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A public skeleton collection documenting the wild F.W.I. fauna

The Edgar Clerc Departmental Museum (Guadeloupe Museum of Archaeology) and the PACEA laboratory (CNRS-University of Bordeaux-MCC) have collaborated to develop a collection of comparative animal anatomy focusing on Caribbean wild fauna.

Caribbeetek is named in honour of Frederik A. Ober who carried out the first major naturalist collections in the Lesser Antilles during the second half of the 19th century and described his travels in several books, including the famous "*Camp in the Caribbees: the adventures of a naturalist in the Lesser Antilles*".

Aim

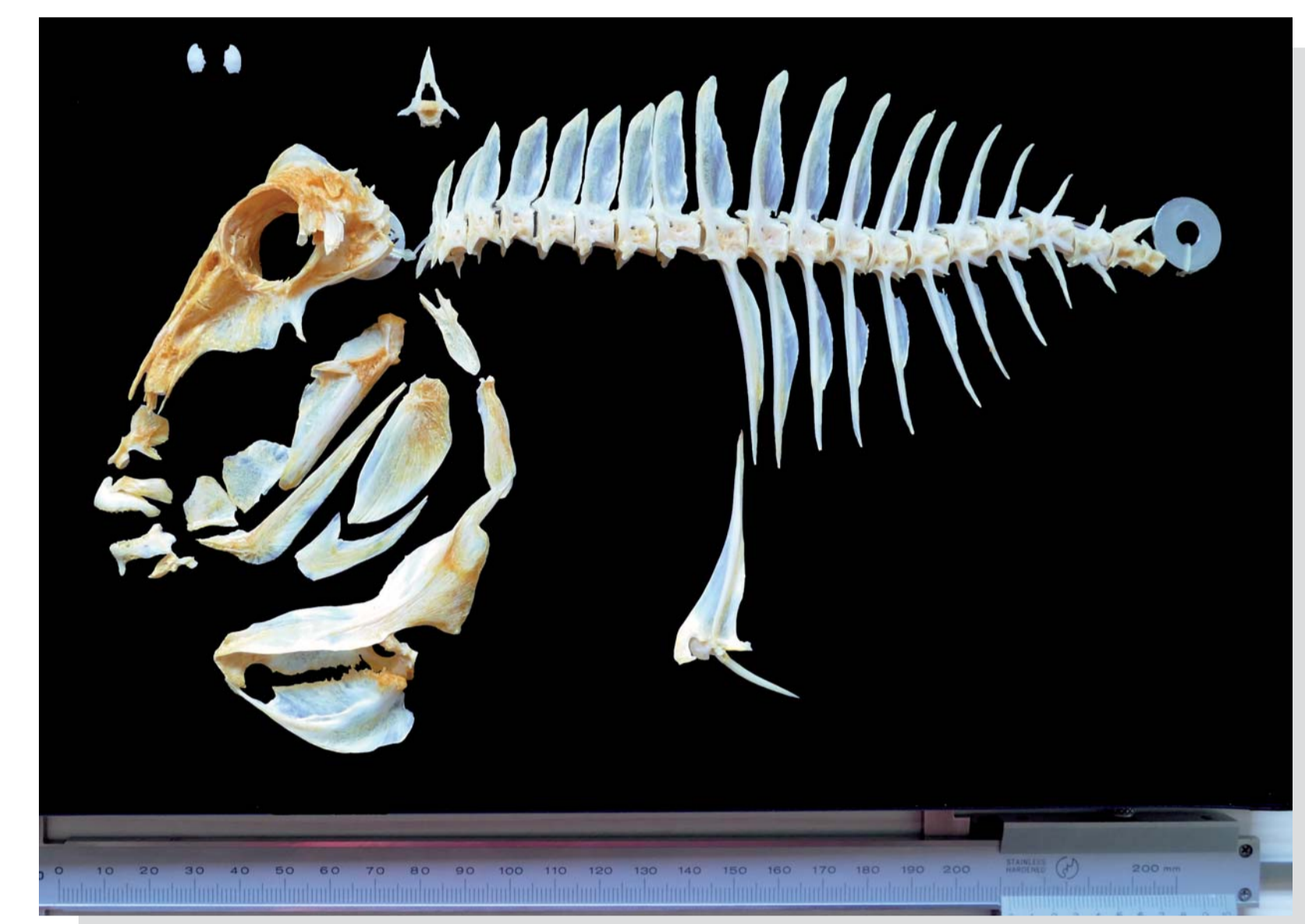
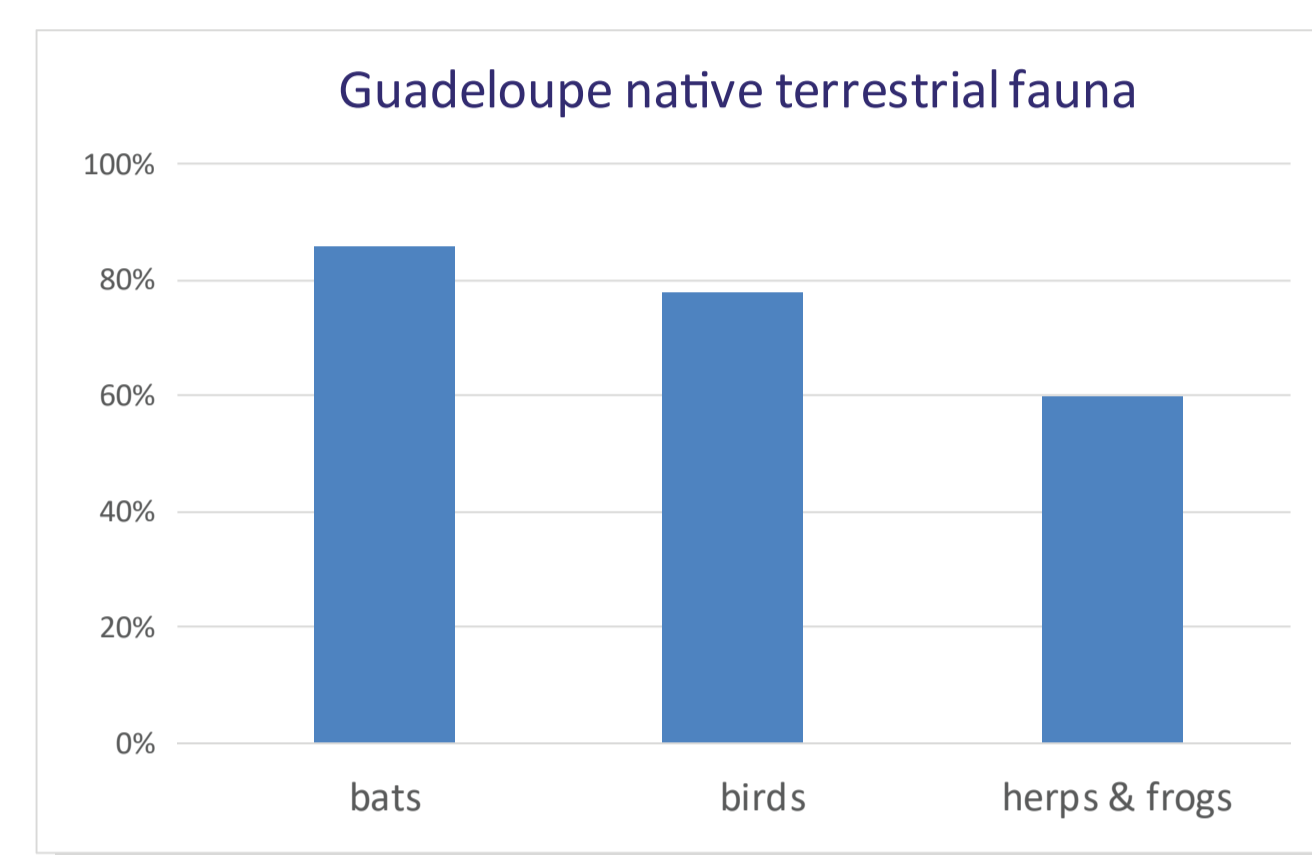
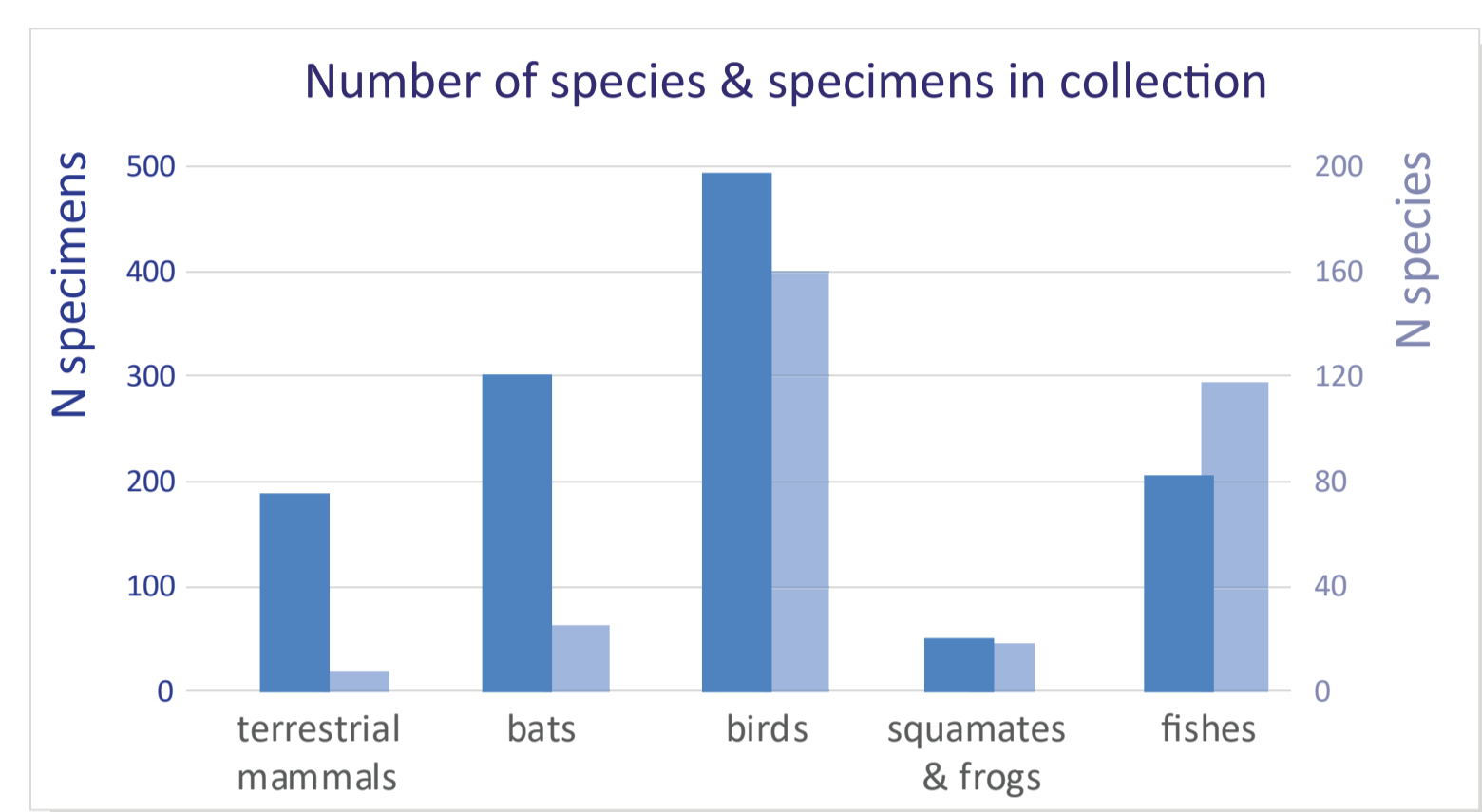
A well-known limitation of Caribbean zooarchaeology and paleontology is the difficulty of making taxonomic determinations on the basis of partial or fragmentary skeletal elements from taxa whose osteology is either or not described and that are frequently absent from most comparative collections.

Caribbeetek was created in 2012 to support paleozoological studies in Guadeloupe (Bivaag project and then ECSIT project). It initially focused on terrestrial fauna (chiropterans, birds, reptiles and amphibians). The collection was recently extended to fishes to aid archeozoological studies of pre-Columbian assemblages. It should soon be enriched with turtles and marine mammals.

Location

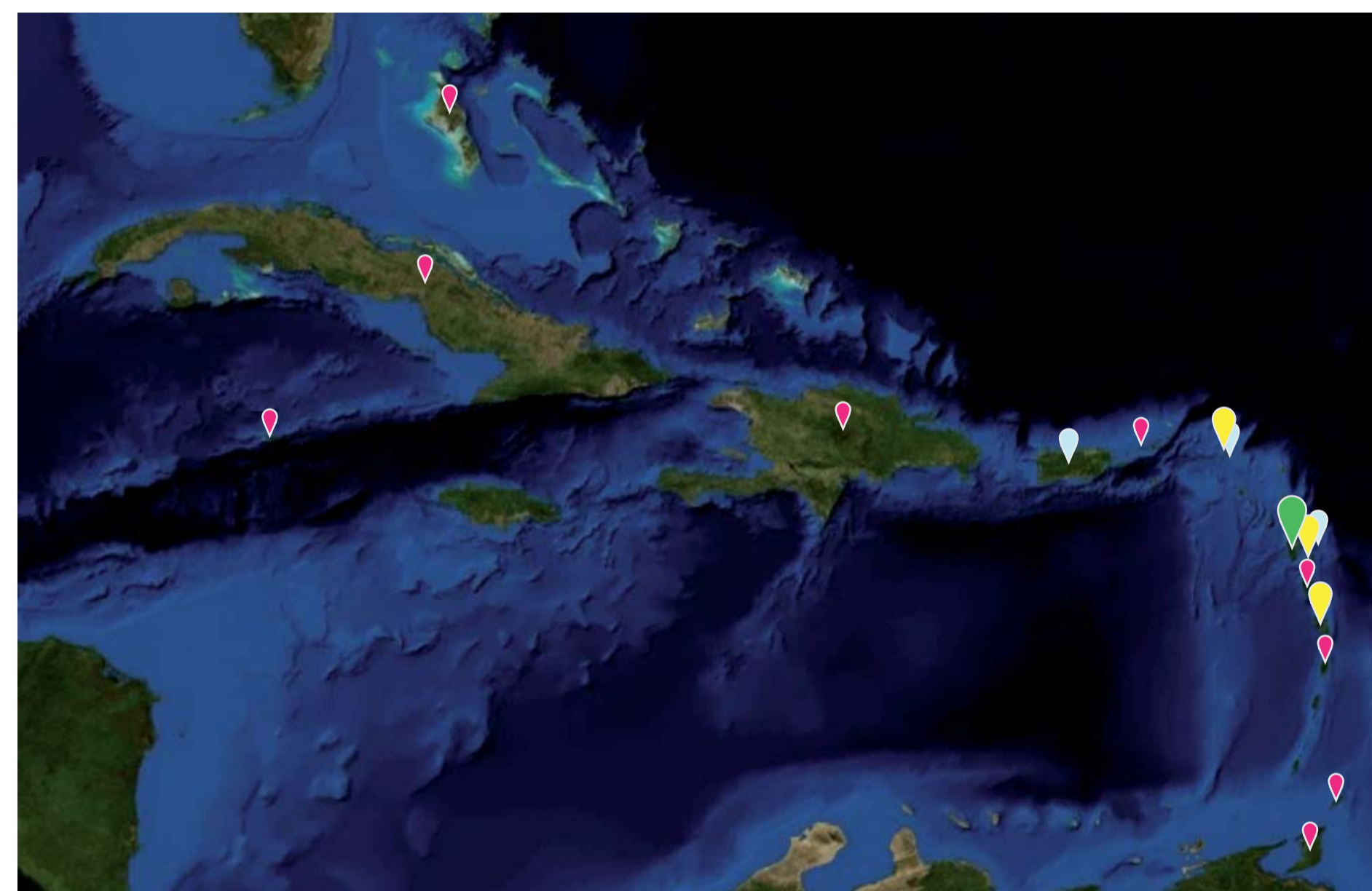
The collection is housed in two institutions:

- the Edgar Clerc Museum stores specimens covering almost all of the wild terrestrial vertebrate biodiversity of the island (108 species in collection), thus facilitating studies of vertebrate assemblages in Guadeloupe;
- the PACEA laboratory at the University of Bordeaux hosts specimens documenting the insular vertebrate biodiversity but also the morphological and ecomorphological variability of particular taxa (bats, rodents).



Specimen of Ocean surgeonfish (*Acanthurus bahianus*) in the collection.

Geographical origin of the specimens (physical and virtual).
Colors – green: > 100 specimens, yellow: > 50 sp., blue: > 10 sp., pink: < 10 sp.



Acquisition, preparation & specimen documentation

Most of Caribbeetek's specimens were obtained via cession from public structures that manage the Antillean natural environment: Guadeloupe wildlife Office, Martinique Regional Natural Park, St Martin Nature Reserve, St Barthelemy Territorial Environment Agency. Others were acquired from animal health centres, zoos, taxidermists, livestock farms, hunters, inter-institutional exchanges or dedicated collecting actions. All acquisitions of wild specimen are carried out with authorisations and under the agreement of the Wildlife French Office.

Contextual information includes the geographical origin and biology of the specimens. Tissue samples are sent to interested research institutions (MNHN, Inra) in order to contribute to a better knowledge of the Caribbean fauna.

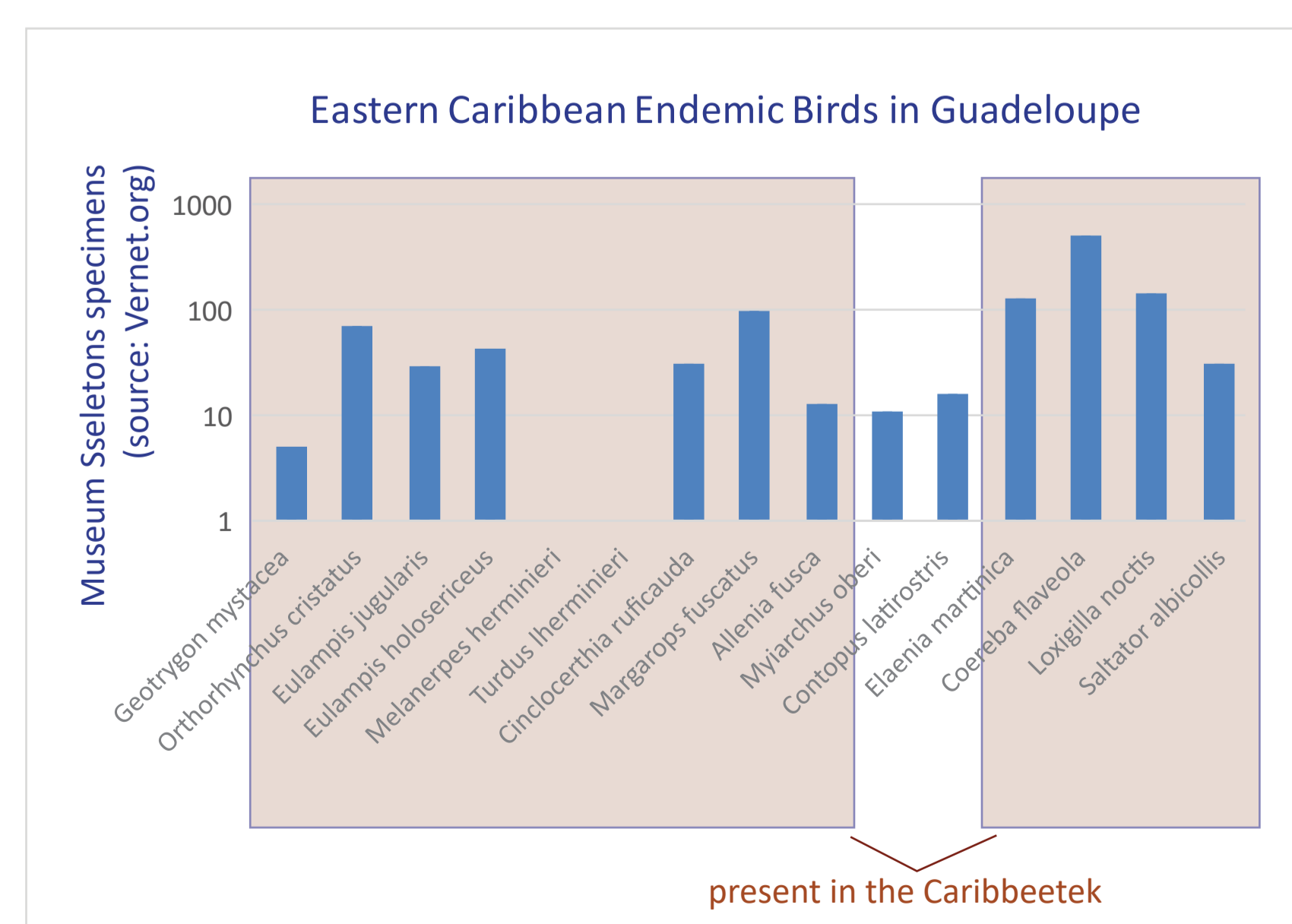
Protocols specific to each faunal group have been adapted for the preparation of skeletons. The most common process is enzymatic digestion following the method of Sorensen *et alii* (2010).

Content

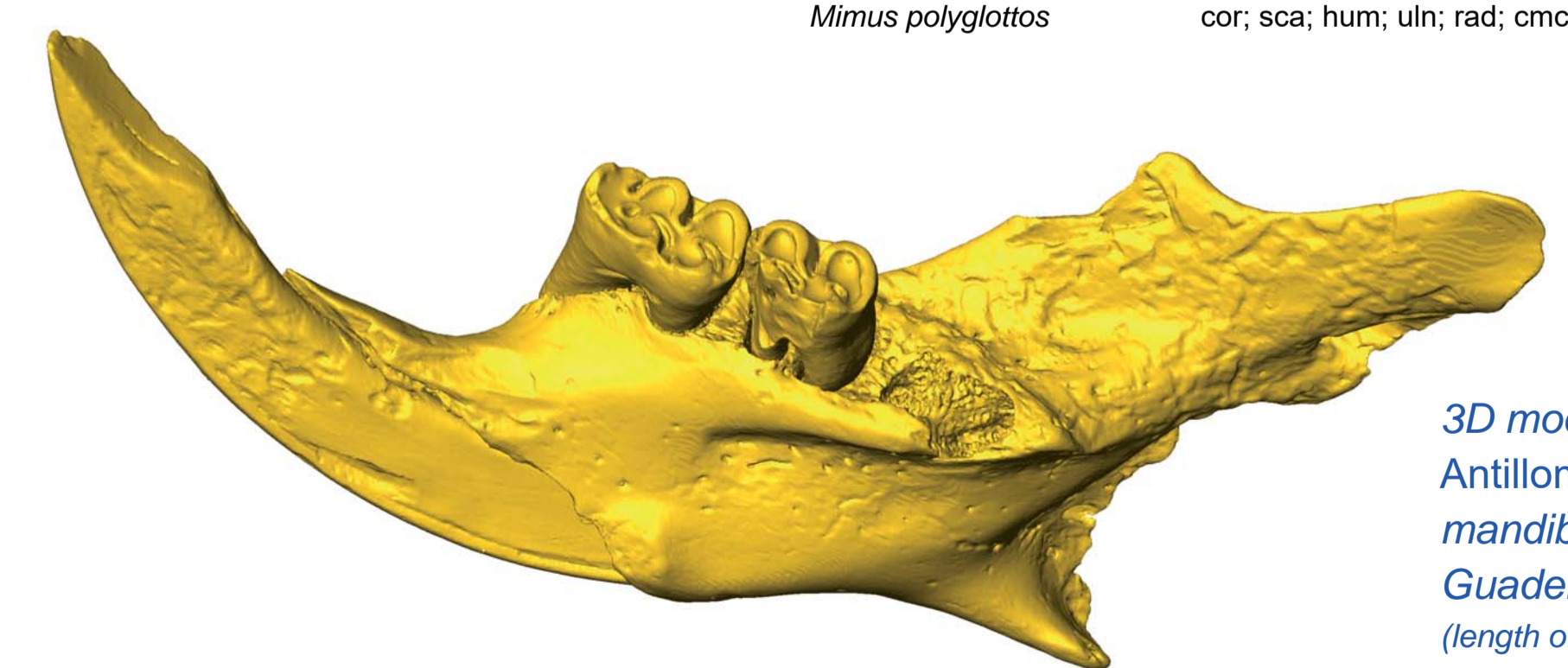
- ✓ The collection includes 1243 specimens documenting over 300 species.
Birds are the most represented, followed by bats and fishes.
- ✓ 5% corresponds to 3D models derived from CT-scans of specimens preserved by others institutions.
This solution is used for documenting rare, endangered or extinct species.
- ✓ Guadeloupe's wild fauna is the best represented, with representation rates above 60%.
This is particularly true for birds with 90 of the 118 native species present in the collection. Moreover, the Guadeloupe avifauna includes sixteen so-called "patrimonial species" that group together the endemic species of Guadeloupe with endemic species of the Eastern Caribbean. Fourteen of these species are represented in Caribbeetek.
- ✓ Inter-museum specimen exchanges and 3D models have allowed the collection to be extended to representatives of other Caribbean islands.
The collection can serve as a basis for studies of vertebrate fauna carried out in all of the Lesser Antilles.
- ✓ Specimens documenting intraspecific variability are used to support university studies dedicated to osteological or paleoecological examinations of Caribbean terrestrial fauna.

List of species documented by 3D models

CLASS	FAMILY	SPECIES	ELEMENT		
Mammals	Cricetidae	<i>Antilomys rayi</i>	cox; tib; calc		
	Phyllostomidae	<i>Brachyphylla pumila</i>	hum		
		<i>Ardops nicholli</i>	sku; man; hum		
		<i>Chirolema trinitatum</i>	hum		
		<i>Chirolema villosum</i>	hum		
		<i>Phyllaps falcatus</i>	hum		
		<i>Stenoderma rufum</i>	sku; man; hum		
		<i>Sturnira thomasi</i>	sku; man; hum		
		<i>Uroderma bilobatum</i>	hum		
		<i>Monophyllus redmani</i>	sku; man; hum		
		<i>Phyllonycteris poeyi</i>	sku; man; hum		
		<i>Eptesicus guadeloupensis</i>	sku; man; hum		
		Birds	Rallidae	<i>Laterallus jamaicensis</i>	cor; sca; hum; uln; rad; cmc; fem; tib; tar
				<i>Rallus longirostris</i>	cor; sca; hum; uln; rad; cmc; fem; tib; tar
<i>Rallus limicola</i>	cor; sca; hum; uln; rad; cmc; fem; tib; tar				
<i>Porphyrio martinicus</i>	cor; sca; hum; uln; rad; cmc; fem; tib; tar				
<i>Fulica americana</i>	cor; sca; hum; uln; rad; cmc; fem; tib; tar				
<i>Jacana spinosa</i>	cor; sca; hum; uln; rad; cmc; fem; tib; tar				
Columbidae	<i>Patagioenas inornata</i>			cor; sca; hum; uln; rad; cmc; fem; tib; tar	
	<i>Geotrygon montana</i>			cor; sca; hum; uln; rad; cmc; fem; tib; tar	
	<i>Geotrygon chrysis</i>			cor; sca; hum; uln; rad; cmc; fem; tib; tar	
Strigidae	<i>Leptotila wellsi</i>			cor; sca; hum; uln; rad; cmc; fem; tib; tar	
	<i>Athene cucularia</i>		wpha; dpha		
Caprimulgidae	<i>Chordeiles minor</i>		cor; sca; hum; uln; rad; cmc; fem; tib; tar		
	<i>Chordeiles gundlachii</i>		man; cor; sca; hum; uln; rad; cmc; fem; tib; tar		
Turdidae	<i>Caprimulgus cayennensis</i>		cor; sca; hum; uln; rad; cmc; fem; tib; tar		
	<i>Sialia sialis</i>		cor; sca; hum; uln; rad; cmc; fem; tib; tar		
	<i>Catharus fuscescens</i>		cor; sca; hum; uln; rad; cmc; fem; tib; tar		
	<i>Catharus ustulatus</i>		cor; sca; hum; uln; rad; cmc; fem; tib; tar		
	<i>Turdus fumigatus</i>		cor; sca; hum; uln; rad; cmc; fem; tib; tar		
Mimidae	<i>Dumetella carolinensis</i>		cor; sca; hum; uln; rad; cmc; fem; tib; tar		
	<i>Ramphocinclus brachyurus</i>		cor; sca; uln; rad; wpha; cmc; fem; tib; tar		
	<i>Allenia fusca</i>		cmc		
	<i>Cincloerithia ruficauda</i>		cmc		
	<i>Toxostoma rufum</i>		cor; sca; hum; uln; rad; cmc; fem; tib; tar		
	<i>Mimus gundlachii</i>	sku; man; cor; sca; hum; uln; rad; cmc; fem; tib; tar			
	<i>Mimus gilvus</i>	cmc			
<i>Mimus polyglottos</i>	cor; sca; hum; uln; rad; cmc; fem; tib; tar				



Skeleton of the endemic Guadeloupe Woodpecker (*Melanerpes herminieri*)



3D model of a *Antilomys rayi* mandible from Guadeloupe (length of the specimen: 3.2 cm)

Accessibility

- ✓ Caribbeetek is a public collection, freely available to any researcher who requests access for research purpose;
- ✓ All virtual models are available on demand, free of charge, and without counterpart;
- ✓ Inter-institutional exchanges and specimen loans are possible.