# Turtles All the Way Down

An interdisciplinary analysis of turtle imagery and zooarchaeological remains in the archaeological record of the site of El Carril ($9^{th}$-$15^{th}$ century), Dominican Republic.

Zoë C.A.N. van Litsenburg

Cover image: Replica of a vessel with turtle *adorno* based on the turtle *adorno* with found at the site of El Carril with find number 2139. Replica made by Eric Pelissier and image courtesy of NEXUS 1492.

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# Preface

I dedicate this work to oma Sjan Bonte - van Litsenburg, whose adventure ended just as I started mine.

Due to the circumstances surrounding the outbreak of Covid-19 this thesis became more limited in the scope of what it could cover. In the months of May and June I would have visited the Dominican Republic again and carried out research and fieldwork at the site of El Carril. Because this was not possible, a number of the photographs in this work are unfortunately not up to the standard that I would like them to be. Regardless, I tried my best to make do with the information available to me.

I would like to thank a few people for helping me out during the research and writing process. First, my thanks goes out to my fantastic supervisor Corinne Hofman. Thank you for motivating me, reading my drafts, and answering all my questions. Many thanks to Gene Shev, for helping me out with the identification and processing of the faunal remains, reading my drafts, and generally being a great co-supervisor. Thanks to Finn van der Leden, for helping me get access to a lot of material such as photographs and drawings. Thanks to Emma de Mooij, for opening up her house to me to spit through binders and databases of past excavations. Thanks to Tom Morgan, for reading through my drafts, using your native English skills to check my sometimes ridiculous wording, and supporting me through writing my thesis. Thanks to Maxime Mulders, for keeping my spirits high while writing. And finally a big thanks to mam en pap, for always believing in me.

Dankjewel!

# Chapter One: Introduction

## 1.1 Problem Statement

Archaeological excavations have been carried out in the Caribbean for over a century. With the work of more recent excavations, a larger focus has been placed on uncovering the true identity of the inhabitants and their daily practices prior to the European invasion. This narrative is told from a more emic perspective than has been previously employed by archaeologists (sensu Hofman et al., 2018).

Many subsequent studies have focused on the relationships between humans and animals in the Caribbean area, including the cosmology surrounding these animals and their treatment by humans. Examples of this include works on topics such as human-canid relationships at El Flaco and El Carril in the Northern Dominican Republic (Shev 2018), *adorno*s and cosmological expression at the site of El Flaco (Wauben 2016 and 2018), a study of zoomorphic imagery on *adorno*s of Saladoid sites on the island of St. Vincent (Moravetz 2005), a study of Saladoid zoomorphic iconography contextualised by South American narratives (Paulsen 2019), a study of differences in zoomorphic aspects of Saladoid *adorno*s (Waldron 2010), and others.

Much of the work done so far has mainly focussed on the zoomorphic *adorno*s and their meaning within the indigenous cosmology. However, most of the research on this topic leaves out aspects of the importance and treatment of these animals. On top of this, most studies of turtle iconology in *adornos* focusses solely on sea turtles, leaving out a large degree of animal representation in zoomorphic imagery.

An indigenous historical record of pre-colonial cultural establishments and systems of belief with their related orthodoxy and orthopraxy is severely lacking. This is due to there being no written records by the indigenous islanders that scholars are aware of. Therefore, we unfortunately have to work with intrinsically biased

European historical sources that need to be scrutinised and deconstructed before being able to use them (Hofman and Ulloa Hung 2019).

To make up for this inadequate knowledge, this study will employ a multidisciplinary approach with which it tries to breach this gap and come to a more holistic view of human-animal relationships.

## 1.2 Objectives

This research sets out to analyse the largely untapped socioeconomic and spiritual human-animal entanglement between the people of El Carril and land turtles by employing a multidisciplinary approach. This is based on the entanglement theory as proposed by Ian Hodder (2012). This is done to create a holistic biography of the treatment of turtles by the indigenous inhabitants of the site of El Carril in the Northern Dominican Republic.

Analysing *adorno*s representing *Trachemys stejnegeri vicina*, a species of freshwater turtle found in the Dominican Republic, as well as the zooarchaeological remains, will allow for a more holistic interpretation of the role and importance of slider turtles to the ancient inhabitants of El Carril. The analysis of *adorno*s aims to establish an idea of the frequency and context of their appearance in the archaeological record. In addition to this the zooarchaeological analysis will take those factors into account including evidence of any anthropogenic marks such as burn marks to hint at possibilities of the nature of the treatment of turtles by humans. The zooarchaeological finds will be used to consider the cultural and subsistence economic history of these animals (Uerpmann 1973, 2-4). To interpret this data and to provide a cultural context, analogous historical and ethnographic data will be investigated to illuminate possible systems of meanings and different ways of turtle exploitation.

## 1.3 Research Questions

To assess the treatment of turtle by humans and their relationship this thesis will answer the following questions:

- How can turtle remains and turtle depictions in ceramics found at El Carril inform us about the human-turtle entanglement in indigenous Caribbean communities?
    - What are the defining morphological characteristics of land turtle *adornos* found at El Carril?
    - What can be determined by considering the results of the analysis of the provenance of *adornos* with turtle representation in relation to other culturally significant deposits?
    - How can the depositional context and anthropogenic modifications related to turtle remains inform us about human treatment and their cultural and economic value?
    - How can ethnographic and historical information related to turtles help to contextualise the material record?

## 1.4 Methods and Approach

A set of archaeological techniques will be used to investigate the treatment and connotation of the Dominican slider (*Trachemys stejnegeri vicina*), based on remains found at the site of El Carril, Dominican Republic. For the zooarchaeological inquiry a qualitative analysis of anthropogenic bone surface modifications will be applied. Next, the provenance and distribution of both the faunal remains and ceramics will be mapped and investigated. The historical accounts will be scrutinised and critically assessed. Ethnographic accounts and

comparative data pertaining to turtle remains and depictions in ceramics at other archaeological sites will be considered through available information in other publications and reports.

## 1.5 Outline of Thesis

Chapter Two describes the current state of knowledge pertaining to indigenous culture and human-animal relationships, including a detailed overview of the more recent developments in the field of Caribbean archaeology. A general cultural background will be presented by critically assessing information from early European historical sources on the customs of the indigenous inhabitants of Hispaniola. On top of this, a diachronic analysis of circum-Caribbean cultures relevant to the representation of turtles, as well as ethnographic accounts from north-eastern South America will be considered as a cultural context for our material. Relevant biological and ecological information about the turtle species *Trachemys stejnegeri vicina* will be presented, amongst others, to illustrate the analysis of the *adorno*s.

Chapter Three will outline the methodology used in this study. First, the turtle *adorno*s will be identified on the basis of the morphological features of *Trachemys stejnegeri vicina*. After this, the zooarchaeological analysis in which the bone surface modifications present on the turtle elements are investigated will be detailed.

Chapter Four will introduce the site of El Carril by presenting the research that has been carried out so far. Next to this an analysis of the biogeography of the surrounding region in the contemporary Dominican Republic will be made. Then the ceramic series and styles generally found at the site will be discussed. Finally, the materials used in this study will be considered in their depositional context, frequency of occurrence, and spatiotemporal spread over the site.

Chapter Five will present the results of the identification of the turtle *adorno*s based on the type of deposit in which it was found. Next, the calculated minimum number

of individuals of turtles and the anthropogenic marks present on the turtle remains will be presented by unit.

Chapter Six will discuss the results of the study of *adorno*s as well as the zooarchaeological study in the context of the previously analysed cultural backdrop of the island of Hispaniola, contemporary Haiti and the Dominican Republic, and the wider geographical area.

Chapter Seven will contain conclusive remarks and a summary of the work, as well as considerations of possibilities of further inquiry related to human-animal entanglement in the insular Caribbean.

# Chapter Two: State of Affairs

## 2.1 Trachemys stejnegeri vicina

*Trachemys stejnegeri vicina*, otherwise known by its common name the Dominican slider, is one of three subspecies of slider turtles endemic to the northern and eastern regions of the Dominican Republic (Seidel 1988; Powell et al. 2000). It is one of two endemic species of terrestrial turtles to be found on the island of Hispaniola, the other being *Trachemys decorata*, or Hispaniolan slider, which is found primarily on the Haitian side of the island (Barbour and Carr 1941, 60; Powell and Incháustegui 2009, 109). The island is also considered as a breeding ground for four different species of sea turtles, namely the Loggerhead sea turtle (*Carreta carreta*), the Green sea turtle (*Chelonia mydas*), the Hawksbill sea turtle (*Eretmochelys imbricate*), and the Leatherback sea turtle (*Dermochelys coriacea*) (Powell and Incháustegui 2009, 108).

*T. stejnegeri v.* is now considered to be threatened with extinction, as well as all other turtles that occur on the island. This is largely due to the fact that the geographic range of these species is small and contemporary habitat destruction due to deforestation, urbanisation, and other factors is rampant (Hedges 2006, 282). Historically however, the decrease of endemic biodiversity was intensified due to European colonisation, with the extinction of many terrestrial species (Cunningham 1997, 31-32).

## 2.2 *Archaeological Evidence*

Many other archaeological sites in the insular Caribbean have evidence of symbolic representations of turtles. However, these are often only thought to depict sea turtles. This section will consider a handful of sites and how these may relate to the evidence found at El Carril.

### 2.2.1 St. Vincent

The study on Saladoid *adorno*s done by Iosif Moravetz is a detailed account of many different types of zoomorphic depictions in Caribbean ceramic decoration. This study employs an iconological approach as detailed by Panofsky (1955). The island of St. Vincent is located to the south-east of Hispaniola and is part of the Windward region of the Lesser Antilles (Moravetz 2005, 2). Four species of sea turtle are endemic to the island, which are the same as the ones native to the Dominican Republic (Moravetz 2005, 57). According to Moravetz, sea turtles are the most common and diversely depicted animal in Saladoid ceramics at St. Vincent.

Due to the difference in anatomical features between the Dominican slider turtle and the sea turtles it is only logical that the *adorno*s representing sea turtles that are found at St. Vincent differ significantly in appearance from those found at El Carril. However, there are some similarities. Moravetz uses formal types to group the different types of *adorno*s for his study. Formal type IIB2a, which is identified as representing a more naturalistic depiction of a sea turtle, bears similarities to a variety of *adorno*s depicting turtles found at El Carril (Moravetz 2005, 59; Appendix plate 15). This may suggest that there is evidence for the depiction of sea turtles found at El Carril. While it is true that St. Vincent does not have an endemic *Emydidae* species which makes it logical for this formal type to depict sea turtles, this does not mean that this has to be the case at El Carril. This formal type does have a number of ambiguities as its design is very simple. It does thus not have to be identified as depicting the facial morphology of a sea turtle. Given the context of El Carril, it is more likely for the similar looking *adorno*s to represent a more local species of turtle. This similarity in style does elucidate a possibility of spatiotemporal cultural continuity between the pre-historic island communities.

### 2.2.2 Golden Rock, St. Eustatius

St. Eustatius is an island in the insular Caribbean and is part of the Leeward region of the Lesser Antilles. The original excavators date the site as a 7 - 9th century CE late-Saladoid site (Versteeg and Schinkel 229). The site of Golden Rock is located in the *Cultuurvlakte* at the centre of the island. The GR-1 midden was excavated starting in 1984 in a similar grid fashion as is employed at the excavations at El Carril (Versteeg and Schinkel 1992, 31-32).

By far the largest represented artefact category consisted of pottery, with nearly 55.000 analysed fragments (Versteeg and Schinkel 1992, 36). Roughly 21% of all sherds found in the GR-1 midden are decorated (Versteeg and Schinkel 1992, 58). A number of these include *adornos*, although they are underrepresented in the archaeological record of the site. A number of the ceramics found at the Golden Rock site are typical representations of the Saladoid decorative style (Versteeg and Schinkel 1992, 61). The excavation report of the site does not clarify the animals represented by the *adornos* found at the site.

Three species of sea turtle are endemic to the island; the green sea turtle, the hawksbill turtle, and the leatherback turtle (Stelten 2019, 17). The zooarchaeological material of the GR-1 midden is abundant in the archaeological record, with roughly 45.000 bone fragments of which 42% could be identified to taxa. Regardless of the large amount of biomass attributed to sea turtles, only three individuals were identified. Versteeg and Schinkel do not consider sea turtles to have been a primary source of subsistence and caloric intake (Versteeg and Schinkel 1992, 80-83;228).

An upturned hawksbill sea turtle was found deposited underneath the midden and is interpreted as a cache. This turtle, regardless of its biomass, is considered to have been given a burial (Versteeg and Schinkel 1992, 74-75). This bears similarities to the turtle cache found at El Carril, although there are many differences. The main

difference being the fact that the cache at El Carril, further detailed in Chapters Four and Five, was of a Dominican slider turtle. The intentional deposition and burial of a turtle in these mound contexts highlights the importance of turtles in the insular Caribbean regardless of location and time.

### 2.2.3 El Flaco, Dominican Republic

In her RMA thesis, Wauben (2018) details the study of 277 *adornos* excavated at the site of El Flaco, located roughly 2 km from El Carril. In her work she states the unlikeliness of the consumption of land turtles at El Flaco. This is because according to Exquemelin, who wrote about the indigenous people of the Caribbean in the 17th century, fresh-water turtle was considered a taboo food. He writes that they were considered to be "full of oil and not fit to eat". While freshwater turtles are virtually absent in the archaeological record of the Lesser Antilles, they do occur in the Greater Antilles, specifically also at the site of El Flaco (Wauben 2018, 27).

Other sites that mention remains of slider turtles on the island of Hispaniola are the colonial site of Puerto Real, however the nearby pre-Columbian site of En Bas Saline contained practically none (Newsom and Wing 2004, 137).

## 2.3 Biological evidence

A 2013 study by Parham *et al.* on genetic introgression of Antillean freshwater turtles shows evidence that may support the hypothesis of trade between indigenous communities of the Dominican Republic and Puerto Rico. The *Trachemys stejnegeri* subspecies *vicina*, endemic to the Dominican Republic, shares mitochondrial DNA with the *stejnegeri* subspecies of *T.s*. that is native to Puerto Rico. These two species sharing DNA means that in the course of history they have been in contact with each other. The study is not conclusive on whether this dispersal of subspecies occurred by natural means or by anthropogenic action (Parham et al. 2013, 182). However, considering other evidence of inter-insular

trade it is a fair assumption that local slider turtles were brought along on trade journeys between islands.

## 2.4 Historical Accounts

One aspect of society that is usually difficult to decipher from archaeological evidence alone is the spiritual beliefs held by the people in question. Many items may certainly appear as if they held cosmological value, like the aforementioned *adornos*, but without historical sources to verify this is a challenging task. There is some historical information available for the precolonial Caribbean area, but it is sporadic and often non-corroborative. The indigenous inhabitants of the island of Hispaniola did not, to our current knowledge, leave us with any written sources. However, their myths and cosmological beliefs were conveyed orally and recorded by early chroniclers (Pané 1999).

### 2.4.1 Pané

There is one source that is widely regarded as the authority on the field of the cosmological beliefs of the inhabitants before the European colonisation. A Catalan friar of the Order of Saint Jerome by the name of Ramon Pané wrote the text '*An Account of the Antiquities of the Indies*' which he finished in 1498 (Arrom in Pané 1999, xxiv). This work was translated into English with added annotations in 1999 by José Juan Arrom. It contains stories Pané gathered over the years he lived with indigenous communities regarding their theology, cosmogony, and cosmology, as well as other myths and stories. The text came to be because of a commission from the Spanish monarchy. Next to gathering resources from the newly colonised land, there was also an ideological aspect to the colonial endeavour (Cattan 2014). It was important for them to convert the indigenous peoples to Christianity and to incorporate them in the *encomienda* system (Hofman *et al.* 2018, 201). This system forced the indigenous population to pay taxes to the Spanish crown either in goods or in kind (Batchelder and Sanchez 2012, 46). To get the indigenous peoples to

submit more effectively, an inventory had to be made of the belief system that was already in place among the islanders.

To better understand the approach taken by Pané in recording these myths, one must take into account the historical context in which colonisation took place. It was the late Middle Ages in Europe and especially in areas like Iberia many religious changes took place. Idolatry, the worship of idols representing a deity or spirit, was increasingly seen as a perversion; a distraction from God. All worship should go straight to God, and anything that comes in between only creates superstition. Thus, the members of the clergy came to Hispaniola with the intention to eradicate any form of idolatry if it were to be found.

For the study of turtle representation Pané only describes one part of the story that is especially relevant, as it is the only one to explicitly mention turtles. This is in chapter XI, where a female turtle is mentioned as part of a larger story which starts in chapter IX of his account. The story goes as follows:

There was a Supreme Spirit (*Iaia*) who lived with his wife in a house. His son (*Iaiael*) plotted to kill him so as punishment he was banished before being murdered by his father. His bones were put in a gourd and hung from the roof of their house. After some time the wife of the Supreme Spirit took down the gourd to look at the bones of her son. Instead she found the gourd was filled with fish, so she and her husband consumed them. One day, when the Supreme Spirit was not home, four identical brothers arrived on his land. The brothers saw the gourd and took it down to eat the fish inside. When they noticed the Supreme Spirit return they hastily tried to hang the gourd back up, causing it to fall and break. From the gourd spilled an immense amount of water which created the sea. After the incident the four men left as fast as they could, not stopping until they were sure the Supreme Spirit was no longer following them. They encountered the house of a man who was baking cassava bread. When one of the brothers asked for some bread the man became angry and spat on the brother's back. The spit contained *cohoba*, a hallucinogen,

and created a large, painful swelling on his back. The brother was sure to die from the injury until it was cut open with a stone. A live female turtle emerged from the wound, and the men built a house in which they raised her (Pané 1999, 13-16).

In the footnotes Arrom remarks that other versions of the translation claim that the four brothers created offspring with the turtle. This version of the story could thus link the turtle with the concept of fertility. Alongside that the turtle could also be linked to the usage of *cohoba*, which Pané describes as a hallucinogenic drug that the indigenous people ingested by inhaling it through a reed straw (Pané 1999, 16;21).

The text indicates a clear form of belief system in which idolatry is prevalent. It talks about *cemís* or *zemís*, small figurines made either out of wood or stone. These idols, as Pané calls them, contained spirits or demons, which are imbued into the objects by the help of a *behique*, a ritual specialist. The villagers kept the *zemís* in their homes where they worshipped them (Pané 1999, 1;25-27). This is thus exactly the kind of spiritual practice the European colonists wished to see eradicated. None of these *zemís* were found at the site of El Carril, however.

The problems with using this text written by Pané as an invaluable source of historical information on the spiritual practices of these people are visibly starting to pile up. To see to what degree we can use this information to interpret the materials found at *El Carril* we must first analyse these issues.

First, there is an issue which has not yet been addressed, which relates to the original manuscript. So far, the original version has not been found. The information in the *account* was preserved as Columbus' son included it in the text he wrote to defend his father against the Spanish monarchs. However, this work was never published and so the only surviving version is a poor translation of that text into Italian which was never finished, written by Alfonso de Ulloa and published in 1571 (Arrom in

Pané 1999, xiv;xxv). One can only imagine how much of the original version was quite literally lost in translation.

Many nuances or details may have been lost on Pané but as one reads his final text this may not have mattered too much as he wrote rather matter-of-factly and left out many details. We may not know whether this is because of his lack of understanding or because he deemed them unimportant.

Next to the evident Eurocentric perspective Pané takes on in his text, there is also a clear egocentric perspective. As the life of the friar is relatively unknown, we may not get a good insight into how this man may have perceived his individual world and thus we may not know what he would deem important and which details he would have left out.

As Pané is part of a larger world with a view on idolatry which has already been described, he focusses more on uncovering the practices of the *behiques* which he deems 'deceptions'. He considers the tales he collected "fables" and states the people who believe in them as well as the *zemís* and *behiques* "heathens" and "simple, ignorant people" (Pané 1999, 19-21). This way of writing about the people he is studying demonstrates the Eurocentric agenda we have previously explored and thus shows Pané to be an unreliable narrator.

Next to the way the *account* is written, there is also the issue of assumed spatio-historical continuity. Seeing as these mythological stories are only passed down orally, many variations may occur over time when we take into account individual agency. Pané already notes that even within the same group of people, different individuals tell different versions of the story, some emphasising other aspects. Other accounts also tell of the difference in dress from settlement to settlement (Pané 1999). One can only imagine how much of the story would take on a diverging form between groups of people that are apart in space and time. The exact location of the village that Pané recorded these stories in is debated by scholars.

However, El Carril was likely located in the chiefdom Maguá of *cacique* Guarionex. This is one of the *caciques* with whom Pané spent some time writing the latter part of his *account* while staying in a nearby fort (Arrom in Pané 1999, xxiii). Nevertheless, we cannot assume that these stories as presented in the *account* will be the same in the settlement in question. While it is true that historical analogies of these stories can be made from the American mainland, different communities and different individuals may put emphasis on other aspects of the same cosmology, and their agency to do so must always be taken into account.

### 2.3.2 De Las Casas

Fray Bartolomé de Las Casas was another man of holy devotion who was sent on a ship to the Caribbean with the voyages of Columbus. Much more is known about him than about Pané. The first confirmed occasion he arrived in Santo Domingo, Dominican Republic, was in April 1502 as a teenager (Clayton 2012, 20).

In his *Apologética historia de las Indias*, of which snippets are used by Arrom in his translation of Pané (1999), de Las Casas often refers to the work done by Pané and sometimes even corrects him with his own observations (De Las Casas in Pané 1999, 54). He speaks of ceremonies, one of them consisting of taking *cohoba*. This ritual shares similarities to shamanic activities. Through taking this drug-like substance the *behique* of the indigenous communities would become intoxicated and perform divinations and receive prophecies (De Las Casas in Pané 1999, 62-63).

What does this mean for using Pané's text to interpret the role of turtles in the cosmology of the people of El Carril? The text provided by Pané leaves plenty of information to contextualise the high density of material depicting turtles and their remains. This information can be very useful, but it is not the be-all and end-all way to gather information on the belief system of the indigenous people. This is not only because of the various concerns raised previously, but also because we must employ archaeological and ethnographic inquiry to fill in the gaps in the knowledge.

## 2.5 Ethnographic Accounts

The insular Caribbean was inhabited as early as 5000 BCE. These Archaic Age people settled on the Greater Antillean islands of Cuba, Hispaniola, and Puerto Rico, but possibly skipped Jamaica. This uncertainty comes forth from the lack of archaeological sites that were discovered which may be due in part to the ephemeral nature of many of the sites. Then around 800 BCE Arawak communities began to settle and interact with these indigenous communities. These people originated from mainland South America, specifically the area of the Orinoco River basin (Keegan and Hofman 2017, 48-54). This section is not to assume any form of cultural continuity between the archaeological record of El Carril and ethnographic records between the contemporary Arawak groups of the Orinoco River Basin. Rather, it is to sketch some possible uses for turtles at El Carril. These possible uses will only be considered for El Carril if sufficient archaeological evidence supports them. For these reasons, this study will consider the information provided by ethnographic studies of human-testudine relationships in the South American lowlands. These parallels are used because of the lack of contemporary indigenous Caribbean sources from which to otherwise derive this information. Despite this, there are also indications of a cultural diffusion between the Isthmo-Columbian area and the Antilles that temporally proceed the settlement at El Carril (Rodríguez Ramos 2013). Because of this diffusion of thoughts and practices, ethnographic evidence from this area could also be taken into account when considering conceptualisations of human-turtle entanglements.

### 2.5.1 Ye'kuana

The Ye'kuana live in the Orinoco River basin. In 1990 there were roughly 3.100 people who belonged to the group of which the name means 'canoe people' (Guss 1990, 7). The Red Footed Tortoise, or *Morrocoy* (*Chelonoidis carbonarius*) is a turtle species which is prevalent in parts of the basin (Rhodin *et al.*, 2017, 123). *C.*

*carbonarius* is a large-sized land turtle species, with shells reaching up to 50 cm in length (Vargas-Ramírez *et al.* 2010, 161-162). Archaeological evidence suggests that the Ye'kuana used these turtle shells as musical instruments. By rubbing on the shells it creates a sound which is perceived as being superhuman (Hernández and Fuentez 1987, 35-37). The usage as a music instrument is something that could be considered as a possible way for the people of El Carril to have interacted with the turtles in their environment if it is supported by the zooarchaeological evidence.

One 2018 study has been done on the use of turtle shells as music instruments and what traces this would leave in the zooarchaeological record. Because the study is based on the archaeological record of the south-eastern United States, and no elements with perforations have been recovered from our site, this study may not be fully relevant to this thesis (Gillreath-Brown 2018, 5-25). Nevertheless, it is a valuable resource for gaining a different perspective on faunal remains which may otherwise be regarded as profane. Investigating the soundscape of the region could give a more immersive and emic view on the day-to-day experiences of Caribbean communities.

### 2.5.2 Kayapo

A bit further to the south near the Xingu River live the *Kayapo*. They are a people who live in small communities in villages with houses gathered around a central men's house. Land turtles hold a significant place in their cosmology. They are crucial in a highly important ceremony, one where a child gets bestowed with a 'beautiful name' (Posey and Plenderleith 2002, 4-5). As preparation for the ceremony there is a month-long hunt. A group of able men and women move away from the village into the woods to catch a large number of land turtles. Land turtles are chosen because they are the only animals that stay alive in captivity for the duration of the ceremonial hunt. Once caught, they are tied between two poles and when at least ten of these racks of turtles have been obtained the hunt has been completed and the hunting party may return to the village. Once they have returned

bearing these racks of turtles, they will be cooked by the family of the child that is to be named. Their meat is eaten by the whole community during the ceremony. The naming ceremony is extremely important, as to have a ‘beautiful’ name is to have something of unparalleled value which cannot be described monetarily. For turtles to play such a large part in this highly valued ceremony implies their value not only in terms of ritual significance, but also as an important source of sustenance (Beckham and Turner 1987).

# Chapter Three: Methodology

## 3.1 Analysis of *Adornos*

Many previous studies of zoomorphic ceramic *adorno*s in the Caribbean have used the iconological approach as described by Panofsky (1955) and adapted for archaeological material. This method has become obsolete for this field of study as it relies on a theoretical framework to contextualise the finds. The historical source that is often used for this contextualisation is the work by Pané, but as has been discussed earlier, this text is biased and thus cannot be used as the sole source. Therefore, this thesis considers other factors for interpreting the zoomorphic depictions in *adorno*s found at El Carril. On top of the written text provided by Pané, the previously given ethnographic accounts related to the treatment of turtles in indigenous communities on the South American mainland are considered for this contextualisation. However, as has been stated before, all of these sources are dubious at best. Thus, conclusions will not be drawn on the basis of these ethnographic and historical sources. Rather, they will be considered as theoretical options for conceptualising the use of the turtle depicting *adornos*.

### 3.1.1 Identifiable characteristics Trachemys Stejnegeri Vicina

In order to identify *adornos* as representing a Dominican slider turtle, an overview of morphological characteristics of this species has to be made. From images of the turtle, a couple of characteristics can be identified:

- Pointed protruding head with a stub-like shape and blunt apex;
- Vertical protruding nose with small circular front-facing nostrils which are in line with the eyes;
- Bulging eyes positioned high on the head and are parallel on either side of the protruding nose with a pupil blending into a horizontal line of the same colour;

- Slit-like mouth with a slight upwards curve in the middle;
- Forwards protruding limbs with webbed feet and protruding claws.

Notable is that only the frontal face of the slider turtle is described. This is because it is solely this face being depicted in the *adornos* found at El Carril.

### 3.1.2 Identification of *adorno*s

With these characteristics in mind, the *adorno*s found at El Carril in fieldwork seasons 2017 to 2019 can be analysed. The fifth characteristic mentioned, regarding the feet, may not always be present in all *adornos* as for most of them it is solely the head which is represented. Therefore, each individual ceramic object will be considered separately on the basis of the elements present in each depicted zoomorphic image. It is important to highlight that *adorno*s are always part of a larger vessel. The *adorno* itself thus does not tell the full story. Unfortunately, these vessels are rarely found in one piece and the turtle *adorno*s found at El Carril are no exception. Some *adorno*s may also be included in this study of turtle depiction even if there are some uncertainties about the animal they are supposed to represent. They may have the characteristics of the Dominican slider but may also resemble other fauna or anthropomorphic images. They are included so that the argument of this thesis can be further backed up, and so that further studies may consider these and draw their own educated conclusions.

## 3.2 Zooarchaeological Analysis

The zooarchaeological analysis and the terminology are in line with the standard provided by the Springer guide '*An Introduction to Zooarchaeology*' by Diane Gifford-Gonzales (2018).

The main form of zoological analysis applied in this study is a quantitative one. The counted and corrected Number of Identifiable Specimens (NISP) is considered and

the Minimum Number of Individuals (MNI) of the four units with the highest element density will be calculated in order to get a sense of the amount of individuals that may have been present at the site at any given time. The material will be weighed as well. On top of this, bone surface modifications by human action are analysed. These forms of bone modification include marks indicative of exposure to high temperatures.

NISP is unreliable for quantifying how many animals were present in a site, as if multiple fragmented identifiable specimens belonging to the same element are found, the number of individuals might be inaccurately skewed higher. Therefore, estimating the MNI offers a more accurate view of the population in relation to human activity at any given time.

# Chapter Four: Site and Materials

This study looked at zooarchaeological and ceramic material from excavations carried out at the site of El Carril, Dominican Republic. Arbitrary units 7, 10, 11, 33, 35, 36, 39, 41, 44, 45, 46, 47, 54, 56, and 71 were studied as part of this research. Figures 1 and 2 show the geographical locations of the units on the site.

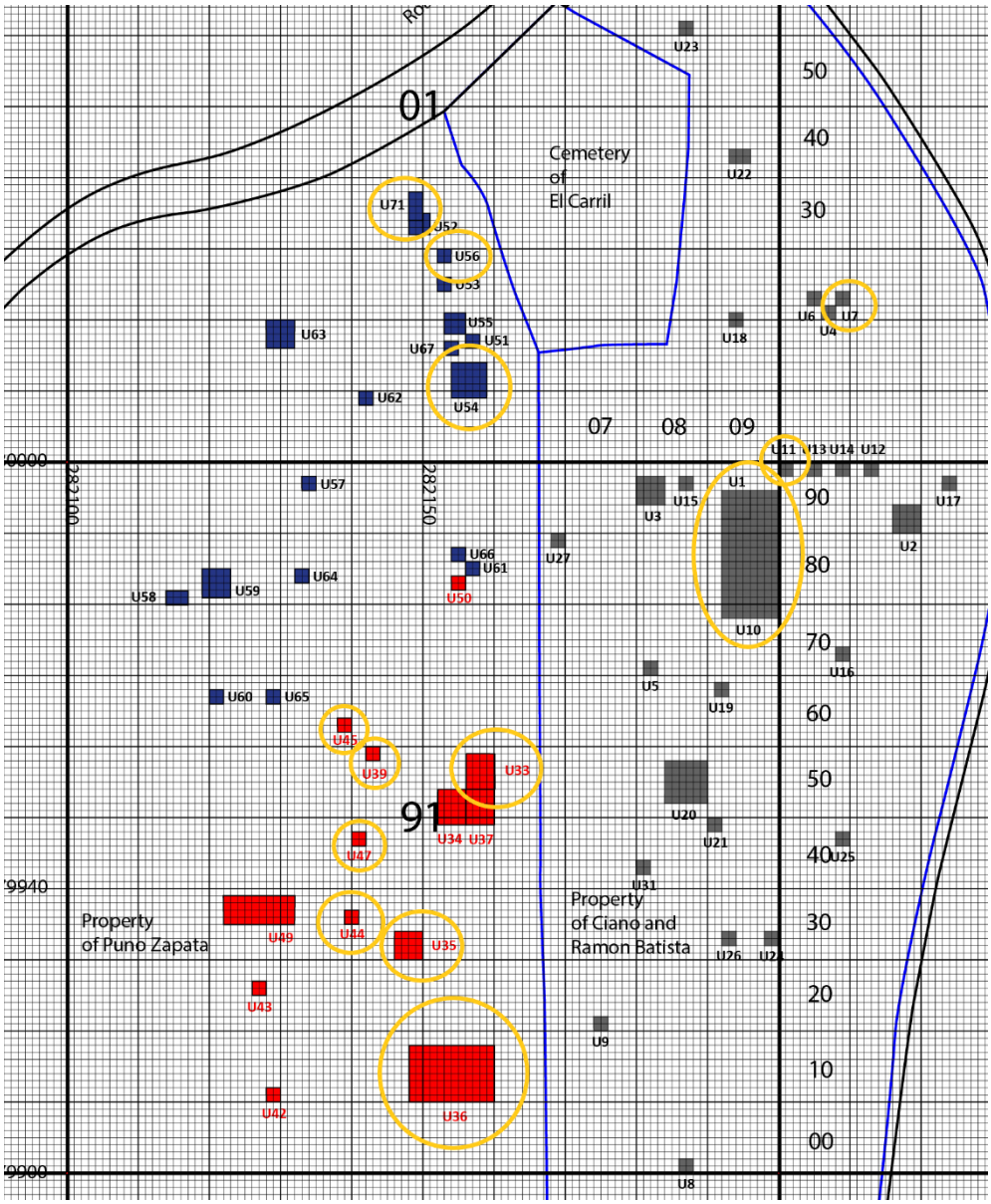


*Figure 1: Overview map of the unit layout of the northern part of the site of El Carril. Yellow circles: Units included in this thesis. Grey: Excavated in 2016-2017. Red: Excavated in 2018. Blue: Excavated in 2019. ©NEXUS1492 (Map after M.L.P. Hoogland with added annotations).*

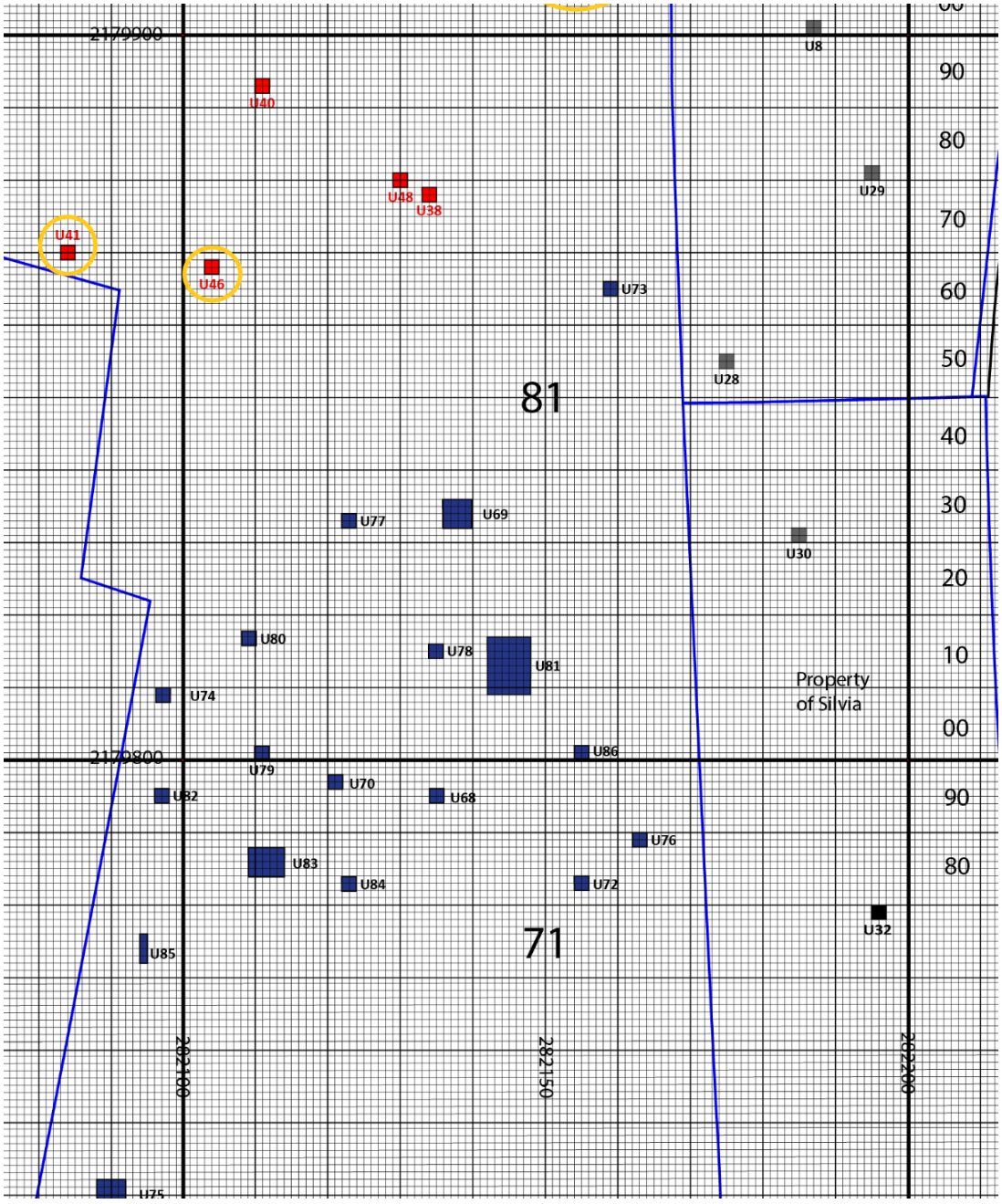


*Figure 2: Overview map of the unit layout of the southern part of the site of El Carril. Yellow circles: Units included in this thesis. Grey: Excavated in 2016-2017. Red: Excavated in 2018. Blue: Excavated in 2019. ©NEXUS1492 (Map after M.L.P. Hoogland with added annotations).*

## 4.1 El Carril and its surrounding landscape

The site of El Carril is located at the southern foothills of the *Cordillera Septentrional*, overlooking the *Valle del Cibao* (Hofman *et al.* 2018; Powel and Incháustegui 2009, 104). The region is rich with a plethora of endemic flora and fauna, but colonial and contemporary anthropogenic activities have expedited the destruction of natural indigenous landscapes (Cunningham 1997). The site has been excavated according to the methods detailed in the excavation reports of El Flaco and El Carril of 2015 - 2019 (*informe de trabajo de campo*). Radiocarbon dating of material found at the site during fieldwork seasons of 2017 and 2018 gives an estimate of site occupation between the 9th and 15th century BCE (Hofman et al. 2019, 35; Pagán-Jiménez *et al.* 2020).

The human landscape of El Carril is characterised by mounds and levelled areas. The levelled areas were dug out for the purpose of building houses on a flat surface. The mounds are not so easily identified as having a sole purpose. A minimum number of a hundred and seven mounds formed in pre-colonial times were recorded by combining information from a multitude of different studies (see van Dijk 2019, 96; Veloz Maggiolo 1972); Pagán-Jiménez *et al.* 2020). Important to note here is that this does not mean that all those mounds were present or in use simultaneously. Some mounds may have functioned as a place to dump sediments left over from levelling the ground used for house construction, while others may be reserved for agricultural or burial purposes. However, most mounds are often considered to have been built up by a plethora of different activities. Most of the mounds could be considered trash middens, or household mounds, which contain a multitude of artefacts which were intentionally deposited, as well as discarded material from everyday use and hearths (Pagán-Jiménez et al. 2020). Van Dijk also suggests that according to the location of certain mounds, they may also have been constructed for conservative purposes to protect against erosion (van Dijk 2019, 98-99).

## 4.2 Ceramic styles found at El Carril

Most of the ceramics found at the site of El Carril could be identified with the Meillacoid style as described by Irving Rouse (Rouse 1939; Rouse 1992). Next to this dominating style, there is also evidence for the presence of Ostionoid style ceramics often in the deeper layers of the mounds. On top of that there is the presence of some Chicoid, although very sporadically in conjunction with the Meillacoid sherds. A lot of sherds show an interesting mix of styles, primarily between the Meillacoid and Ostionoid. This mix of styles entails a mix in provenance of material as well as different style aspects and techniques (Hofman et al. 2018, 20). These ceramics may be decorated with modelled-incised lugs which are now referred to as *adorno*s (Rouse 1992, 124-125). Because they are the more common styles of pottery found at the site of El Carril, a brief summary of the Meillacoid and Ostionoid series and the styles within them will be given.

The Meillacoid style of pottery is characterised by the cross-cutting incisions, also known as crosshatching, decorating the outer vessel wall. The *adorno*s may rise up above the vessel from their attachment to the rim. The characteristics of these lugs may be built up through the appliqué of facial features or through incisions and punctuations (Keegan and Hofman 2017, 120-121).

The Ostionoid style of pottery first appeared in the archaeological record of the Dominican Republic around 600 CE on the eastern side of the island. The decoration of the Ostionoid style of pottery is much more minimal. It may have *adorno*s that stick out above the vessel rim but often the outer vessel walls are clear of any incisions and other types of decorations. Protruding nubs and singular incisions do occur as forms of decoration (Keegan and Hofman 2017, 118-120).

## 4.3 Samples of *adornos*

For this study it is imperative to consider the depositional context of the *adorno*s to get a sense of whether the vessel was intentionally deposited and to consider the spatiotemporal distribution patterns to get a sense of when and where they were more prevalent. Radiocarbon dating in combination with the descriptions of many of the features will be used to consider a possible pattern of continuity of turtle representation through different generations. All information regarding the provenance is presented in appendix A.

Observations from the three fieldwork seasons at El Carril have shown a trend in distribution of ceramic traditions. Generally, ceramics are found in layers in the mounds containing ash. Most of the decorated ceramics, including *adorno*s, display a mix of styles, particularly of the so-called Meillacoid and Chicoid series (*sensu* Rouse 1992; Ulloa Hung 2014). Ostionoid ceramics are also present, but these are often found in the deeper layers. In spite of this, analysis of the distribution of the sherds indicates Chicoid style ceramics being more prevalent in the northern part of the site, whereas mixed Chicoid/Meillacoid and Ostionoid/Meillacoid style ceramics are more common in the southern part. The preliminary verdict on this is that the southern part of the site was occupied earlier than the northern part, although this is still to be confirmed by radiocarbon dating (Hofman *et al.* 2019, 27). If this hypothesis stands, geographical distribution of turtle *adorno*s at the site would thus suggest a pattern of preference for different generations.

Out of all the *adorno*s excavated at the site of EL Carril over the fieldwork seasons of 2017-2019, twenty-six were identified as turtles. However, not all of these were studied in detail. An *adorno* was selected for this study on the basis of a few factors:

- Is the *adorno* found in a noteworthy depositional context?
- Is the *adorno* especially elaborate, or visibly still part of a larger vessel?

If the answer to one or more of these questions is yes, then the choice was made to include it. Because of circumstantial restrictions in the access to materials it was only possible to study the *adorno*s from photographs made in the previous fieldwork seasons. Because of this reason, the possibility exists that other notable finds were left out, simply because they were not clear enough to be properly studied remotely.

## 4.4 Zooarchaeological samples

The vast majority of turtle remains found at El Carril were pieces of the shell, either the plastron or the carapace. The total NISP of turtles adds up to 752. This number is but a mere 1,7% of the 44.203 faunal remains recovered from El Carril (Hofman *et al.* 2019, 50). *Nota bene*, these may not all be *T. stejnegeri v.* as there were also a few pleurals of sea turtles identified. For this study 511 elements, roughly 68%, from four different units, were analysed. The list of all turtle specimens are presented in appendix B. These units all presented the highest density of turtle remains, or contained notable deposits, as is the case in units 54 and 71. Although analysing only the units with the highest amount of remains is not necessarily a representative sample, this approach was chosen to get a more complete overview of types of treatment of turtle and turtle remains at the site. As the total amount of turtle remains studied here exceeds 30% of all turtle remains at the site, it could indeed be considered a representative sample. This is because the four units studied vary greatly in terms of location, dating, and depositional context. On top of this, more data will hopefully lead to more insightful and substantiated conclusions.

### 4.4.1 Unit 10

Unit 10 contained 15.4% of the total amount of turtle remains found and 0,26% of the total amount of faunal remains with an NISP of one hundred sixteen. Of these, twenty-five were too fragmented and not identifiable as specific elements. All faunal remains hail from the top four layers of the excavated unit, thus found deeper than 40cm below the contemporary surface level. Because this unit was based on a levelled area rather than a mound, a different excavation and sampling technique was used than in the other three units. The *adornos* in this unit were located towards the northern corner of the unit. This area is a sloped transition into a mound. The context of the two *adornos* found in this unit is most likely related more closely to a mound context than to that of the levelled area.

Of the turtle specimens found, only four were completely intact elements. Of these four, three belonged to the plastron, and the other being a peripheral. Eighty-seven specimens were thus fragmented, but still identifiable to their element. Of all identifiable pleural specimens, seventeen were identified down to element and side. The total weight of all turtle remains in this unit equals 246,6 grams.

### 4.4.2 Unit 54


*Figure 3: Overview shot of the partially excavated turtle cache of unit 54. Some remains can be seen to have been found in anatomical position ©NEXUS1492.*

Unit 54 contained multiple burials, including the burials of two young individuals (Hofman *et al.* 2019, 24). However, there were not exclusively human burials in this area. One sub adult dog (*Canis familiaris*) was buried near the human remains. Post-depositional disturbances of the dog grave were visible, with the head being removed and being replaced with a stone (Hofman *et al.* 2019, 51). In close proximity to these burials, a great quantity of turtle shell remains was found. This turtle cache contained one hundred thirty-nine specimens of which most were found in anatomical position, as is illustrated by Figure 3. Unit 54 contained sixty-five other specimens. This increases the total NISP of this unit to two hundred and four with 27,1% of all turtle remains and 0,46% of all faunal remains, and a weight of 324,2 grams.

### 4.4.3 Unit 56

Unit 56 was the deepest unit in the 2019 fieldwork season, dug down to 250 cm below contemporary surface level. It is the unit with the lowest NISP out of the four that are analysed, at a mere seventy-eight. This is but 10,4% of the total amount of turtle remains, and 0,18% of all faunal remains. Ten specimens were Minimally identifiable (MID), down to whether they belonged to the plastron or carapace, and eight were NID. The total weight of all the turtle remains in this unit adds up to 150,6 grams.

### 4.4.4 Unit 71

Unit 71, located at the northernmost edge of the site, was one of the last units dug in the fieldwork season of 2019. It provided quite a challenge due to the remarkable amount of zoological material in many of the lower layers. Large ash deposits filled with faunal remains located under the ash layers typically found in the top layers of the mounds at El Carril are a completely unprecedented phenomenon (Hofman *et al.* 2019, 16). This unit counted an NISP of one hundred thirteen, which is 15% of the total turtle remains and 0,26% of all faunal remains, with a total weight of 295,4

grams. The specimens in this unit have high degrees of preservation as only eleven specimens were NID.


*Figure 4: Dorsal and ventral view of pieced together specimens and elements of the carapace of one individual turtle. All of the 21 remains used were found in unit 71, layer 10, feature F34-74 ©NEXUS1492.*


*Figure 5: Dorsal and ventral view of a turtle plastron element with signs of anthropogenic activity found in unit 78 ©NEXUS1492.*

One addition to these four units is a peculiar find from unit 78. The item, shown in Figure 5, is unprecedented at the site. The artefact shows signs of anthropogenic action. It is a circular object fashioned out of turtle plastron and modified with linear geometric designs. Conclusive studies on the object still have to be carried out, however it does suggest a possible decorative or ritualistic use.

# Chapter Five: Results

## 5.1 Introduction

This chapter will outline the results of the analysis of the *adornos* and zoological remains. First, the results of the *adorno* analysis will show the identification of the *adornos* found at El Carril, as well as their dating whenever possible. The results are presented based on the type of depositional context in which they were found. Second, the results of the analysis of the faunal remains will detail the types and quantities of anthropogenic action visible on the remains, as well as show the calculated MNIs. The results of the zooarchaeological analysis are presented in order of unit number.

## 5.2 *Adorno* Analysis

Out of the hundreds of *adorno*s found at the site of El Carril, twenty-seven were identified as being depictions of the land turtle. Of these twenty-seven, twenty were analysed for this study. There were four clear types of soil deposits in which the *adorno*s were found. All these *adorno*s depicting images of the Dominican slider are fashioned in the mixed style of the Ostionoid-Meillacoid. This mix of styles occurs in most of the ceramics found at the site of El Carril (Hofman et al. 2018, 20), and is common in this area of the Dominican Republic (Ulloa Hung 2014).

### 5.2.1 Ash deposits

By far the most represented depositional context was ash deposits. Ash deposits are remnants of rubbish burning often deposited in mounds (Hofman and Hoogland 2016, 9). Ten out of the twenty artefacts hail from this type of deposit. Three turtle *adorno*s, that can be seen in Figures 6, 7, and 8, were found in the same ashy context. They were found in arbitrary unit 47 in a mound at a depth of 50-60 cm. This feature included many other finds such as the shells of land snails (*Pleurodonte* ssp.), shells of other species, stone artefacts, griddle elements, and other ceramic sherds. This is a great example of the visible differences in stylistic representations of the morphological features of turtles.


*Figure 6: Sherd with find number 3102 in unit 47. The* adorno *shows an ovoid head with parallel bulging eyes and bears a horizontal slit for a mouth. It is attached by a neck with horizontal slits to a sherd which contains part of the vessel rim as well as the bottom of the vessel. The outer wall of the vessel contains a geometric design pattern of round incisions. In line with the head there is a feature representing the right foot of a slider turtle ©NEXUS1492.*


*Figure 7:* adorno *with find number 3131 found in unit 47. Small* adorno *broken off from original sherd. Face is very slim with horizontal slit depicting a mouth. Eyes mimic the shape of a coffee bean ©NEXUS1492.*


*Figure 8: Sherd with find number 3146 found in unit 47. Contains left forelimb. Horizontal slits representing eyes ©NEXUS1492.*

The *adorno*s deposited in ash contexts are very intricate in terms of design. Three *adorno*s found in ash deposits are part of a larger sherd which show the original vessel shape. This opens the opportunity of studying the possible uses of the types of vessel the *adorno*s depicting turtles are usually attached to. Figure 9 shows another sherd that bears many stylistic similarities to the one shown in Figure 6.


*Figure 9: Sherd with find number 2139 found in unit 41. This artefact was found in unit 41 at a depth of 60-70 cm surrounded by other lithic inclusions. No dating is available for the layer. The sherd is similar in decorations to the one shown in Figure 6. It shows a protruding turtle head with parallel outward facing bulging eyes, a horizontal slit representing the mouth, and two feet-like protruding lugs with vertical slits ©NEXUS1492.*

Below are the rest of the turtle *adornos* found in ash contexts, shown in Figures 10, 11, 12, and 13.


*Figure 10: Two sherds with shared find number 567 found in unit 10. The left* adorno *depicts a narrow protruding head with bulging eyes and a horizontal slit for a mouth. The right* adorno *depicts a circular protrusion with vertical slits representing claws attached to a foot ©NEXUS1492.*

*Figure 11: Sherd with find number 192 found in unit 7.* Adorno *shows a narrow ovoid protruding head with circular bulging eyes.* Adorno *is attached to a larger broken sherd ©NEXUS1492.*



*Figure 12: Sherd with find number 2278 found in unit 46.* Adorno *depicts a round protruding head. The head contains bulging eyes with horizontal slits and a horizontal slit representing a mouth. A protrusion which may represent the left forelimb is visible ©NEXUS1492.*

*Figure 13: Two sherds with shared find number 2266 found in unit 45. Both* adornos *are part of a larger rim sherd. The leftmost* adorno *has a flattened face with two forward facing bulging eyes and a protruding nose. The rightmost* adorno *has a narrow ovoid protruding head with outward facing bulging eyes ©NEXUS1492.*

### 5.2.2 Hearth Contexts

Three *adorno*s were found in hearth contexts. All three *adorno*s are still attached to a larger sherd of its original vessel. Figure 14 shows a sherd that was found in the context of a levelled area at approximately 20 cm deep.


*Figure 14: Sherd with find number 1623 found in unit 33.* Adorno *shows ovoid protruding head with parallel bulging eyes and horizontal slit representing the mouth ©NEXUS1492.*


*Figure 15: Sherds with find numbers 2082 (left) and 2097 (right) found in unit 39. Both sherds have* adornos *with flat discs on which an applique in the form of a vertical protrusion is applied with on each side two bulging eyes with horizontal slits and a horizontal slit representing a mouth. The sherds are decorated with vertical incisions. Both sherds also have a protruding lug with vertical slits representing the right forelimb ©NEXUS1492.*

The other two sherds shown in Figure 15 are very intricate in design and are likely sherds of the same vessel. The identification of these latter two sherds as being depictions of Dominican sliders is slightly debated, as they may also represent the qualities of an anthropomorphic figure. Nevertheless, they are highly detailed *adornos* which depict all representative morphological features of Dominican sliders as described in chapter 3.2.1. The vertical slits that decorate the outside of the sherd may be considered to depict the peripherals of the turtle shell.

### 5.2.3 Levelled areas

Another three *adorno*s come from a context related to a levelled area with many post holes. Two of these were found at 10-20 cm deep and were still attached to a larger sherd that is part of the vessel wall as can be seen in Figures 16 and 17.


*Figure 16: Sherd with find number 628 found in unit 10. Larger rim sherd with small protruding* adorno*. Face has two bulging parallel eyes and a horizontal slit representing a mouth ©NEXUS1492.*




*Figure 17: Sherd with find number 1766 found in unit 35.* Adorno *is part of a larger sherd. Face has two bulging parallel eyes made up of two concentric circles and a horizontal slit representing a mouth ©NEXUS1492.*

The other sherd, which can be seen in Figure 18, only depicts a head. Nevertheless, it is one of the only examples of an *adorno* of a Dominican slider with two parallel horizontal incisions at the front, representing nostrils. It was found at a depth of approximately 20 cm.


*Figure 18: Sherd with find number 3014 found in unit 36. This sherd shows a small* adorno *with parallel bulging eyes on either side of the head, a horizontal slit representing the mouth, and forward facing nostrils ©NEXUS1492.*

### 5.2.4 Other

The final four *adorno*s used in this thesis were found in brown humus soil deposits that also contained other remains including shells. All are intricately decorated and display unique style characteristics. They can be seen in Figures 19, 20, 21, and 22.


*Figure 19: Sherd with find number 683 found in unit 11. The* adorno *has two parallel bulging eyes and a horizontal slit representing the mouth. It is attached to a larger rim sherd which contains decorations of circular incisions above the protruding* adorno ©NEXUS1492.


*Figure 20: Sherd with find number 2166 found in unit 44.* Adorno *lug with a horizontal perforation parallel to the vessel wall. The head of the* adorno *slightly is slightly protruding with bulging parallel eyes. Below the head there are two vertical incisions which may represent the forelimbs of the turtle ©NEXUS1492.*


*Figure 21: Sherd with find number 2172 found in unit 44. This* adorno *is part of a larger sherd decorated with a broad stroke cross-hatch pattern. The* adorno *is formed on a handle with forward-facing circular incisions representing eyes, a vertical protruding nose, and a horizontal sit representing a mouth. In four directions around the head there are protrusions with vertical slits representing fore and hind limbs ©NEXUS1492.*


*Figure 22: Sherd with find number 3719 found in unit 56. This sherd shows a turtle* adorno *attached to the top of a vessel handle, with the turtle head protruding from the top of the handle. The* adorno *has parallel bulging eyes and a horizontal slit that represents a mouth ©NEXUS1492.*

The *adorno*s presented in Figures 20 and 21 both hail from the same unit. Information on the dating of those units is available. The deeper layers of the unit are dated to 890 ± 20 BP (layer 5) and 830 ± 20 BP (layer 9) (Pers. comm. C. Hofman 2020). As the two sherds presented above come from the top 20 cm they are likely younger than these dates.

## 5.3 Zooarchaeological Analysis

### 5.3.1 Unit 10

Of the turtle specimens found, only four were completely intact elements. Of these four, three belonged to the plastron, and the other being a peripheral. Seventy-seven specimens were thus fragmented, but still identifiable to their element. Of all identifiable pleurals, twenty-one were identified down to the exact location of placement in the shell. Only seven of the specimens show discolourations which may indicate burning, four of which are NID. Fragmentation rate is high with only 3.4% of specimens making up an entire element.

The MNI of this unit is calculated at eight. This is considerably high when compared to its NISP and the MNIs of the other units in this study. This MNI is based on the hyoplastron element. Of this element, four belonged to the left side of the body, three to the right, and one is not identifiable to a side. After some puzzling these elements did not seem to fit together and thus they must have been from different individuals, indicating an MNI of eight.

### 5.3.2 Unit 54

The turtle cache contained significant evidence of burning. 77.7% of the specimens found show discolourations and damage to the bone surface which is indicative of exposure to an open flame. Of the eighty-eight specimens found in the cache that are NID, roughly 70% show signs of burning. Of the rest of the specimens found in the unit which do not come from the cache only a mere 18% show signs of burning. The MNI for unit 54 has been established at four. Curious here is that the four hyoplastron elements that are the basis of the MNI calculation all originate from the turtle cache. Hence it is likely that the other turtle specimens found in the unit likely belonged to the same individuals found in the cache.

One date is available from unit 54 based on carbon dating. The dating of this comes from a layer which is below the layers in which the turtle cache was found. This is one of the youngest dates of the site at 554 ± 29 BP (Pers. comm. C. Hofman 2020). It is thus likely that the cache must be younger than the date which is given by the carbon dating.

### 5.3.3 Unit 56

Out of all specimens found in unit 56, only two show signs of slight discolouration due to being burned.

It is likely that this unit represents the average distribution pattern of turtle remains throughout the northern part of the site. This is because while the NISP is relatively high, this is likely due to the depth of the unit. Finds are found in most layers starting at layer 2 and up until layer 16 and, with the exception of three small clusters of specimens that mostly belong to the same elements, are not found together. The total MNI for this unit is five.

### 5.3.4 Unit 71

This unit also showed a small percentage of burning, with only four out of one hundred thirteen showing signs of discolouration or cracking. Unit 71 was also the only mound out of the four studied units that contained remains of non-slider turtle. Two pleurals of an unidentified species of sea turtle, which can be seen in Figure 23, were found in the unit. This unit boasts an MNI of six. Two radiocarbon dates from unit 71 are available at the moment with layer 6b dating to 965 ± 22 BP and layer 10 dating to 705 ± 35 BP (Pers. comm. C. Hofman 2020). As the specimens found in unit 71 are relatively evenly distributed through the mound from layer 1

through 15, it is clear that they have likely not been deposited in the mound synchronously.


*Figure 23: Two pleurals of an unidentified species of sea turtle. The pleural can be differentiated from that of* T.s.v. *by looking at the small grooves on the surface of the element. These are curved in slider turtles but straight in sea turtles ©NEXUS1492.*

### 5.3.5 Overview of turtle remains at El Carril

Adding together the MNIs of all four units considered in this thesis brings the total MNI of the site of El Carril so far up to twenty-three. This, of course, is only based on four units which represent 71,5% (538 out of 752) of all turtle remains uncovered at the site so far. Thus, the true MNI may be higher when considering all individual specimens found at the site. However, due to the scale of this investigation the sample was limited.

# Chapter Six: Discussion

## 6.1 Introduction

The discussion chapter will first analyse both the *adornos* and faunal remains with the respective contextual information. After this, the two approaches will be combined to see what they may elucidate about the human-turtle entanglement and the impact of turtles on the lives of the indigenous people of El Carril. With this information, the research questions posed at the start of this work will be answered.

## 6.2 Analysis of *adornos*

After considering all twenty sherds in this thesis it is clear that there are certain defining characteristics of *adornos* that represent the morphological features of the Dominican slider as described in Chapter 3.2.1. However, there is a certain degree of subjectivity to each individual turtle *adorno*. While there may be an overarching set of styles that guided the people who produced the *adornos*, there will always be a degree of individual agency that plays into the artist's depiction. There is thus no set combination of defining characteristics for turtle *adornos*. This is evident in other studies of (sea) turtle *adornos* as well. While there are similarities between the morphological aspects of different turtle species, Figures 6, 8, 9, 10, 12, 15, 20, and 21 can confidently be identified as slider turtles as opposed to sea turtles. This is because of the lugs with vertical incisions which indicate feet, instead of which sea turtles would have flippers. There are clearly many different types of turtle representations in the ceramics found at El Carril as well as other sites such as on St. Vincent. There is not one set combination of the morphological features as described in chapter 3.2.1. As was assumed before starting this study, each sherd should be considered individually to see whether its features could mimic that of those present in turtle facial morphology.

Out of all the *adornos* studied for this thesis, only two showed a ribbed protrusion from the back of the head that is identified as the retractable neck, both of which were found in ash deposits. Another poorly represented feature is nostrils, with only one out of twenty *adornos* displaying this morphological feature. Limbs are a more common feature, present in eight out of twenty *adornos*. They do not appear on others for a number of reasons. One is that because they are lugs, they may easily break off from the vessel due to taphonomic processes. Another is that the vessel may simply not have had the addition of limbs in combination with the *adorno*. Geometric decorations of the sherd to which the *adorno* is attached are present on five out of twenty studied *adornos*. Handles appear in three out of the twenty sherds, although only one of them seem functional.

There is a clear difference between two types of facial shapes. One is more ovoid and generally wider. This type represents the majority with twelve *adornos* showing this feature. The other type of facial shape, of which there are seven represented in this thesis, is narrower. The one artefact not counted here is a lug shaped in the form of a clawed limb.

Most of the *adornos* depicting Dominican sliders were found in ash deposits and are part of a series of mixed Meillacoid-Ostionoid ceramic artefacts. This is in line with what is seen at the rest of the site, as most decorated potsherds are found in ash contexts and show a mixing of styles of the Ostionoid and Meillacoid series (Hofman et al. 2018, 20). Interestingly, more often than not the excavated levelled areas do not contain any finds. This is likely due to the fact that as these levelled areas were occupied and contained houses, the floors were cleaned regularly. However, this thesis has shown in the previous chapter that at least three turtle *adornos* were found in these levelled areas in relation to various post holes and surrounding mound structures.

It is remarkable that the *adornos* that are identified as representations of turtle differ so significantly from ones from other studies. However, most of these studies only

consider sea turtles in their analysis. Because this thesis primarily focuses on the *Trachemys stejnegeri* subspecies *vicina*, it is not surprising that these representations may differ so much, yet also share similarities across island communities. Even though the Dominican slider turtle looks significantly different from the sea turtles commonly found in the Caribbean seas, them belonging to the same order explains morphological similarities. The motifs found on turtle *adornos* found at El Carril share many traits with other motifs on sea turtle *adornos* found in the Caribbean. This shows a possible cultural continuity between island communities. Due to a change of environment, the animal being depicted by these *adornos* has changed. Because of the lesser focus on marine resources at El Carril it is only logical that if turtles were to remain important in the lives of the indigenous inhabitants, they would continue being depicted as ceramic decorations, albeit now in the form of the turtles that are locally available.

From the current available information, there is no visible difference in preference from generation to generation regarding the represented motifs and stylistic features. Once excavations have been completed and more dating information is available such patterns may become clear, but for now this remains speculation.

## 6.3 Zooarchaeological analysis

Based on the number of individuals that were present throughout the occupation of the site, it is clear that turtle was not used as a main source for protein or caloric intake in the subsistence strategy of the indigenous inhabitants. It must be kept in mind that the MNI of twenty-three is spread through the site both spatially and temporally. In comparison to other faunal species found at the site, this number is relatively high. This difference of representation of species in the zooarchaeological record may be down to their treatment in both life and death. Carbon dietary values of one out of six slider turtles found at the nearby site of El Flaco show similar values to those of humans, dogs, and guinea pigs. The elevated carbon values of

this individual suggests the turtle had a close dietary relationship with humans. One possible explanation for this could be that it was kept as a pet (Personal communication G. Shev 2020). Similar carbon research on the El Carril remains is yet to be carried out. Burned specimens and their presence in ash depositions do show that turtle was certainly on the menu, although only occasionally. This makes it likely that Dominican slider turtles were considered a delicacy reserved for only certain occasions. Whether these occasions included possible ceremonies that were ritualistic in nature cannot be said with certainty. This is directly in opposition to the supposed taboo on eating land turtles as was proposed by Wauben in her 2018 study of the site of El Flaco. It would seem very unlikely that such a taboo existed at El Carril, seeing as the representation in the archaeological record is so high, with an MNI much higher than that of El Flaco. Whether this is an outlier for pre-Columbian communities warrants further investigation.

The presence of two sea turtle plurals raises some interesting questions. Why is it so that there is such a small amount of sea turtle remains when compared to the abundance of land turtle remains? Other archaeological evidence from the site, such as fish remains, demonstrates contact between the indigenous inhabitants of El Carril and coastal communities. However, sea turtle is clearly lacking. This could be explained by multiple factors. In general, terrestrial resources greatly outnumber those of sea origin. Perhaps sea turtle was too energy inefficient to transport back to the site from the beach. The turtle may have been butchered on site leaving no visible trace in the archaeological record of El Carril, but possibly somewhere else. While it is true that the northern coastline is only approximately located 20 km from the site, the *Cordillera Septentrional* might have posed an obstacle. Perhaps it was easier for the indigenous people of El Carril to trade terrestrial resources for coastal goods. It could also suggest that the indigenous inhabitants did not wish to stray too far from home for gathering for subsistence. Evidence from the study by Parham *et al.* may still suggest inter-island trade between El Carril and communities on the island of Puerto Rico.

There is little evidence for the shell of the Dominican slider turtle to have been used as a musical instrument, a custom which was common for the Ye'kuana. There is also no evidence in the archaeological record of El Carril for a large-scale hunt for turtles for a specific ceremony. The calculated turtle MNI simply does not support a theory in which the indigenous people of El Carril went on turtle hunting journeys like the Kayapo. Despite the lack of archaeological evidence for these two options, they remain exciting theories which may give great colour to the daily lives of the indigenous inhabitants of El Carril.

## 6.4 Combining the evidence

After considering the evidence regarding turtle representation in the ceramic and faunal record, there are a few things which are of note.

There is very little overlap between the depositional context of the *adornos* and the faunal remains. While it is true that there is a large amount of both types of artefacts found in ash context, turtle *adornos* and turtle remains are not often found together. Only two of the four studied units for turtle remains have yielded turtle *adornos.* Unit 10 contained both a large amount of turtle remains and two *adornos* representing turtles. However, the unit was an extremely large one, as it was dug on a levelled area, with the excavated surface measuring 18 x 8 m. Therefore, it should not come as a surprise that these two types of artefacts can be found together. In unit 56, one of the four units with the largest amount of *T.s. vicina* remains, only three turtle specimens were found in the same feature as a turtle *adorno.*

By combining the evidence from both the ceramic analysis and the zooarchaeological analysis it is safe to say that the turtle is widely represented on the site of El Carril. The dating of the layers with an abundance of turtle remains or decorated ceramics with turtle *adornos* shows that this phenomenon cannot be traced back to just a singular point in time. Rather, it is more likely that the belief system and the human-turtle entanglement of the indigenous inhabitants of the site

kept evolving, as is evident from the constant change in style for representing turtles in ceramics. Even with constantly evolving traditions, turtles remained a central factor in the lives of the indigenous inhabitants of the site of El Carril.

A large amount of the turtle *adornos* were found in contexts related to burning (i.e. ash and hearth deposits), but only 9,7% of turtle remains show signs of burning. Because the belief system of the Indigenous people of El Carril was interwoven into their daily lives, it is near impossible to make distinctions between whether turtles relate more to the daily lives of the people than to the more spiritual aspects of life. A distinction is evident from the archaeological material between the physical manifestations of turtles and the conceptualisations of turtles as depicted on the ceramics. However, even within these material categories there are differences. For example, it must not be assumed that all vessels with turtle *adornos* were used in rituals.

Pieces of archaeological evidence that do point towards a more central role of turtles in the indigenous system of beliefs is the turtle cache in unit 54. This bears similarities to the burial of a hawksbill sea turtle found at the Golden Rock site on St. Eustatius. Considering the context of the cache found at El Carril it is likely for it to be a burial. Another artefact which may elucidate some higher purpose of turtles is the circular disc with anthropogenic marks fashioned from turtle plastron found in unit 78. Further analysis is warranted before drawing any substantial conclusions regarding human-turtle entanglement on the basis of this artefact.

When taking all of this archaeological evidence and looking at it through the lens of history which Pané left behind, one may speculate even further about the possible human-turtle entanglements, meanings and conceptualisations of turtles, and their agency in the daily lives of the indigenous people of El Carril. If his text speaks truly and relates correctly to the system of belief in place at El Carril, the turtle could have possibly been seen as a symbol of fertility. The animal may have also played a central role in *cohoba* rituals. The extent to which the vessels to which the turtle *adornos* are attached played any role in these ceremonies is not known. However, it could be a serious possibility considering the provenance related to

burning for most of the turtle *adornos*. This, as well as the possibility of turtle shells being used as vessels, could be investigated through botanical residue analysis.

Finally, looking at the zooarchaeological and ceramic evidence pertaining to turtles at El Carril tells us that indigenous inhabitants experienced strong degrees of human-turtle entanglement. However, the degree of entanglement when compared to other animals still remains to be investigated.

# Chapter Seven: Conclusion

Excavations at the site of El Carril, Dominican Republic, from 2016 to 2019, have yielded a plethora of different finds, including ceramic and zooarchaeological material. Of this material, turtle is a largely represented group, with 752 turtle remains and 26 sherds with identified turtle *adornos*. This study set out to investigate the degrees of human-turtle entanglement based on those two types of archaeological material. Different characteristics of the morphology of the turtle *Trachemys stejnegeri vicina* were identified and each *adorno* was considered individually with these characteristics in mind. The turtle remains of the four arbitrary units containing the largest amount of turtle remains were studied and yielded an MNI of twenty-three and a burning percentage of 9,7%. Unit 54 contained a turtle cache which had a burning percentage of roughly 78%. Of the four units with large quantities of turtle remains, only unit 10 and unit 56 also contained turtle *adornos*. In both of the units these *adornos* were linked to mound contexts. The overlap in provenance of turtle remains and turtle *adornos* is not great. However, what is evident is the fact that both occur at the site spread out spatially and diachronically. Considering this evidence in light of archaeological, historical, and ethnographic evidence shows a continuity in motifs in depicting turtles in insular Caribbean communities, with adaptations to local environments and fauna, as well as the possible link of turtles to fertility. Thus, this evidence shows a great degree of human-turtle entanglement in the lives of the indigenous inhabitants of El Carril.

There are many possible areas of future research that may aid in the understanding of human-turtle entanglement and other human-animal entanglements. These include a more in depth analysis of theoretical frameworks such as the Amerindian Perspectivism framework by Viveiros de Castro. Another area of further research is residue analysis on turtle remains as well as sherds containing turtle *adornos*. This may show what type of substance was held in the ceramic turtle vessels, as well as consider the possibility of the turtle shell being used as a vessel. Other areas

of inquiry include isotope analysis of turtle remains to determine whether the animals were fed a human diet and thus were possibly held as pets. Another item for future research is the circular artefact fashioned out of turtle shell bone found in unit 78. Finally, whether El Carril as a site is an outlier regarding land turtle representation can be studied further with a more detailed zooarchaeological study.

# Abstract

Archaeological excavations have been carried out in the Caribbean for over a century. Many subsequent studies have focused on the relationships between humans and animals in the area, including the cosmology surrounding these animals and their treatment by humans. This research sets out to analyse the largely untapped human-animal entanglement between the people of El Carril, Dominican Republic, and land turtles, by employing a multidisciplinary approach. A*dornos* representing turtle species *Trachemys stejnegeri vicina* are identified on the basis of the species' morphological features. The zooarchaeological remains of the turtle are analysed to calculate the minimum number of individuals (MNI) of the site and any possible signs of anthropogenic action. Out of the hundreds of adornos found at the site of El Carril, twenty-seven were identified as being depictions of the land turtle and twenty were analysed for this study. Most of the *adornos* come from ash deposits, which is in line with the general trend observed at the site. The total MNI of the site has been established at twenty-three, which is significant when compared to the lower rate of representation of other faunal species in the zooarchaeological record. One turtle cache was found which is interpreted as a burial. 70% of the remains of the cache showed signs of burning. A large degree of human-turtle entanglement at the site of El Carril is visible from the archaeological record. However, further research is warranted to get a better idea of the full scope of this entanglement.

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# List of Figures

# Appendix A: *Adornos*

| Unit | Find# | ZSSQ | Layer | Feature | Context | Year | # in text |
|---|---|---|---|---|---|---|---|
| **7** | 192 | 02-20-39 | 1 | - | Ash | CA17 | 11 |
| **10** | 628 | 91-89-77 | 1 | - | Flat | CA17 | 16 |
| **10** | 567 | 91-99-37 | 3 | - | Ash | CA17 | 10 |
| **11** | 683 | 92-90-90 | 3 | - | Other | CA17 | 19 |
| **33** | 1623 | 91-55-47 | 2 | 55-1 | Hearth | CA18 | 14 |
| **35** | 1766 | 91-34-16 | 2 | - | Flat | CA18 | 17 |
| **36** | 3014 | 91-14-36 | 2 | - | Flat | CA18 | 18 |
| **39** | 2082 | 91-54-93 | 11 | 54-08 | Hearth | CA18 | 15 |
| **39** | 2097 | 91-54-93 | - | 54-08 | Hearth | CA18 | 15 |
| **41** | 2139 | 80-78-03 | 7 | 78-03 | Ash | CA18 | 9 |
| **44** | 2166 | 91-33-69 | 1 | - | Other | CA18 | 20 |
| **44** | 2172 | 91-34-50 | 2 | - | Other | CA18 | 21 |
| **45** | 2266 | 91-63-38 | 5 | 63-01 | Ash | CA18 | 13 |
| **46** | 2278 | 81-60-83 | 3 | 60-01 | Ash | CA18 | 12 |
| **47** | 3131 | 91-44-70 | 6 | 44-01 | Ash | CA18 | 7 |
| **47** | 3146 | 91-44-61 | 6 | 44-01 | Ash | CA18 | 8 |
| **47** | 3102 | 91-44-70 | 5 | 44-01 | Ash | CA18 | 6 |
| **56** | 3719 | 01-25-93 | 5 | 25-37 | Other | CA19 | 22 |

# Appendix B: Turtle remains

| Unit | Find# | ZSSQ | Layer | Feature | Element | Side | Portion | Burnt |
|---|---|---|---|---|---|---|---|---|
| **10** | 528 | 91-99-39 | 2 | - | Xiphiplastron | Left | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Hypoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural NID | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 440 | 91-89-84 | 3 | - | Xiphiplastron | Right | - | - |
| | | | | | Xiphiplastron | Right | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Right | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | 731 | 91-89-58 | 1 | - | Hyoplastron | Left | Complete | - |
| | | | | | Pleural | Left | 4th | - |
| | 584 | 91-99-27 | 4 | - | Hypoplastron | Right | - | - |
| | 545 | 91-99-56 | 3 | - | Epiplastron | Right | - | - |
| | | | | | Hyoplastron | Left | Complete | - |
| | | | | | Pleural NID | - | - | - |
| | 530 | 91-99-38 | 2 | - | Hypoplastron | Left | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | Pleural | Left | 3rd | - |
| | | | | | Pleural | Left | 4th | - |
| | 525 | - | - | - | Xiphiplastron | Right | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Xiphiplastron | Left | - | - |
| | | | | | Hyoplastron | Right | - | - |
| | | | | | Pleural NID | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | - | - | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | NID | - | - | - |
| | 783 | 91-89-49 | 2 | - | Hypoplastron | Right | - | - |
| | 562 | 91-99-29 | 2 | - | Hyoplastron | Left | - | - |
| | 521 | 91-99-47 | 2 | - | Xiphiplastron | Left | - | - |
| | 820 | 91-89-19 | 2 | - | Epiplastron | Right | - | - |
| | | | | | NID | - | - | - |
| | 513 | 91-99-59 | 2 | - | Hypoplastron | Left | - | - |
| | | | | | Pleural | Right | 6th | - |
| | 515 | 91-99-49 | 2 | - | Epiplastron | Right | - | - |
| | | | | | Peripheral | - | - | - |
| | 541 | 91-99-16 | 3 | - | Hyoplastron | Right | - | - |
| | 821 | 91-89-28 | 2 | - | Xiphiplastron | Right | - | - |
| | 559 | 91-99-57 | 3 | - | Pleural NID | - | - | - |
| | | | | | Pleural | Left | 2nd | - |
| | | | | | Pleural | Left | 3rd | - |
| | | | | | Pleural | Left | 3rd | - |
| | | | | | Neural | - | 3rd | - |
| | | | | | Neural | - | 3rd | Yes |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 531 | 91-99-06 | 3 | - | Pleural NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 527 | 91-99-37 | 2 | - | Pleural NID | - | - | - |
| | 567 | 91-99-37 | 3 | - | Pleural NID | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Pleural | Right | 5th | - |
| | 542 | 91-89-96 | 3 | - | Plastron NID | - | - | Yes |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 573 | 91-99-26 | 4 | - | Plastron NID | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | Complete | - |
| | | | | | Pleural | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | NID | - | - | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 564 | 91-99-27 | 3 | - | Plastron NID | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Pleural | Left | 1st | - |
| | | | | | Pleural | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | NID | - | - | Yes |
| | | | | | NID | - | - | Yes |
| | 498 | 91-89-87 | 2 | - | Plastron NID | - | - | - |
| | 534 | 91-99-29 | 2 | - | Plastron NID | - | - | - |
| | 551 | 91-99-38 | 3 | - | Plastron NID | - | - | - |
| | | | | | Pleural | Left | 5th | - |
| | 503 | 91-99-57 | 1 | - | Peripheral | - | - | - |
| | 569 | 91-99-28 | 3 | - | Pleural | Left | 5th | - |
| | 512 | 91-99-46 | 2 | - | Pleural | Left | 2nd | - |
| | 510 | 91-99-58 | 2 | - | Pleural | Left | 3rd | - |
| | | | | | NID | - | - | - |
| | 546 | 91-99-47 | 3 | - | Neural | - | 3rd | - |
| | | | | | Pleural | Right | 2nd | - |
| | | | | | Pleural | Left | 1st | - |
| | | | | | Pleural | Left | 1st | - |
| | 514 | 91-99-57 | 2 | - | Neural | - | - | - |
| | 818 | 91-89-26 | 2 | - | Pleural | Right | 4th | - |
| | 842 | 91-79-84 | - | - | Pleural | - | - | Yes |
| | 543 | 91-99-28 | 2 | - | Pleural | - | 5th | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | NID | - | - | - |
| | 554 | 91-99-59 | 3 | - | Pleural | - | - | - |
| | | | | | NID | - | - | - |
| | 521 | 91-99-47 | 2 | - | NID | - | - | - |
| | 549 | 91-99-07 | 4 | - | NID | - | - | - |
| | 655 | 91-89-75 | 2 | - | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 436 | 91-89-82 | 3 | - | NID | - | - | Yes |
| | 532 | 91-99-07 | 3 | - | NID | - | - | - |
| | 511 | 91-89-88 | 3 | - | NID | - | - | - |
| | 566 | 91-99-39 | 3 | - | NID | - | - | - |
| | 446 | - | - | - | NID | - | - | Yes |
| **54** | 3912 | 01-15-35 | 2 | 15-38 | Hypoplastron | Left | - | Yes |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Hypoplastron | Left | Bridge | Yes |
| | | | | | Hyoplastron | Left | - | Yes |
| | | | | | Hypoplastron | Right | - | Yes |
| | | | | | Hyoplastron | Right | - | Yes |
| | | | | | Hyoplastron | Left | - | Yes |
| | | | | | Hyoplastron | Left | Bridge | Yes |
| | | | | | Hyoplastron | Left | - | Yes |
| | | | | | Plastron NID | - | - | Yes |
| | | | | | Plastron NID | - | - | Yes |
| | | | | | Plastron NID | - | - | - |
| | | | | | Pleural | - | - | Yes |
| | | | | | Pleural | - | - | Yes |
| | | | | | Pleural | Right | - | Yes |
| | | | | | Pleural | - | - | Yes |
| | | | | | Pleural | - | - | - |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | Right | - | Yes |
| | | | | | Proneural | Right | - | Yes |
| | | | | | Peripheral | - | Complete | Yes |
| | | | | | Peripheral | - | Complete | Yes |
| | | | | | Pleural | Right | 3rd | Yes |
| | | | | | Pleural | Right | 4th | Yes |
| | | | | | Pleural | Right | 5th | Yes |
| | | | | | Pleural | Right | 5th | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Pleural | - | - | Yes |
| | | | | | Pleural | - | - | Yes |
| | | | | | Pleural | - | - | Yes |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Pleural | Left | 1st | Yes |
| | | | | | Pleural | Left | 2nd | Yes |
| | | | | | Pleural | Left | 1st | Yes |
| | | | | | Pleural | Right | 6th | Yes |
| | | | | | Pleural | Right | 7th | Yes |
| | | | | | Pleural | Right | 2nd | Yes |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Pleural | Left | 5th | Yes |
| | | | | | Pleural | Left | 3rd | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Pleural | - | - | Yes |
| | | | | | Peripheral | Right | 1st | Yes |
| | | | | | Nuchal | - | - | Yes |
| | | | | | NID | Left | Bridge | - |
| | | | | | NID (62x) | - | - | Yes |
| | | | | | NID (26x) | - | - | - |
| | 3868 | 01-15-35 | 2 | 15-34 | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Hyoplastron | Left | Bridge | - |
| | | | | | NID | - | Bridge | - |
| | | | | | NID | - | Bridge | - |
| | | | | | Pleural | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | Yes |
| | | | | | Peripheral | - | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | NID | - | - | Yes |
| | | | | | NID | - | - | Yes |
| | | | | | NID | - | - | Yes |
| | 4041 | 01-15-24 | 4 | 15-52 | Hyoplastron | Right | - | - |
| | 3954 | 01-15-35 | 4 | - | Xiphiplastron | Right | - | - |
| | 3788 | 01-15-37 | 4 | 15-25 | Hyoplastron | Left | - | - |
| | 3894 | 01-15-17 | 3 | 15-31 | Epiplastron | Right | - | - |
| | 4146 | 01-15-18 | 2 | - | Pleural | Right | 3rd | - |
| | | | | | Pleural | Right | 3rd | - |
| | 3856 | 01-15-25 | 2 | 15-33 | Pleural | Right | - | Yes |
| | 4131 | 01-15-08 | 1 | - | Pleural | Right | 5th | - |
| | | | | | Pleural | Right | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | - | - | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4082 | 01-05-97 | 2 | 05-02 | Peripheral | - | - | - |
| | 3831 | 01-15-25 | 1 | - | Pleural | Left | - | - |
| | 3826 | 01-15-15 | 2 | - | Pleural | Right | 5th | - |
| | 4065 | 01-05-97 | 1 | - | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | 4751 | 01-15-16 | 6 | 15-77 | NID | - | - | - |
| | 4752 | 01-15-20 | 6 | 15-77 | Pleural | Left | 4th | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 4754 | 01-15-15 | 7 | 15-77 | Xiphiplastron | Left | - | - |
| | | | | | Xiphiplastron | Right | - | - |
| | | | | | Hypoplastron | Left | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | 4756 | 01-15-26 | 7 | 15-77 | Pleural | Right | 2nd | - |
| | | | | | Xiphiplastron | Right | - | Yes |
| | 4759 | - | - | - | Peripheral | - | - | - |
| | 3777 | 01-15-27 | 3 | - | Plastron NID | - | - | - |
| | 4081 | 01-05-97 | 2 | 05-01 | NID | - | - | - |
| | - | - | - | - | Peripheral | - | - | Yes |
| | - | - | - | - | NID (6x) | - | - | Yes |
| | - | - | - | - | NID (10x) | - | - | - |
| **56** | 3787 | 01-25-83 | 9 | 25-41 | Pleural | Left | 3rd | - |
| | | | | | Pleural | Left | 3rd | - |
| | | | | | Neural | - | 7th | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | Left | - | - |
| | | | | | Hypoplastron | Left | Bridge | - |
| | | | | | Hypoplastron | Left | - | - |
| | | | | | Hypoplastron | Left | - | - |
| | | | | | Hypoplastron | Left | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | - | - | - |
| | 3721 | 01-25-83 | 5 | 25-37 | Pleural | - | - | - |
| | | | | | Pleural | Left | 1st | - |
| | | | | | Hypoplastron | Left | - | Yes |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Pleural | - | - | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Plastron NID | - | - | - |
| | 3801 | 01-25-82 | 9 | 25-41 | Neural | - | 4th | - |
| | | | | | Peripheral | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 3919 | 01-25-83 | 14 | 25-46 | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Plastron NID | - | Bridge | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | Plastron NID | - | - | - |
| | 3715 | 01-25-83 | 4 | 25-37 | Xiphiplastron | Right | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | Pleural | Left | 3rd | - |
| | | | | | Xiphiplastron | Left | - | - |
| | | | | | Pleural | Left | 1st | - |
| | 3775 | 01-25-92 | 8 | 25-38 | Pleural | Left | - | - |
| | | | | | Pleural | Left | - | - |
| | | | | | Pleural | - | - | - |
| | | | | | Carapace NID | - | - | - |
| | 3925 | 01-25-92 | 15 | 25-50 | Peripheral | - | - | - |
| | | | | | Pleural | Right | - | - |
| | | | | | Carapace NID | - | - | - |
| | 3874 | 01-25-93 | 11 | 25-41 | Neural | 6th | - | - |
| | | | | | Plastron NID | - | - | - |
| | | | | | NID | - | - | - |
| | 3904 | 01-25-92 | 13 | 25-41 | Endoplastron | - | - | - |
| | | | | | Xiphiplastron | Left | Complete | - |
| | 3718 | 01-25-83 | 5 | - | Neural | - | 5th | - |
| | | | | | Hyoplastron | Left | - | - |
| | 3719 | 01-25-93 | 5 | 25-37 | Pleural | Right | 3rd | - |
| | | | | | Peripheral | - | - | - |
| | 3681 | 01-25-93 | 2 | - | Hyoplastron | Right | - | - |
| | | | | | Plastron NID | - | - | - |
| | 3750 | 01-25-93 | 7 | 25-37 | Pleural | Right | 2nd | - |
| | | | | | Pleural | - | - | - |
| | 3745 | 01-25-82 | 7 | 25-36 | Peripheral | - | - | - |
| | | | | | Carapace NID | - | - | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 3920 | 01-25-82 | 15 | 25-42 | Pleural | - | - | - |
| | | | | | Carapace NID | - | - | - |
| | 3941 | 01-25-92 | 16 | 25-42 | Pleural | Right | 5th | - |
| | | | | | Pleural | Right | 6th | - |
| | 3708 | 01-25-92 | 5 | 25-36 | Pleural and Nuchal | Right | 1st | - |
| | 3698 | 01-25-93 | 3 | 25-38 | Hypoplastron | Left | - | - |
| | 3891 | 01-25-83 | 12 | 25-42 | Pleural | Right | 4th | - |
| | 3849 | 01-25-92 | 11 | 25-41 | Neural | - | - | - |
| | 3791 | 01-25-92 | 9 | 25-38 | Neural | - | 2nd | - |
| | 3840 | 01-25-81 | 10 | 25-37 | Pleural | Right | - | - |
| | 3835 | 01-25-82 | 11 | 25-41 | Hypoplastron | Left | - | - |
| | 3733 | 01-25-82 | 6 | 25-37 | Peripheral | - | - | - |
| | 3922 | 01-25-92 | 15 | 25-42 | Pleural | Left | 1st | Yes |
| | 3752 | 01-25-92 | 7 | 25-38 | Pleural | Right | 1st | - |
| | 3725 | 01-25-92 | 6 | 25-38 | Pleural | Left | 5th | - |
| | 3822 | 01-25-83 | 10 | 25-41 | Peripheral | Left | 9th | - |
| | 3692 | 01-25-82 | 3 | 25-36 | Pleural | Left | - | - |
| | 3776 | 01-25-82 | 8 | 25-38 | Carapace NID | - | - | - |
| | 3751 | 01-25-82 | 7 | 25-38 | NID | - | - | - |
| | 3789 | 01-25-92 | 9 | 25-41 | NID | - | - | - |
| **71** | 4624 | 01-34-68 | 10 | 34-74 | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Pleural | Left | 3rd | - |
| | | | | | Pleural | Left | 3rd | - |
| | | | | | Pleural | Left | 3rd | - |
| | | | | | Pleural | Left | 4th | - |
| | | | | | Pleural | Left | 4th | - |
| | | | | | Pleural | Left | 4th | - |
| | | | | | Pleural | Left | 5th | - |
| | | | | | Pleural | Left | 5th | - |
| | | | | | Pleural | Left | 5th | - |
| | | | | | Pleural | Left | 6th | - |
| | | | | | Pleural | Left | 6th | - |
| | | | | | Pleural | Left | 7th | - |
| | | | | | Pleural | Left | 7th | - |
| | | | | | Pleural | Left | 8th | - |
| | | | | | Neural | - | - | - |
| | | | | | NID | - | - | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4670 | 01-34-49 | 13 | 34-72 | Xiphiplastron | Left | - | - |
| | | | | | Hypoplastron | Left | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 4642 | 01-34-69 | 11 | 34-74 | Pleural | Right | 5th | - |
| | | | | | Xiphiplastron | Left | - | - |
| | | | | | Hypoplastron | Right | Complete | - |
| | | | | | Hypoplastron | Left | - | - |
| | | | | | Hypoplastron | Left | Bridge | - |
| | | | | | Pleural | - | - | - |
| | | | | | Peripheral | - | - | - |
| | 4760 | 01-34-48 | 15 | 34-72 | Hypoplastron | Left | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Neural | - | 5th | - |
| | | | | | Pleural | Right | 6th | - |
| | | | | | Pleural | Right | - | - |
| | | | | | Pleural | - | - | - |
| | 4630 | 01-34-49 | 10 | 34-67 | Pleural | Right | 4th | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Neural | - | 2nd | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | 4611 | 01-34-58 | 9 | 34-67 | Pleural | Right | 3rd | - |
| | | | | | Pleural | Right | 3rd | - |
| | | | | | Peripheral | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 4612 | 01-34-59 | 9 | 34-67 | Peripheral | - | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | | | | | Hypoplastron | Right | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 4388 | 01-34-78 | 4 | 34-55 | Pleural | Left | 5th | - |
| | | | | | Pleural | Left | 5th | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4649 | 01-34-48 | 12 | 34-68 | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | NID | - | - | - |
| | 4769 | 01-34-58 | 15 | 34-72 | NID | - | Bridge | - |
| | | | | | NID | - | Bridge | - |
| | | | | | Peripheral | - | Bridge | - |
| | | | | | NID | - | - | - |
| | | | | | NID | - | - | - |
| | 4610 | 01-34-79 | 9 | 34-68 | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | Hyoplastron | Left | - | - |
| | | | | | NID | - | - | - |
| | 4661 | 01-34-48 | 13 | 34-68 | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | Yes |
| | 4770 | 01-34-49 | 15 | 34-72 | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | 4663 | 01-34-69 | 12 | 34-74 | Xiphiplastron | Right | - | - |
| | | | | | Peripheral | - | - | - |
| | 4650 | 01-34-59 | 12 | 34-68 | Pleural | Left | 1st | - |
| | | | | | Pleural | Right | 4th | - |
| | | | | | Proneural | - | - | Yes |
| | 4398 | 01-34-79 | 4 | 34-54 | Peripheral | - | - | - |
| | | | | | Peripheral | - | - | - |
| | | | | | Pleural | Left | 6th | - |
| | 4359 | 01-34-69 | 5 | 34-60 | Pleural | Right | 2nd | - |
| | | | | | NID | - | - | - |
| | 4374 | 01-34-68 | 4 | 34-54 | Pleural | - | - | - |
| | | | | | Pleural | - | - | - |
| | 4635 | 01-34-79 | 11 | 34-74 | Pleural | Right | 5th | - |
| | 4403 | 01-34-49 | 4 | 34-52 | Pleural | Right | 2nd | - |
| | 4516 | 01-34-58 | 8 | 34-58 | Pleural | Left | - | - |
| | 4507 | 01-34-68 | 7 | 34-67 | Endoplastron | - | - | - |
| | 4330 | 01-34-69 | 1 | - | Pleural | - | - | - |
| | 4512 | 01-34-69 | 8 | 34-68 | Pleural | - | - | - |
| | 4697 | 01-34-59 | 14 | 34-72 | Plastron NID | - | - | - |
| | 4773 | 01-34-58 | 16 | 34-75 | Peripheral | - | - | - |
| | 4364 | - | - | - | Pleural | - | - | - |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4668 | 01-34-49 | 14 | 34-76 | Peripheral | - | - | - |
| | 4523 | 01-34-68 | 8 | 34-68 | Pleural | Right | 1st | Yes |
| | 4644 | 01-34-59 | 11 | 34-68 | Neural | - | 2nd | - |
| | 4619 | 01-34-68 | 9 | 34-68 | Pleural | - | - | - |
| | 4613 | 01-34-78 | 9 | 34-68 | Pleural | Left | 4th | - |
| | 4354 | 01-34-69 | 4 | 34-53 | Pleural | Right | 3rd | - |
| | 4508 | 01-34-69 | 7 | 34-67 | Pleural | Right | 5th | - |
| | 4669 | 01-34-48 | 14 | 34-72 | Hypoplastron | Left | - | - |
| | | | | | NID | - | - | Yes |
| | 4480 | 01-34-49 | 7 | 34-58 | NID | - | - | - |
| | 4510 | 01-34-49 | 8 | 34-57 | NID | - | - | - |