PIGS AND HUMANS
10,000 YEARS OF INTERACTION

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Ethnoarchaeology of pig husbandry in Sardinia and Corsica

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INTRODUCTION

In this chapter we illustrate, with examples, present-day traditional practices of pig husbandry in Sardinia and Corsica. The approach to this work is ethnoarchaeological, which means that its main aim is to collect modern socio-economic data that can be useful for the interpretation of zooarchaeological remains of pigs and, more in general, for our understanding of the past (cf. Schiffer 1976: 31). The analysis of modern society as an aid to understanding the past has a long tradition in archaeology, and was particularly encouraged by the innovations in archaeological methods of the late 1960s and 1970s (e.g. Binford 1978; Gould 1980). The comparison between past and present is based on the concept of analogy (cf. Gould 1980: 29), which has been much discussed and criticized in the archaeological literature (Audouze 1992). Nevertheless, analogy remains a useful tool in archaeological interpretation as long as it is used cautiously and with an understanding of context (Hodder 1982). It can also be argued that archaeological interpretation is inevitably analogical as we cannot directly observe the past, and any attempt to improve our understanding of the past is based on comparative models, whether they are drawn from ethnographic observations or not.

The relation between people and animals represents a core factor in the functioning of past and modern societies. *Sus* hunting and husbandry in particular constitute very important activities in many different periods and areas of the world. There is a wealth of ethnographic studies on human–*Sus* relations in traditional societies, but this is mainly confined to the South Pacific (e.g. Rappaport 1968; Griffin 1998; Sillitoe 2003). Ethnoarchaeological studies of human–*Sus* relations are much rarer, though the work carried out by ethnographers has occasionally been used for archaeological interpretations (e.g. Nemeth 1998; Redding & Rosenberg 1998).

The geographic bias towards South East Asia, and New Guinea in particular, is understandable when we consider the abundance of wild and domestic pigs in those regions, and the great importance that they have for local economies and societies. Conversely, most of western Asia is dominated by Muslim cultures, where pig husbandry is not practised because of the prohibition of pork consumption (Simoons 1961). In Europe and the Mediterranean industrialized mass production of meat has almost completely replaced traditional systems of animal husbandry. Nevertheless, there are still a number of regions where traditional practices survive, but the potential of these areas for the investigation of patterns of animal husbandry of archaeological relevance has been somewhat neglected. A few ethnoarchaeological studies have focused on sheep and goat management (e.g. Lewthwaite 1984; de Lanfranchi 1991; Grant 1991) but pigs have by and large been overlooked (but see Fabre-Vassas 1994; Moreno García 2004).

Though traditional practices of pig husbandry are gradually disappearing in Europe and western Asia, they can still be observed in areas such as Armenia (pers. observations), Bulgaria (Genov 1999), Greece (pers. observations), Spain (Molenat & Casabianca 1979) and most remarkably in the western Mediterranean islands of Sardinia (Italy) and Corsica (France). Previous investigations of these islands have focused on zootechnical and veterinary aspects (cf. Molenat & Casabianca 1979; Texier *et al.* 1984), and this is the first time that an ethnoarchaeological study of traditional pig husbandry in Sardinia and Corsica, and perhaps in the rest of the Mediterranean, has been carried out. However, ethnographic parallels have been taken into account in works with a more general perspective, such as that by Vigne (1998), who has linked pig slaughter patterns found at a number of prehistoric and historic sites in the north-western Mediterranean with the ethnozoological data provided by Molenat & Casabianca (1979).

The idea of carrying out the research presented in this chapter first arose in 1986, when a visit to Ogliastra, in central-eastern Sardinia, made one of us (UA) aware of the peculiarly small size of the local breeds of pigs and the widespread free-range system of husbandry. Further visits and observations, together with the analysis of the existing literature and the local knowledge of two of us (FM and JDV), revealed that the phenomenon was widespread and dwarf pigs and extensive husbandry methods could be found throughout Sardinia as well as Corsica. The opportunity to undertake the work came, however, only in 2000 with the start of the project on the archaeology of pig domestication and husbandry, based at the University of Durham (UK) and funded by the Arts and Humanities Research Board and the Wellcome Trust.

AREA OF STUDY AND METHODS

The islands of Sardinia (Italy) and Corsica (France) are situated in the western Mediterranean, off the western shores of the Italian peninsula (Fig. 16.1). Both islands host thriving populations of wild boars, whose origins are hitherto unknown. The history and archaeology of these populations is discussed in detail in a separate paper (Albarella *et al.* 2006.), and it is here sufficient to say that no *Sus* (wild or domestic) were present on the islands before the 7th millennium BC (Vigne 1999). Wild boars are excellent swimmers (Nowak 1999) but, considering the fairly large distance of both islands from the continent, it is more likely that they were first brought across from the mainland by human colonists. It is unclear whether the earliest *Sus* that reached the islands were wild (cf. Groves 1989) or domestic (cf. Vigne 1988, 2002). If the latter is the case, as more recent archaeological evidence also seems to suggest (Costa 2004), modern animals must be regarded as descendents of domestic pigs that escaped human control and became feral.

Cross-breeding between wild (or feral) and domestic animals occurs regularly today, and must have occurred even more in the past, when free-range systems of pig-keeping were more or less the rule (cf. Manca dell'Arca 1780; della Marmora 1839). It is therefore not possible to regard wild and domestic populations as genetically distinct, and even their management is not clearly separable. As we will see in the rest of this chapter, there is a great diversity of management systems of pig populations on the two islands, ranging from the controlled hunting of wild animals to the intensive stock-breeding of improved domestic breeds.

Wild boars from Sardinia and Corsica are extremely small in comparison to other European animals (Fig. 16.2), a likely consequence of insular dwarfism, and a phenomenon observed for periods as early as the beginning of the Neolithic in Cyprus (Vigne *et al.* 2000*b*). The small size of these wild boar is reflected in the native domestic stock, which is also attested in the archaeological (cf. Vigne 1988; Manconi 2000) and historical literature (cf. Polybius XII, 3; Cetti 1774; della Marmora 1839, Forsyth Major 1883; Dehaut 1911). The miniature size of the pigs living in these islands undoubtedly affects husbandry and feeding strategies.

The work was carried out using two main methods: fieldwork (direct observation and photographic recording of pig activities, environment, and management), and interviewing of pig-breeders with the aid of a standard questionnaire. Conversations with the pig-breeders were tape-recorded and written notes were also taken. The two systems of recording were then checked against each other to minimize the possibility of misunderstandings, always possible in an area characterized by a multitude of local dialects.

Fig. 16.1. Location of Sardinia and Corsica in relation to mainland Europe

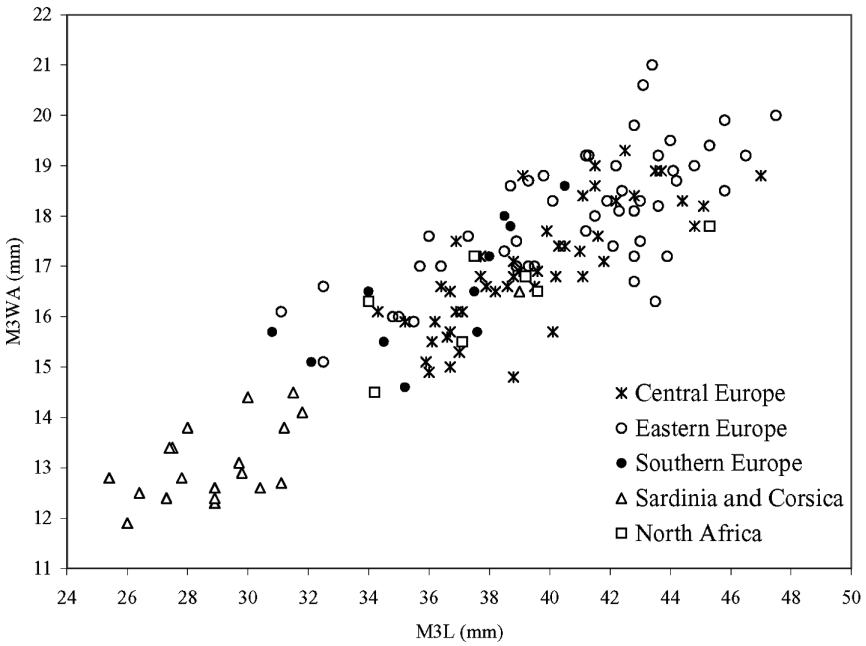

Fig. 16.2. Comparison of the size of the lower M_3 in Sardo-Corsican and other European wild boars

The survey is far from comprehensive and included only four main areas (Fig. 16.3): central eastern Sardinia (Ogliastra and Supramonte), northern Sardinia (Gallura), north-eastern Corsica (Castagniccia), and southern Corsica (Alta Rocca, area around Levie). The choice of the areas was partly dictated by deliberate selection and partly by logistics. Four breeders were interviewed in Gallura and four in the Alta Rocca (Levie area); none were interviewed in Ogliastra/Supramonte and Castagniccia, though many free-range pigs were observed in these areas. Sardinia and Corsica are mountainous islands, and the four areas discussed here are all characterized by a diverse terrain covered by a mix of woodland, Mediterranean maquis, and agricultural land. The Castagniccia area, in Corsica, is, as the name suggests, dominated by sweet chestnut woodland, ideal for pig pasture.

To understand the results of this work it is necessary to consider that, although traditional systems of husbandry are still practised in Sardinia and Corsica, both islands are now undergoing intense economic transformation. Traditional practices are disappearing rapidly as a result of the pressure to intensify productivity and keep pace with international economic forces. Pig husbandry is not immune from these changes, and in the two islands

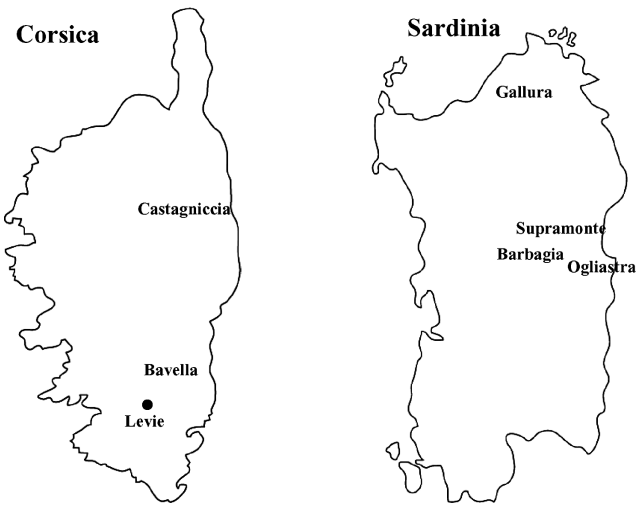

Fig. 16.3. Locations of the areas where observation of free-range pigs and conversations with pig breeders were carried out

a combination of tradition and innovation can be observed, although this occurs at a different level in different areas.

RESULTS

Observations

Observations of free-range pigs living in central-eastern Sardinia were undertaken in 1986, 1997, and 2002. The pigs living in this area are small, slim, and hairy and have a long and straight snout (Fig. 16.4). They are in many respects similar to wild boars, except for their hanging ears, variable colours, and occasional curly tails. Those observed are likely to belong to the traditional Sardinian breed, though its purity is questionable, as cross-breeding with imported animals is likely to have occurred. The 18th-century zoologist Cetti (1774: 87) described the domestic pig of Sardinia as having a straight and big tail, a body covered in bristles, which are straight on the back, and short, straight, bristly ears. A similar description is offered by Dehaut (1911) for the early 20th century. In the last few decades some of the characters of this traditional breed have been diluted through genetic introgression from continental pig breeds, but the Sardinian pig remains peculiar in its aspect and behaviour.

Fig. 16.4. A pig from of the traditional Sardinian breed from the region of Ogliastra (Sardinia) (photo UA 1986)

In this region pig herds are found in remote areas with a rather inhospitable terrain (Fig. 16.5). Even in June, not a rich season for woodland food resources, they seemed to live independently, feeding on short grass (Fig. 16.6) and possibly roots and worms. Despite a long search, no swineherd could be found in the vicinity. Conversations with local people led to the understanding that in the last 20 years traditional pig husbandry has been severely reduced and can only be observed in the most remote areas. Together with Barbagia (the area located just to the west, in the geographic centre of Sardinia) this is, however, the area where traditional practices and breeds are more likely to have survived.

The other area that we studied in Sardinia, the Gallura, is located in the far north of the island. Gallura maintains a certain cultural independence from the rest of the island, and seems to have been affected to a greater extent than central Sardinia by agricultural innovation and mechanization. Yet traditional practices survive in conjunction with more modern systems of husbandry, thus creating a fascinating stage of transition from the old to the new. In this area the introduction of allochthonous wild boars also seems to have been particularly intense (cf. Onida *et al.* 1995). The situation in this region can be best summarized through the analysis of the interviews with the pig breeders, discussed below.

Fig. 16.5. Typical landscape in Supramonte (Sardinia), where many free-range pigs were found in the woodland area (photo UA 2002)

Fig. 16.6. A young Sardinian pig from the area photographed in Fig. 16.5 tries to find some shade on a very hot day in June as it eats some poor and short grass (photo UA 2002)

In Corsica, one of the best-known areas for pig herding is the Castagniccia (Raichon *et al.* 1976; Molenat & Casabianca 1979). As is well known to people travelling in that area, roaming pigs can be found everywhere. Most pigs seem to live rather independently, pasturing along roads and in woodlands under little or no control. Pig types seem to be very variable, with many different coat colours represented and also different levels of improvement.

Fig. 16.7. Free-range pigs from Castagniccia (Corsica). Note the very straight snout (photo UA 2000)

Small pigs with very straight (wild boar type) snouts, are also found (Fig. 16.7). Though rich in pigs the Castagniccia is not, however, the best area to study traditional husbandry, as the pure original Corsican breed seems to have disappeared. Molenat & Casabianca (1979) have shown that the Castagniccia has been subject to a heavy introgression of the Large White breed, and tends to attract several pig types originating from across the island. The wealth of woodland products also causes seasonal movements, as some breeders periodically leave their pigs in the area to feed on sweet chestnuts (de Lanfranchi pers. comm.). This inevitably causes further cross-breeding and genetic contamination of the original domestic and wild populations (de Lanfranchi-Firroloni 1979).

The area where the traditional Corsican breed is more likely to be found is represented by the central part of the island where the main mountain watershed is located (cf. Molenat & Casabianca 1979: fig. 5). The Alta Rocca, where some of our pig breeders were interviewed, lies at the extreme south of this area, at the foothills of the Bavella mountains.

Interviews

The results of the interviews with the pig breeders of Sardinia and Corsica are summarized in Table 16.1, but some of the essential points will be highlighted in the rest of this section.

Table 16.1. Results of the interviews with pig breeders carried out in July 2002 by UA and FM.

Region Locality	North Sardinia Scupetu	North Sardinia Perfugas	North Sardinia Limbara	North Sardinia Limbara	South Corsica Levie	South Corsica Mela	South Corsica Orone and Incudine mountains	South Corsica Levie
Breeder	Pala	Spezzigu	Carta	Alias	Ricci	Mattei	A.L.	Fondansaes
Herd	*c.*20 adult animals (but in the past up to 100); 2 males, the rest females	2 adult sows; sire borrowed	3 adults (1 male, 2 females) plus piglets	6 adults(1 male, 5 females), 8 piglets	1 male, 3 females, and *c.*10 piglets	5 adults (1 male, 4 females) and *c.*35 young animals kept for slaughter	*c.*50 animals (50% adults and 50% juveniles); male % varies between 25% and 50%	2 females for reproduction and about 10 young pigs for slaughter; male is borrowed for reproduction
Breed	Mixed	Mixed; but he used to have the traditional breed that was black and occasionally striped even when no cross-breeding with wild boars had occurred	Mixed	Mixed	Undefined breed of English origins	Unimproved traditional French breed	Enclosed: Belgian breed Pietrain and a few of the traditional Corsican breed; in the mountains: traditional Corsican breed, as other pigs would not survive in that environment	Traditional Corsican breed
Any wild boars?	Only in the past	No	No, but they live in the area	In the past	No	No	No	No
Any wild/ domestic crosses?	Yes, commonly, wild male × domestic female	Not in his case but he knows it is common	Yes, but when it happens they are slaughtered immediately because they do not grow enough	They often happen, but when the animals are kept free-range	Yes, but when it happens they are slaughtered immediately because they do not grow enough	Yes, but in such cases those animal that have straight ears are slaughtered immediately	Yes, but when it happens they are slaughtered immediately because they do not grow enough	Yes, but when it happens they are slaughtered immediately because they do not grow beyond 60–70 kg

Castration	All males are castrated, except those kept for reproduction	Most males are castrated, when no older than 1 month	Yes, from 3/4 months onwards	Most castrated when a few months old	In autumn at 3–4 months, but only those pigs that will be slaughtered young	In winter from a few months to 1 year of age	At 3 months, before weaning	Both males and females are castrated, generally at 2 months, but the females even at 3
Birth season	twice a year at any time	Any time of the year	Any time of the year	Even three times a year, at any time of the year	Twice a year, at any time of the year	Twice a year, any time of the year	Any time of the year	Twice a year at any time of the year
Where are the litters born?	In the sty, particularly in winter	In the past in a nest that the sow prepared before birth, but due to fox predation now mainly in sties	In the sty due to fox predation	In the sty to avoid fox predation	They are born in the sty, which they leave after a month, weaning occurs at 2 months	They are born in the wild and sometimes they are predated by foxes	In the sty due to fox predation	Generally in the sty to avoid fox predation
Purchase of animals	Boars for reproduction to avoid excessive inbreeding	No	Occasionally some piglets	Yes, to avoid inbreeding	Yes, to avoid inbreeding	Occasionally a boar	Occasionally boars to avoid inbreeding	Occasionally
Age at slaughter	Generally between 2 and 3 years	Piglets: 2–3 months (but nowadays at 25 days); males: 2–3 years; females: 4–5 years; castrates: less than 2 years	1–1.5 years, occasionally at 4–5 months	Males: *c.*3years; female: 3–4 years; castrates: 2–3 years	10–12 months	18 months	Those free in the mountains at 2 years, those which are enclosed at about 1 year as they eat better and grow faster	13–15 months
Slaughter season	Winter	Winter	Winter/spring	November–March	December–February	November (if it is cold) otherwise December	Winter	Late autumn, which is why the favourite birth season is in September

(*Continued*)

Table 16.1. (*Continued*)

Region	North Sardinia	North Sardinia	North Sardinia	North Sardinia	South Corsica	South Corsica	South Corsica	South Corsica
Locality Breeder	Scupetu Pala	Perfugas Spezzigu	Limbara Carta	Limbara Alias	Levie Ricci	Mela Mattei	Orone and Incudine mountains A.L.	Levie Fondansaes
Home range	30 ha, but in summer they tend to trespass	6 ha; they rarely go further because the area is enclosed by stone walls	A few hectares but the males tend to roam freely in a larger area	12 ha; they cannot trespass as the area is enclosed	50 ha	The larger ones in 50 ha, the smaller in 7 ha	Those in the mountains are totally free; the enclosed area is 1 ha	Completely free, the area is *c.*50 ha
Daily movements	In winter they go back to the sty for the night, in summer they stay outside	At night they find shelter in an abandoned building	At night they go back to the sty	In winter they go back to the sty for the night, in summer they stay outside	They go back to the sty at night but it is their choice as they are not closed in	They stay away also at night	Those enclosed spend the night in the sty but those living in the mountains find shelter in the bushes	They stay away also at night
Level of control	Generally they are totally free but they can be enclosed if they trespass or cause damage	Free, they only come back to feed	Free, they only come back to feed	They are free but come back in the evenings to feed	They tend to live near water sources, and only come back to feed	They are completely free	Those living in the mountains are totally free and independent, they are visited by the breeder only twice or three times a year	Completely free
Capture for slaughter	Attracted by food	Attracted by food	Attracted by food	They answer the call	They are shot with a rifle, in this way the quality of the meat is said to be better	They are driven to an enclosure	Attracted by food, even those in the mountains	They are attracted to an enclosure with food; shooting spoils the meat

Diet	Natural diet (acorns, grass, roots), supplemented with barley, maize, and corn	Natural diet supplemented with barley and in the past also chickpeas and broad beans	Natural diet integrated with barley, bran, and food scraps	Natural diet (grass, worms, pears, acorns) supplemented with barley, bran, bread, and foodscraps	Natural diet (acorns, chestnuts, roots, berries) with a small supplement of corn	In winter acorns and chestnuts, barley as a supplement	Those in the mountains have a fully natural diet; those enclosed eat acorns and chestnuts supplemented with corn and barley	For most of the year fully natural diet, with only a little supplementation to make sure that they can eventually be captured; in August corn and barley
Adult weight	*c.*200–250 kg	In the past 80–100 kg, now up to 150–200 kg	Max. 300 kg, but the traditi onal breed did not reach 150 kg	Generally 180–220 kg but they can reach 300 kg; the traditional breed could at the most reach 130 kg	90–120 kg when slaughtered, but they can reach 200 kg. Traditional breed max. 70 kg	Slaughtered at 90–120 kg, but they can reach 140–150 kg	In the mountains: max. 80 kg at 2 years (even if fed properly they would not grow to more than 90 kg); enclosed: max 200–20 kg at 2 years	Max. 120 kg, but if enclosed and well fed they can reach 150 kg
Losses	10 piglets disappeared in the previous year	Never, if they abandon the enclosed area they then come back	Never	Never	It happens	Occasionally in summer	They are occasion-ally stolen	It happens, but rarely
Agricultural dam-age	Occasionally, sometimes to vegetable gardens	Not in his area, but an iron wire is sometimes inserted in their snout to avoid the possibility of root-ing damage	It happens but not in his case	No, because the area is enclosed, but it could happen	No, due to iron wire inserted in the snout	No, due to iron wire inserted in the snout	No, due to iron wire inserted in the snout	No, due to iron wire inserted in the snout; then they graze like sheep
Products	Meat (also dried), lard, head	Just meat, for home use	Just meat	Just meat	Everything is used, bones are used to make jelly	All meat used to make ham and salami	Only meat	Meat used to make ham and salami; occasionally the piglets are sold alive

Herd

Most of the breeders interviewed kept only a relatively small number of animals (from 2 to 50), which is consistent with a non-communal, home-based system of husbandry. The proportion of adults and juveniles varied considerably, but the number of males was in some cases surprisingly high. However, two of the breeders—one from Sardinia and one from Corsica—had particularly small herds and borrowed their sires from other breeders.

Breeds

All breeders from northern Sardinia have genetically mixed animals, substantially more improved than the traditional Sardinian type. Yet even the heavier animals with pronouncedly foreshortened skulls (Fig. 16.8) seem to adapt well to a relatively independent life, in free-range conditions. Two of the Corsican breeders owned unimproved northern European breeds, whereas the others owned the traditional Corsican breed (Fig. 16.9). Of these two, particularly interesting is the case of a breeder from the village of Orone, near Levie, who has a double system of pig husbandry. Some animals, mainly imported but also including a handful of Corsican pigs, are kept enclosed in

Fig. 16.8. Pig from the Limbara area (Sardinia) belonging to the breeder Sebastiano Carta. Note the pronounced concavity of the snout and the heavy build, indicating that the animal belongs to an improved breed (photo UA 2002)

Fig. 16.9. Pig belonging to the traditional Corsican breed from Orone near Levie (Corsica) (photo UA 2002)

the vicinity of the village, whereas another small herd of pure Corsican animals is kept in the mountains at a substantial distance from the village.

Wild boars

Wild boars are traditionally hunted on both islands, but there are cases in which they are husbanded, though these will require enclosure, otherwise the animals would escape. In 1997 two of us (UA and FM) informally interviewed a wild boar breeder, who kept his animals in a pen built around a natural rock shelter at Monte Pulchiana, in northern Sardinia. It became clear that his activity was more like a hobby than a sustainable economic enterprise, and we were not surprised to hear in 2002 that his herd had eventually been disbanded. None of the eight interviewed breeders kept any wild boars, though two mentioned having owned some in the past. In general wild boars are not regarded as being very profitable, because of their extremely small size. All breeders agreed that interbreeding between wild boar and domestic pigs occurs, but the hybrids are invariably slaughtered immediately, as they do not grow sufficiently. Hybridization is therefore regarded as inevitable but undesirable. The perception of the problem may, however, have changed over time, as traditional domestic breeds were probably even smaller than they are today, that is before they became partly contaminated with allochthonous genes.

Castration

All breeders were consistent in claiming that castration is practised on all males (and in one case also females) not used for reproduction, and the practice is safe, with no casualties or infections ever recorded. The age of castration varied, ranging from 1 month to 1 year of age.

Litters

There is no specific birth season in Sardinia and Corsica, as pigs can be born at any time, though in Corsica a preference for the early autumn was mentioned. Most pigs, including those of the traditional Corsican breed, produce two litters per year, though one of the Sardinian breeders mentioned the possibility of treble farrowing. Most pigs, but not those kept in completely free-range conditions, give birth in a sty. This is mainly aimed at protecting the piglets from fox predation, a concern mentioned by all pig breeders.

Purchase

When small herds are kept, inbreeding is an issue and several breeders mentioned the need to buy the occasional animal to increase the genetic diversity of the herd.

Slaughter

The breeders unanimously agreed that the best slaughtering season is the winter, before the food shortage of woodland products. However, the age at slaughter seems to be extremely variable. In Sardinia it seems to be common practice to slaughter pigs when they are well into their third year, and females even when they are 4 or 5 years old. In Corsica pigs are generally killed at a younger age, when they are 1 or 2 years old. The age at slaughter is, however, connected with the speed of growth. For instance, the breeder from Orone kills his enclosed pigs at 1 year of age, whereas those living in the mountains, with their inferior diet and growth rate, are slaughtered when they are at least 2 years old. It is difficult to account for the reasons for the difference in kill-off patterns between the two islands, but it may relate somehow to the use of meat. In Corsica pig meat is almost entirely processed to make ham and salami (*charcuterie*), but in Sardinia there is a preference for fresh meat.

Movements

All Corsican breeders and one of the Sardinians keep at least one herd in completely free-range conditions, so that the animals can roam freely in an area up to 50 hectares; those enclosed live in areas ranging between 1 and 30 hectares. When trespass occurs the animals tend to go back and losses are rarely recorded. Males tend to roam in a larger area, and more movements occur in summer (presumably because less food is available, and this must be sought in a larger territory). Some of the free-range herds spend the day as well as the night in the scrub. Others, including all those that are enclosed, return to the sty for the night, particularly in winter. During the day the pigs tend to stay as close as possible to water sources.

Control

It is not possible to draw a clear distinction between free-range and enclosed pigs, as some of the latter (as in the case of the Sardinian breeder from Scupetu) live in an area that is almost as large as their maximum home-range. The labour involved is minimal as both free-range and enclosed pigs

Fig. 16.10. The Bavella mountains in Corsica, where pigs of the traditional breed survive with almost no support (photo UA 2000)

are sufficiently independent and need to be fed at most once a day. Castration and slaughter are the only other human activities involved. The two herds of the Corsican breeder from Orone represent the two extremes of the typical levels of control found in traditional husbandry. The herd kept near the village lives in small woodland of 1 hectare, while the other lives in rather impenetrable mountainous country (Fig. 16.10), and hardly requires any labour or control. This breeder only visits his pigs two or three times a year, but—remarkably—has no problems in making himself familiar to the animals, which immediately recognize his call. Only the small and sturdy traditional Corsican breed can live in the tough conditions occurring in the mountains; other pigs would die within weeks. This double system of husbandry practised by this breeder was already recognized by the geographer della Marmora (1839: 154) in early 19th century Sardinia. Della Marmora distinguishes the '*porco indomito*' (literally 'indomitable pig') from the '*porco manso*' (tame pig). About the former he writes that

e' tenuto in campagna, dove si nutre di radici, grani e di rettili per una parte dell'anno; poi ingrassa prodigiosamente quando ottobre gli offre abbondanti banchetti nelle foreste di querce dell'interno. Rientrato allora . . . allo stato primitivo di natura, prende non solo le abitudini e l'aspetto dei cinghiali, con i quali si mescola di sovente, ma la sua carne acquista un gusto che si cercherebbe invano in quella dei porci allevati continuamente allo

stato domestico (it is kept in the countryside where it feeds on roots, grains, and reptiles for part of the year; then it fattens prodigiously when in October it is offered abundant meals in the oak forests of the interior. Returned then . . . to its primitive natural state, not only does it assume the behaviour and appearance of wild boars, with which it often mixes, but its meat acquires a taste that would be sought in vain in pigs that are constantly kept in a domestic state).

Capture

For animals living in enclosed environments this is obviously not a problem, as they can easily be attracted by food or they just respond to the call of the swineherd. Those that are free-range also respond to the call for food but, being less tame, they may need to be driven into an enclosure. In Corsica we have seen several remains of stonewall enclosures that could have had such a function (Fig. 16.11). One of the Corsican breeders, however, shoots his animals. He claims that killing the pigs in this way makes the meat taste better. Another breeder, also working in the Alta Rocca, claimed exactly the opposite. In Levie in the 1980s, one of us (JDV) observed that some breeders trained dogs to catch and immobilize the pigs for slaughter, by biting their ears. This use may be related to the strategy adopted in this area to kill the pigs

Fig. 16.11. Abandoned enclosure in the Levie area (Corsica), which was probably used for pigs (photo UA 2000)

by piercing their heart, which causes an internal haemorrhage (Vigne & Marinval-Vigne 1992).

Diet

All pigs in Sardinia and Corsica are broadly self-sufficient in their procurement of food, particularly in late autumn and winter when they can rely on the products of the woodland—acorns and chestnuts. Outside this season the natural diet consists of grass, roots, berries, worms, and reptiles, to which is added feed provided by the swineherds mainly consisting of barley, corn, food scraps, and occasionally bran, maize, and legumes.

Weight

This of course depends on the breed; in relatively improved animals found in Sardinia it can reach as much as 300 kg. The maximum figures for the traditional breed range between 80 and 150 kg in Sardinia and 70 and 120 kg in Corsica. The Corsican pigs owned by one of the Levie breeders (Fondansaes) were said to be able to reach 150 kg if kept enclosed and well fed. The purity of this herd must, however, be questioned as this breeder claims to borrow a boar for reproduction from a colleague (Ricci), whom we also interviewed, and who has English pigs. The pigs kept by the Orone breeder in the Bavella Mountains are slaughtered at 80 kg, and apparently they cannot grow beyond 90 kg even if fed in the best possible conditions (cf. Quittet & Zert 1971). It therefore seems that the weight of the animals is determined by a combination of nutritional rates, environmental conditions, and genetics. The effect of the environment should not be underestimated, as dwarf pigs living in the Aegean island of Tilos were proved to be able to grow to a much greater weight when kept under controlled diet and conditions in an experimental agricultural station in Italy (Masseti 2002: 251).

Damage

Pigs can cause damage to crops and gardens by rooting, but this seems to be a relatively minor concern in Sardinia and Corsica; in some cases this is because the enclosed territory, however large, does not include any agricultural land. All Corsican breeders and one from Sardinia mentioned the insertion of an iron wire (but we have also seen rings) in the pig snout (Fig. 16.12) as an easy device to avoid rooting activity in pigs. One of the breeders from Levie mentioned that, once the iron has been applied, a pig 'grazes like a sheep'.

Fig. 16.12. Pig snout with the typical iron wire inserted to avoid rooting damage, from Bavella (Corsica) (photo UA 2000)

This practice was recorded in 16th century England (Wiseman 2000: 40) and probably still survives in areas where pigs can roam freely.

Products

Meat is by far the main product of the pig. In Corsica it is almost invariably processed to make *charcuterie*. Lard is also much used, and one of the breeders mentioned the use of bones to make jelly. Most of the meat is produced for family and private use, though the sale of the occasional piglet was mentioned by a breeder from Levie. The sale of *charcuterie* has significantly increased in Corsica with the development of tourist activities.

CONCLUSIONS

A great diversity of husbandry strategies is practised in Sardinia and Corsica. Many of these concern adaptation to specific climatic, environmental, and cultural conditions occurring on the two islands, and we should therefore be wary of using them as a model to apply to other societies, periods and parts of the world. Yet there are elements that provide useful insights into the type of challenges that pig breeders must have faced in a variety of situations in the past.

It is therefore worth highlighting what lessons we have learnt about traditional pig husbandry that may address archaeological questions. The first point to make is that zooarchaeologists may sometimes be too keen to make a clear distinction between the management of domestic and wild resources. This hardly seems to be applicable to all areas and situations. In Sardinia and Corsica not only is there a biological continuum between the two *Sus* forms, but also husbandry practices are geared towards a combined management of wild boar and domestic pigs, whose interbreeding is in some cases regarded as an opportunity, but more often as a nuisance.

There are several cases known in the archaeological literature in which it has been difficult to determine whether *Sus* had been hunted or reared. At the Turkish early Neolithic sites of Çayönü and Hallan Çemi, among the earliest to provide some evidence of impending pig domestication, there seems to be a gradual transition towards a domestic state that implies the occurrence of a number of other intermediate practices which cannot easily be classified as predation or husbandry (Hongo & Meadow 1988; Redding & Rosenberg 1988; Ervynck *et al.* 2001; Horwitz *et al.* 2004). These questions do not only apply to the onset of the domestication process, as similar dilemmas have also been raised concerning the status of early Neolithic *Sus* in France (Helmer 1992) and mid-Neolithic *Sus* in northern Italy (Jarman 1976; Rowley-Conwy 1997; Albarella, Tagliacozzo *et al.* 2006). To try solving the problem by introducing the possible existence of a third biological status placed somewhere in between the wild boar and the domestic pig would only mean moving from one simplistic explanation to another. Our study of modern Sardinian and Corsican pig husbandry indicates that the emphasis in our explanations must be on *management* rather than *biological status*, as the second is by and large the product of the first. In these two islands wild and domestic, local and imported, enclosed and free-range pigs all play a role in shaping a rather complex and dynamic economic system, which is difficult to place in predetermined categories.

Our study also draws attention to the difficulties related to attempts to assess seasonality from the study of *Sus* archaeological remains. In Sardinia and Corsica even the traditional fully unimproved breeds can give birth twice a year, and the litters can be born at virtually any time of the year, with the possible exception of the summer. This is probably a consequence of the mild Mediterranean climate that provides the opportunity for survival even to animals born at the beginning of the winter, and we must therefore be careful not to extend these conclusions to animals living in more rigid climatic conditions, where harsh winters can limit the flexibility of the birth season. Nevertheless, caution must be exercised when we assume spring births in view of the attempted detection of seasonal activities; in domestic pigs the picture can be more complex.

Slaughtering follows a more regular seasonal pattern, partly as a result of the seasonality of village activities, but also, as emphasized by Molenat & Casabianca (1979), as a consequence of the accumulation of fat occurring in the season of greatest food abundance (i.e. the autumn). This could explain why many archaeological kill-off profiles in the Mediterranean area show a clear seasonal pattern (Vigne 1998).

Much has been made of the potential incompatibility of free-range pig husbandry and agricultural activities, to the extent that this has been regarded as one of the issues affecting the shape of early farming societies (cf. Redding & Rosenberg 1998). The Corsican and Sardinian herders, whose pigs can roam as freely as is potentially possible for these animals, do not, however, perceive this as a major problem. One reason could be that both islands have a long tradition of greater reliance on livestock than on crops, which does not necessarily apply to other parts of the world. Yet it seems that a simple device, such as the use of an iron wire or ring in the pig's snout, makes these animals no more harmful to cultivated crops than sheep. It seems unlikely that early societies, even those which did not possess metals, could not think of similar strategies to avoid pig damage. It is certainly true that grazing—and not just rooting—can also cause damage, but if pigs could only graze they would be relieved of their specificity, as they could do no more damage than any other domestic livestock.

Finally, it is worth mentioning again that the two islands are currently undergoing a phase of rapid transition, which makes them ideal laboratories for the study of economic change. Much of the reasoning of modern Sardinian

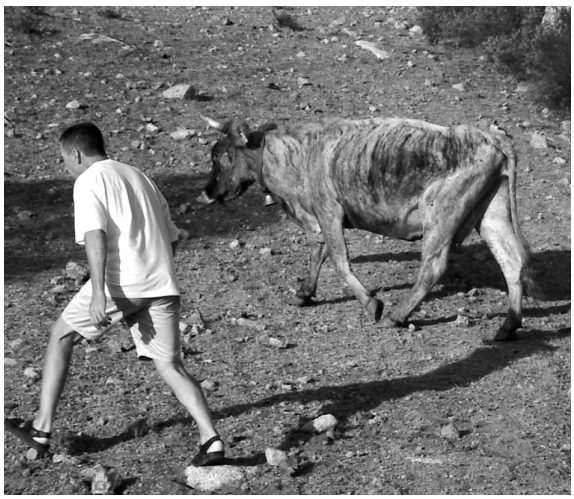

Fig. 16.13. Small cattle of the traditional Corsican breed from Perfugas (Sardinia) (photo FM 2003)

and Corsican breeders echoes the questions and dilemmas of livestock producers at the onset of the 16th and 17th centuries in central and northern Europe (cf. Albarella & Davis 1996; Davis 1997; Davis & Beckett 1999). Traditional practices and unimproved breeds are gradually disappearing, as breeders face the increasing demands of market forces. This applies not only to pigs but also to cattle, which in Sardinia and Corsica (Vigne 1988) are characterized by a small and rather coarse breed that is becoming increasingly rare (Fig. 16.13). The local unimproved breeds do not seem to be particularly productive, but they have distinct advantages deriving from centuries of adaptation to the local environment. They are sturdy, resilient and immune to most local diseases and, as we have seen in the case of the 'indomitable' pigs of the Bavella mountains, able to care for themselves. The main dilemma of the Sardinian and Corsican breeders is whether to carry on with their low-impact, environmentally sustainable, but also relatively unprofitable systems of husbandry, or to revert to more demanding, intensive but rapidly lucrative practices. The latter choice could lead to the disappearance of endemic breeds, traditional activities, and landscapes, and with them probably the whole infrastructure of Sardinian and Corsican economy and proud independence from international market forces. We can only wonder how many times herders of the past must have faced similar dilemmas.

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