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▶ To cite this version:

Karis Baker, Sandrine Grouard, Sophia Perdikaris, Naomi Sykes. From Icon of Empire to National Emblem: the Fallow Deer of Barbuda. XXVth Congress of the International Association for Caribbean Archaeology, 2013, San Juan de Puerto Rico, France. pp.1-12. hal-04029847

HAL Id: hal-04029847 https://hal.science/hal-04029847

Submitted on 21 Mar 2023

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From Icon of Empire to National Emblem: the Fallow Deer of Barbuda

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Abstract

Barbuda's national animal is the fallow deer, *Dama dama dama*, a species that is native to the eastern Mediterranean but that has been transported around the world by people. The timing and circumstances by which fallow deer came to be established on Barbuda are currently uncertain but, by examining the archaeological, genetic, documentary and iconographic evidence, this paper will examine the validity of existing theories. It will review the dynamics of human-*Dama* relationships from the 1600s to the present day and consider how the meaning attached to this species has changed through time: from a symbol of colonial authority and dominance, to a 'walking larder' after the slave emancipation of 1834, and now an important part of the island's cultural heritage.

Keywords: Barbuda, Dama dama, DNA, zooarchaeology

Animal national de Barbuda est le daim, Dama dama dama, une espèce qui est originaire de la Méditerranée orientale, mais qui a été transporté dans le monde entier par des gens. Le moment et les circonstances qui daims est venu à être établie sur Barbuda sont actuellement incertaine, mais, en examinant l'archéologique, génétique, la preuve documentaire et iconographique, ce document examine la validité des théories existantes. Il passera en revue la dynamique des relations homme-Dama des années 1600 à nos jours et d'examiner comment le sens attaché à cette espèce a évolué avec le temps: à partir d'un symbole de l'autorité coloniale et de la domination, à un «garde-manger de marche» après l'émancipation des esclaves de 1834, et maintenant une partie importante du patrimoine culturel de l'île.

Mots-clés: Barbuda, Dama dama, l'ADN, Archéozoologie

El animal nacional de Barbuda es el gamo, Dama dama dama, una especie que es originaria del Mediterráneo oriental, pero que se ha transportado en todo el mundo por la gente. El momento y circunstancias por las cuales el gamo vino a establecerse en Barbuda Actualmente incierto, pero, mediante el examen de los restos arqueológicos, genéticos, pruebas documentales y iconográfico, este documento examinará la validez de las teorías existentes. Se revisará la dinámica de las relaciones humano-Dama de la década de 1600 hasta nuestros días y considerar cómo el significado atribuido a esta especie ha cambiado a través del tiempo: desde un símbolo de la autoridad colonial y la dominación, a una "despensa caminar 'después de la emancipación de los esclavos de 1834, y ahora una parte importante del patrimonio cultural de la isla.

Palabras clave: Barbuda, Dama dama, ADN, zooarqueología

Introduction

The Barbuda Research Complex (BRC) is the parent facility governing The Barbuda Archaeology Research Center, The Barbuda Museum, the Barbuda Children's Museum and the Aquaponics Research Facility. BRC brings together Natural Sciences, Social Sciences, The Humanities and the Arts along with Traditional Ecological Knowledge and Citizen Science in a dialogue of discovery and exchange of knowledge ensuring Barbuda's cultural and environmental survival.

BRC in collaboration with the City University of New York and Brooklyn College along with partnerships with universities worldwide has been conducting investigations on human ecodynamics on this low-lying semi-arid island. There is a long history of human habitation on the island dating back to circa 4500 years BCE with Archaic people, the Saladoid peoples (circa 200 BCE – 900 CE), the Post Saladoid peoples (ca. 1000-1400 CE) and the Historic Periods ($17^{th} - 19^{th}$ centuries), up to the present day. These investigations are revealing complex dynamics between culture and environment that has persisted in one form or another for several thousands of years.

The fallow deer (*Dama dama dama*) is the national animal of Barbuda and Antigua – so synonymous with the islands it is represented on their coat of arms (McComas 2013, p. 126). Today, Barbuda is home to two coat-colour variations (the common and the black) and the presence of these colours dates back to at least 1800s since Darwin sent one black and two common coloured skins to London's Natural History Museum following his visit to the island (Masseti 2011, p. 127). The animals are one of Barbuda's natural attractions, and sustainable fallow deer management, which seeks to strike a balance between biodiversity and overgrazing (as fallow deer populations can expand rapidly causing environmental damage), is an important element of Barbuda's ecotourism: on average of 120 deer culled each year by paying sports hunters (McComas 2013, p. 127).

Considering the significance of fallow deer to Barbuda's natural environment, culture and economy, astonishingly little is known about when, how, and most importantly *why* this species was introduced to the island. Tourism and academic literature frequently state that fallow deer were introduced 'a long time ago', '*probably* from England', '*probably* in the 18th century' (Aspinall 1954; McComas 2013, p. 126). Even Chapman and Chapman's

volume *Fallow Deer*, which is widely acknowledged as the most comprehensive survey of the species, repeats the idea that 'probably they were imported sometime between 1700 and 1772' (1975, p. 65). Masseti's (2011) review of the historical evidence suggests that the introduction may have been earlier, in the 17^{th} century, but less attention is given to the motivation for this introduction. We believe that it is possible to do better than this – and that we *should* do better to try and understand the social and cultural history of a species that symbolises the nation islands.

There are reasons beyond national pride to examine the natural and cultural history of Barbuda's fallow deer: as a non-native animal, whose arrival is due entirely to people, the fallow deer can be seen as a proxy for human diaspora (Sykes 2014, pp. 91-96). Today fallow deer have a global distribution which is an excellent reflection of human migration and trade networks. However, their distribution reflects not only physical diaspora but also ideological diaspora – the movement of *ideas*. The transportation and establishment of a viable fallow deer population is no easy task and the decision to do so is a reflection of human ideology.

It is for this reason that the *Dama* International project has been established to examine the timing and circumstances of the fallow deer's diffusion from Anatolian using a combination of archaeological, zooarchaeological and scientific techniques (genetics and isotope analyses). Up to now work has focused on their European expansion and our results suggest that there were two major episodes of fallow deer diffusion. The first occurred in the Roman period and coincided with the expansion of the Roman Empire, with fallow deer being taken to all areas under Roman colonisation (Sykes et al. 2011). Our studies suggest that the collapse of the Roman Empire saw fallow deer populations become locally extinct (Sykes and Carden 2011). However, they were reintroduced several hundred years later during a second wave of colonisation that coincided with the expansion of the Noman Empire when fallow deer were again imported to England from where they were then taken back to the rest of northern Europe (Sykes 2014).

These data may seem far removed from the Caribbean but they do show the deeper history of the fallow deer and this earlier story reveals some patterns that may be of relevance for considering their later history. For instance, it is interesting to note that both of the periods in which fallow deer spread across Europe are characterised by imperialism, as the Romans and the Normans sought to establish widespread Empires. Similarly both periods are characterised, at least from a zooarchaeological perspective, by the existence of elite hunting cultures (Sykes and Putman in press). When viewed from an anthropological perspective, these coincidences in hunting, fallow deer diffusion and imperialism are telling. Hunting is, across cultures, a social and political performance that is frequently tied to concepts of land ownership (Sykes 2014, p. 52; Sykes and Putman in press). Often hunting is used to symbolise territorial possession and legitimise the rule of conquering peoples, particularly by limiting hunting rights to the colonial elite. The importation of 'exotic' animals from other parts of the Empire is also important, serving as an icon of colonial dominance (Sykes et al. 2006).

In this way, the fallow deer of Barbuda are a legitimate focus for research with the potential to provide high-quality information for a range of disciplines: not only archaeology and history but also ecology – since the introduction of a new species can have a considerable impact on native ecosystems (Hobbs 2000; Lambert and Rotherham 2011).

In this paper we shall present some preliminary new results from archaeological, historical and genetic research that offer a deeper-time perspective on the cultural history of the fallow deer in Barbuda. Our work is still preliminary but it is our contention that scientific research has the potential to reveal cultural heritage represented by fallow deer.

Methods

In order to gain an understanding of the fallow deer's arrival times on Barbuda, we conducted a survey of the available historical literature for the island, extracting references to deer in general and fallow deer in particular. To complement this survey, a small collection of fallow deer skeletal remains, recovered from excavations on the island were analysed at the University of Nottingham's Bioarchaeology Research Laboratory to inform on deer demographics and skeletal morphology. Two of these bones (from two separate individuals) were sampled for DNA analysis, which was conducted at the School of Biological and Biomedical Sciences, University of Durham. The DNA extraction process involved cutting the bone into a small fragment using a variable speed DremmelTM drill and then crushing that fragment into a powder, placing the powder in reagents (0.5ml of extraction buffer, containing 0.425 M EDTA (PH 8), 0.5% sodium dodecyl sulphate, 0.05 M tris, (PH 8.5) along with 50 µl of proteinase K (20 mg/ml)) overnight at 50°C to release the DNA from the cell. A partial fragment of the mitochondrial DNA was then amplified using specifically designed primer sets in a polymerase chain reaction (PCR) (details available upon request). Both Barbudan samples were successful at the stage of PCR and were sequenced by DBS genomics at University of Durham. Precautions associated with handling DNA from bone specimens were taken during every stage of the above process and followed standard ancient DNA protocols. The relationship amongst the two individuals from Barbuda were examined alongside post Norman and modern European samples (n = 89) by constructing a median joining network using the program NETWORK 4.5 (Bandelt et al. 1999).

When introduced?

That the circumstances surrounding the arrival of the fallow deer are unclear is understandable; even in the early 19th century the identification of the different deer established on Caribbean islands was the subject of considerable debate. For instance, in his 1831 volume, the natural historian Philip Henry Gosse devotes considerable attention to ascertaining the species of the feral deer on Jamaica. After extensive sleuthing, Gosse concluded that rather than being 'Mexican deer' (as they were so-called) they were in fact fallow deer imported from Europe (Gosse 1831, p. 438). By 1898 Hill was well aware of the species' identity, noting that "Hundreds of English fallow deer are found", a statement that Masseti (2011, p. 127) suggests confirms the British origins of the population. Some indication of population size at this time is provided by Wellintgon Greener (1885) who estimated that there were approximately 3000 fallow deer on Barbuda which, according to Darwin (1856-8 – reprinted 1987, p. 287), lived feral on the island. This figure is identical to the estimated population a century earlier in 1784, also recorded as 3000 (Kras 1997, p. 16). Given that Barbuda is approximately 62^2 miles, equating to a stocking density of *c*.48 deer per mile, it is perhaps unsurprising that fallow deer were considered to be a 'pest' as early as 1827 because of their propensity to strip vegetation. If these stock figures are to be believed, they indicate a considerable growth in population in the four decades from 1740, when just 1000 head of deer are recorded (Etherington 2002, p. 64). Prior to this date, there is little information concerning fallow deer numbers. None are recorded in the 1719 stock-lists detailed in the Letter and Memorandum Book of Sir William Codrington (1715 – 1790) and this could be taken as evidence that the species had not yet been introduced to Barbuda, although it is not conclusive it its own right.

On his trip to Barbados Han Sloane (1707) noted that "I saw also the New-England deer [white-tail deer] in a small enclosure by the church which seemed the same in everything as our fallow deer". Our suspicion is that rather than being *similar* to fallow deer, these animals *were* fallow deer. On this basis, it seems probable that fallow deer were initially more wide-spread within the Caribbean than they are today and that, in order for Barbuda's population to have reached c. 1000 by 1740, they were presumably introduced considerably earlier than this date.

The fact that there is a reference to deer, possibly fallow deer, on Barbados in 1707 is interesting given that Barbados was home to Christopher Codrington I and his sons (John and Christopher Codrington II) who were granted the first lease on Barbuda in 1685 (Murray 2001, p. 66). Perhaps most importantly, Christopher Codrington III was also born in Barbados in 1668 but was schooled in England, study at Oxford University before returning to Caribbean in 1705, just two years before Sloane spotted those deer in a 'small enclosure' on the island. Is it possible that Christopher Codrington III was responsible for bringing some deer back from England with him?

From where were fallow deer introduced?

The circumstantial evidence certainly tempts the interpretation that Barbuda's fallow deer were imported from England but additional evidence can be gleaned from the deer themselves, through DNA analysis. Figure 1 shows the preliminary results of the analyses, whereby the Barbudan deer are shown on a genetic network along with all modern and medieval European DNA samples (n=89) using 525 base pairs of the mitochondrial DNA d loop.



Figure 1: Median joining network of relationships among 11th century AD to modern European and Barbudan mitochondrial haplotypes where each circle represents a unique haplotype and the size of the circle indicates relative frequency of the haplotype. 24 haplotypes (based on 525 base pairs) are represented.

This network represents 24 unique sets of sequences (haplotypes). The two Barbudan samples share the same sequence (i.e. they share the same haplotype). The network shows that the Barbudan haplotype clusters well within the post Norman-modern northern European group. Although there is no specific genetic match of the Barbudan samples with any samples from this group, they are very closely related to other samples within this group, confirming that the Barbudan fallow deer have a common ancestry. As such the genetic results are consistent with the idea that fallow deer were introduced to Barbuda from a north European, probably British, source population. It is possible that by obtaining further samples from Barbuda and modern Europe (in particular Britain) a genetic match could be found, thus helping to identify the source population for Barbuda.

To some extent the genetic evidence is confirmed by the osteometrics. This is particularly true for the data relating to the ankle bone (astragalus) whose size and shape is well known to correlate with body size and conformation but also, in the case of fallow deer, demonstrates ecomorphic variation (Sykes et al. 2013). As Figure 2 shows, different global populations of fallow deer demonstrate different astragalus shape: bones from the 'native' fallow deer populations from Anatolia and Greece are comparatively long and thin, whereas the bones of translocated deer (particularly those from England) are comparatively short and fat. At present the reason for this variation is still unclear but Figure 2 confirms that the Barbudan population is consistent with the animals from northern Europe, rather than those from Anatolia or Greece.



Figure 2: Plot of astragalus measurements—breadth of distal (Bd) against Greatest Lateral Length (GLl) —for archaeological and modern fallow deer from Europe and Barbuda

More surprising is that the ankle bones of the Barbudan deer demonstrate no evidence of the 'island effect': given that Barbuda is small and contains no natural predators of fallow deer, we would expect the deer to have exhibited a size change after their introduction but this does not appear to be the case. This is perhaps due to small sample size and certainly the metric for other foot bones (e.g. the metatarsals shown in Figure 3) suggest that the Barbudan deer plot at the smaller end of the spectrum; however, they are comparable with other archaeological deer from northern Europe, albeit a little less robust that the bones of modern animals from Britain.



Figure 3. Plot of metatarsal measurements—breadth of distal (Bd) against Greatest Length (GL)—for archaeological and modern fallow deer from Europe and Barbuda

Clearly more zooarchaeological and genetic work needs to be undertaken to provide further details of this species history and management but our preliminary results are consistent with the idea that fallow deer were introduced to Barbuda very early in the 1700s from England. If this is accepted, the more important question is why.

Why translocate fallow deer.

It is generally assumed that fallow deer were imported to the Caribbean as a source of 'game', to provide meat for the imperial colonists. However, studies (e.g. O'Connor and Sykes 2010) have highlighted that exotic animals are seldom transported merely as sources of food. Furthermore, the suggestion (that fallow deer = meat) does not adequately account for the effort, logistics and legislation that surrounded the importation and establishment of the deer. If meat/game was the sole concern, it would have been far more logical to import a deer species, such as the Whitetail deer, *Odocoileus virginianus*, from closer proximity. As it stands, the fallow deer imported from northern Europe would have undergone a 6,000 kilometer journey by sea which would have taken weeks, during which time the deer would need to have been kept alive. Such efforts demand an explanation and to find the rationale for this decision, we must look to England and, in particular, to the English estate of the Codringtons – Dodington Park, Gloucestershire.

The Codringtons acquired Dodington Park in the late 16th century, a time when fallow deer had been established in England for about 500 years and their populations were booming, thanks to the large numbers of deer parks that were established (Rackham 1997)

We know from historical accounts that by 1728 Dodington Park was already wellestablished, being described as "pretty enough, the setting romantic, covered with woody hills stumbling upon one another and the garden makes a lovely valley between them with some mounts and waterfalls" (Pope, quoted by Harding and Lambert 1994). This statement demonstrates a concern with the aesthetics of the park, and fallow deer were an important component of these aesthetics, as is reflected by the art of the time. For instance, the worldfamous landscape artist J. M. Turner incorporated fallow deer into many of his paintings, such as those for Petworth House in England. Similar examples or Turner's work are said to exist for Dodington Park (but are in private collections).

As important elements of park landscapes and art, fallow deer cannot have been seen simply as 'meat'. They represent a wider ideological concern whereby the English elite saw themselves as lords and masters not only of their estate but of the natural world itself (Thomas 1983). It is clear that fallow deer were eaten by the English aristocracy as we find their remains frequently on archaeological sites; however, the majority of the animals were very old when they were culled, suggesting that the deer were valued more alive than in death (Sykes 2014). It is our suggestion that it was for ideological reasons – the fallow deer represented English mastery – that such efforts were made to establish them in the new English colonies in the Caribbean.

Once taken to Barbuda, hunting rights to these iconic animals were closely guarded, as they were in England (Manning 1993). Indeed, historical accounts relating to Barbuda (particularly those dating between 1761 and 1790) record repeated complaints from the Codringtons, and others, that their much-loved deer were being poached (Murray 2001, p. 271). It is interesting to remember that, although in 1827 they were considered a pest because stripped land of vegetation (Kras 1997, p. 16), restrictions over hunting rights remained in force: the idea that the deer might be poached was worse than the idea that they were a pest (e.g. R. Jarritt, cited by Murray 2001, p. 329)

It is important to note that, again cross-culturally, poaching is seldom undertaken simply as a mechanism for acquiring protein. Like hunting, poaching is a social and political statement – it is about personal empowerment acquired by subverting the establishment (Manning 1993; Sykes 2007). It can be no coincidence that some of the most intensive periods of poaching occurred during the most intense periods of slave rebellion and uprising. Indeed, in many way, the human-fallow deer relationship provides an insight into social ideology of the different groups. Contrary to English traditions, whereby hunting rights and land ownership were restricted to the elite, the Barbudan slaves had a very different attitude, perceiving both the deer and land as no-one's property. This sense of common possession prompted one overseer to write to the Codrington family out of frustration "They acknowledge no Master, and believe the Island belongs to themselves" (R. Jarritt 1823, quoted in Lowenthal and Clarke 1977, p. 524). It was just a few years later, in 1834, when the Barbudans slave were emancipated, a situation which changed the fallow deer from a symbol of colonial dominance to a national emblem. However, even today, men still say they are going out to 'poach' rather

than to 'hunt' fallow deer (McComas 2013, p. 126), a choice of terminology that reveals the cultural importance of this species.

Conclusions

We hope that this short paper has highlighted the deep cultural heritage represented by Barbuda's fallow deer and the potential of examining this species as a source of cultural data. General work on zooarchaeological assemblages – genetics, isotopes, representation – has the potential to answer some questions about when fallow deer were introduced and where from: more needs to be done in this regard. However, there is also a need for more detailed analyses of metrics, demographics and representation to examine how fallow deer were managed, hunted and poached. Such studies have the capacity to shine a light on human-deer interactions (which reflect human-human interactions) and provide new insights into the island's heritage.

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