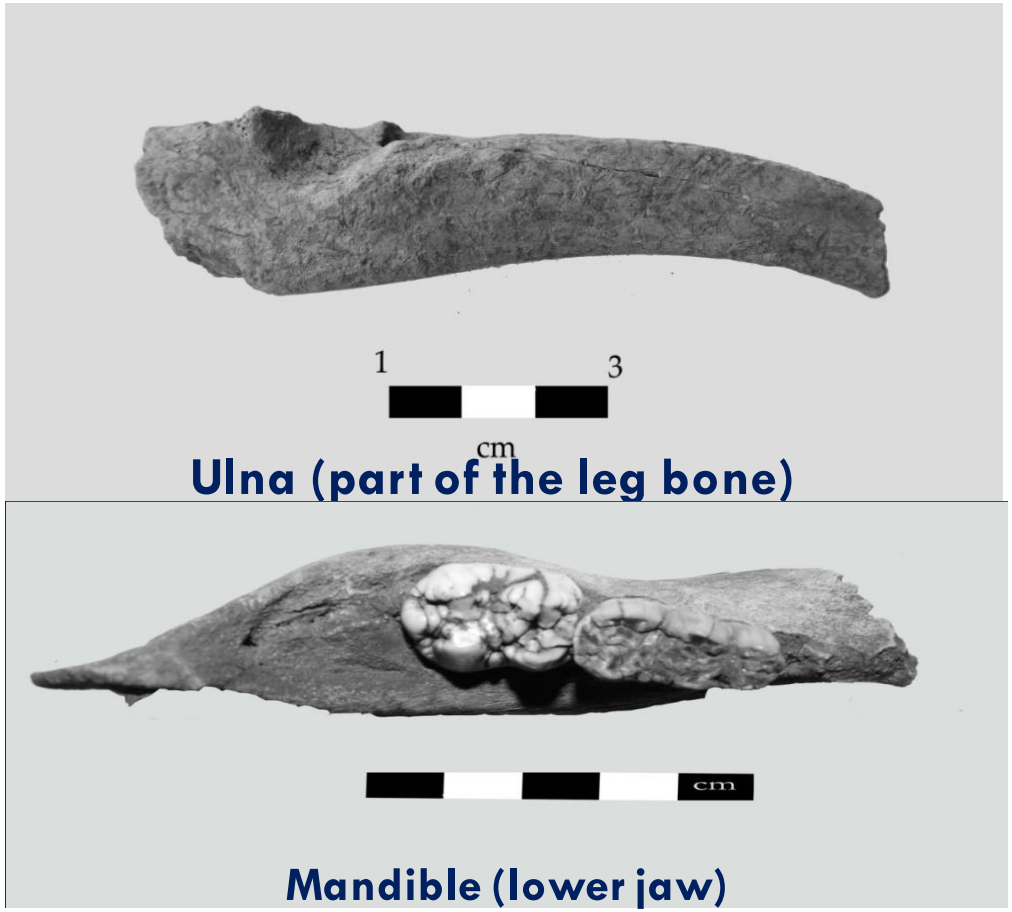
4. What is the earliest crop or food plant found in OKV?

    a. Rice
    b. Taro (gabi)
    c. Sugar cane
    d. Corn

5. How did archaeologists learn the kinds of plants early Ifugaos ate a long time ago?

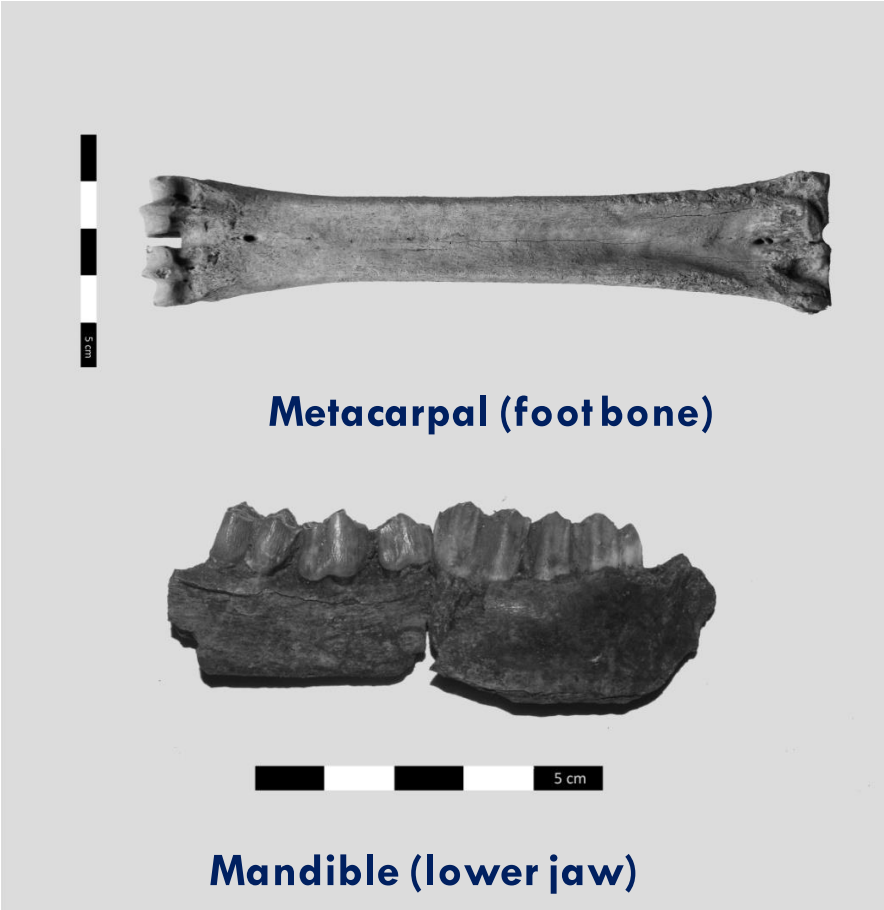
    a. By looking at the vegetables and root crops sold in the market
    b. By guessing
    c. By analyzing charcoal residues from excavated cooking pots
    d. By examining human remains

III. Draw the different kinds of food early Ifugao people ate. Explain how they are different from the food we eat today.



PIG BONES

Figure 1. Pig bones from Old Kiyyangan Village (Photo: Ledesma et al. 2015)



DEER BONES

Figure 2. Deer bones from Old Kiyyangan Village (Photo: Ledesma et al. 2015)

EVIDENCE OF FOOD PROCESSING: CHOP MARKS ON ANIMAL BONES

DEER HIP BONE

PIG LEG BONE

Figure 3. Animal bones indicating chop marks and cut marks (Photo: Ledesma et al. 2015)

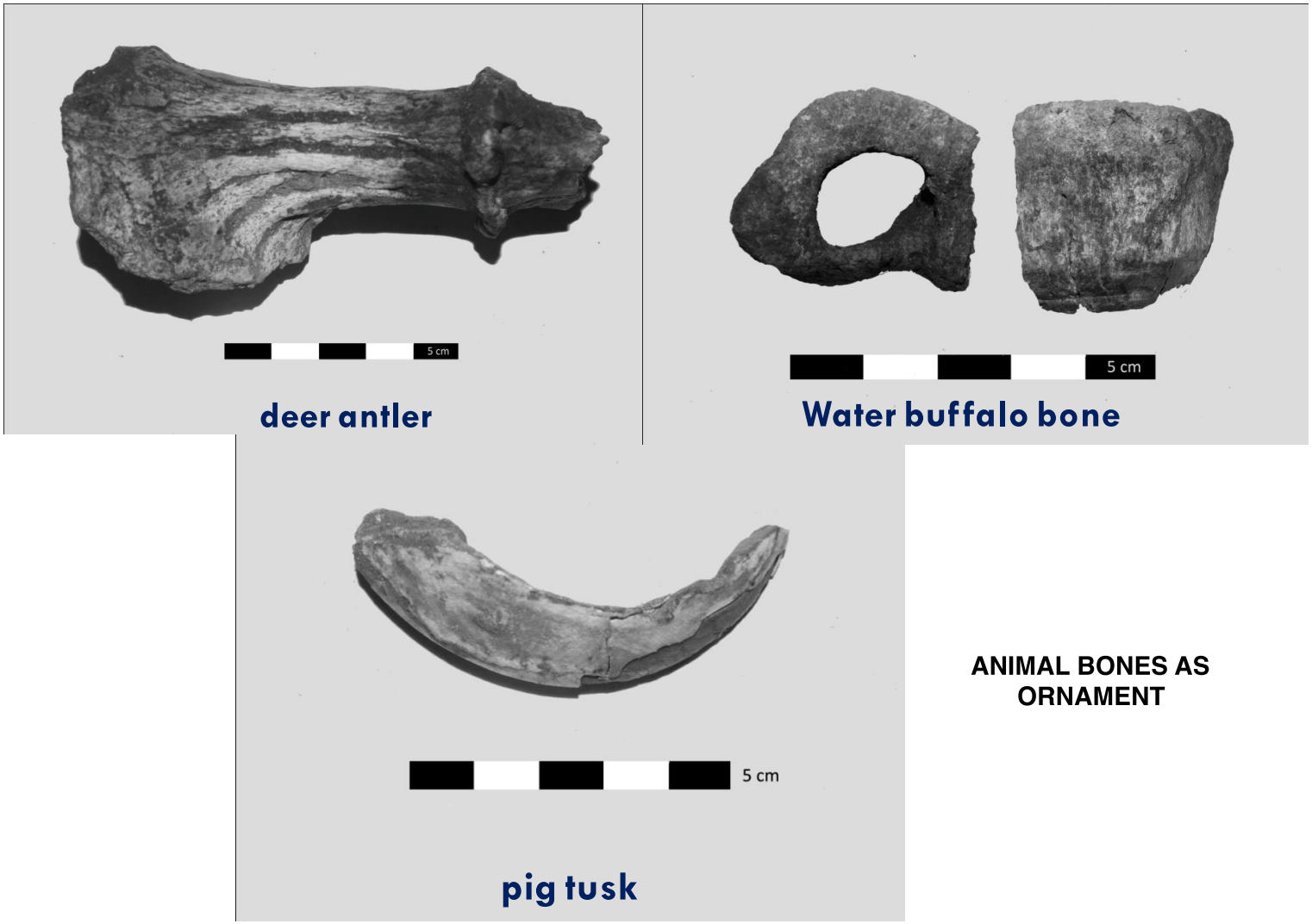


Figure 4. Modified animal bones. Deer antler for house decoration, a hollowed out water buffalo bone, polished pig tusk (Ledesma et al. 2015)

ANALYZING PLANT REMAINS

Figure 5. Archaeologist analyzing plant remains from Old Kiyyangan Village (IAP 2012 community presentation, “Plant in Kiyyangan” by Ceron M. and Moore J.)

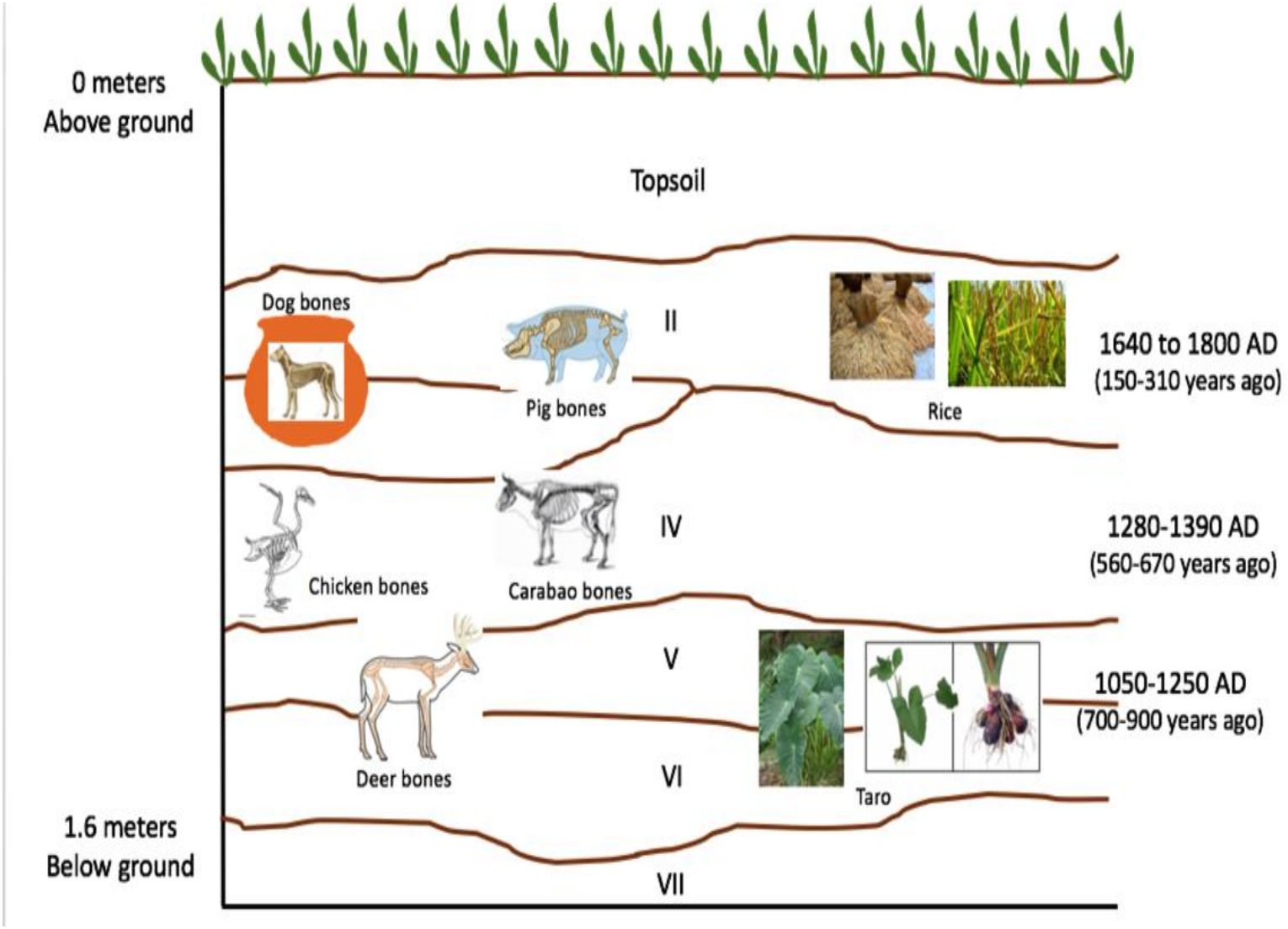


Figure 6. Soil stratigraphy of Old Kiyyangan Village

CONSTRUCTION OF IFUGAO BALE

Figure 7. Construction of an Ifugao bale using local resources

Figure 8. Ifugao ritual ceremony

OLD KIYYANGAN
SOIL STRATIGRAPHY

Figure 9. Soil stratigraphy of Old Kiyyangan Village. Just like a layered cake, the bottom layer (chocolate) is the oldest layer. The layer become more recent as the layer gets closer to ground surface (indicated by the vanilla layer in the cake photo) (Stratigraphy photo: Eusebio et al. 2015).