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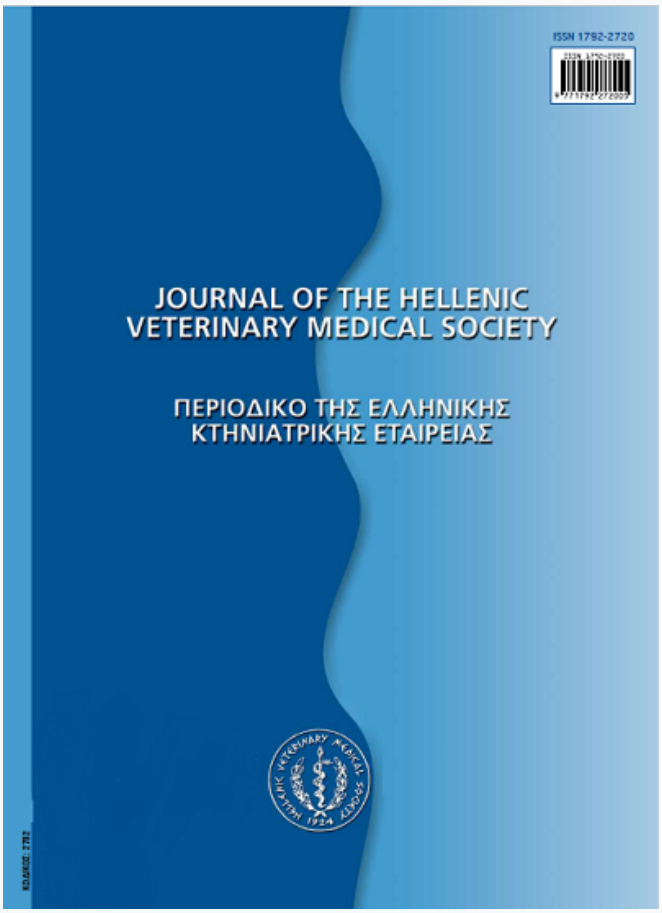

The status of Donkeys (Equus asinus) in Greece

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The status of Donkeys (*Equus asinus*) in Greece

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Η κατάσταση των όνων (*Equus asinus*) στην Ελλάδα

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ABSTRACT. The paper presents, for the first time, information about donkeys (*Equus asinus*) in Greece. Most of the information was obtained from interviews of donkey owners, using a purpose built questionnaire. The population of donkeys in Greece showed a remarkable decrease over the last decades. From 508,000 in 1955, there were only 14,570 in 2008, a decrease of 97%. The existing donkeys were characterised by a large diversity in phenotypes. The lack of any breeding programme for donkeys, the importation of jacks from foreign breeds, the loss of interest and under-appreciation, together with the ignorance of health and welfare needs of such animals were the main reasons that shaped the current status. The health and welfare status of donkeys differed enormously across different areas of Greece, reflecting differences in the cultural, economical and "emotional" importance of individual animals. It was revealed that many problems were associated with diseases originating in malnutrition, parasites and bad husbandry management. Moreover, current and future trends, resulting from social and economical developments in rural areas of Greece, are discussed. Given the trends currently affecting the status of donkeys in Greece we concluded that a conservation policy should be adopted, because the number of donkeys will continue to fall.

Keywords: donkeys, Greece, status, management

ΠΕΡΙΛΗΨΗ. Στην εργασία παρουσιάζονται, για πρώτη φορά, στοιχεία σχετικά με τους εκτρεφόμενους όνους (*Equus asinus*) στην Ελλάδα. Η συλλογή των στοιχείων έγινε με τη βοήθεια ειδικά σχεδιασμένου ερωτηματολογίου και προσωπικές συνεντεύξεις με ιδιοκτήτες όνων. Διαπιστώθηκε, ότι ο πληθυσμός των όνων στην Ελλάδα παρουσίασε σημαντική μείωση κατά τις τελευταίες δεκαετίες. Από 508.000 το 1955, υπήρχαν μόνο 14.570 όνοι το 2008, μείωση κατά 97%. Στα ζώα που εξετάστηκαν διαπιστώθηκε σημαντική παραλλακτικότητα στα φαινοτυπικά τους χαρακτηριστικά. Οι κυριότεροι λόγοι που διαμόρφωσαν τη σημερινή κατάσταση ήταν η ανυπαρξία οργανωμένου προγράμματος αναπαραγωγής για τους εγχώριους όνους σε συνδυασμό με την ανεξέλεγκτη εισαγωγή αρσενικών γεννητόρων. Επιπλέον, σημαντικό ρόλο έπαιξε και η υποβάθμιση της αξίας των εγχώριων όνων, αλλά και η άγνοια βασικών αρχών υγιεινής και ορθής εκτροφής τους. Η υγεία και η ευζωία των όνων διέφεραν σημαντικά μεταξύ των διαφόρων περιοχών της Ελλάδας, γεγονός που αντικατοπτρίζει τις υφιστάμενες διαφορές σε πολιτιστικό

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και οικονομικό επίπεδο. Η "συναισθηματική" αξία των όνων για τους ιδιοκτήτες τους ήταν σημαντική, ενώ αναφέρθηκαν προβλήματα που σχετίζονταν με υποσιτισμό, παράσιτα και κακομεταχείριση των ζώων. Λαμβάνοντας υπ' όψιν τις τρέχουσες και τις μελλοντικές τάσεις που προκύπτουν από τις κοινωνικές και οικονομικές εξελίξεις στις αγροτικές περιοχές της Ελλάδας, καταλήξαμε στο συμπέρασμα ότι οι εγχώριοι όνοι θα πρέπει να μελετηθούν και να διατηρηθούν για λόγους επιστημονικούς, εθνικούς και κοινωνικούς.

Λέξεις ευρετηρίασης: όνοι, Ελλάδα, μεταχείριση

Introduction

Donkeys, as well as mules and horses, have traditionally been part of agricultural systems in Greece providing an essential transport, pack and draught resource as working animals. They played a major role in the evolution of Greek agriculture, which is evident in the development of animal husbandry in Greece. However, their contribution to the rural economy has generally been ignored. The introduction of mechanization in agriculture minimized the need for equines and resulted in their under-appreciation between working rural communities. It was only a small number of animals that were somehow excluded from such treatment due to the fact that they were considered as companion animals, whose emotional value is significantly higher than their actual economic value.

Human relationships or interactions with equines have varied in the course of history according to human needs (Kaushik 1999). In Greece, as in the rest of the world, from a historical point of view, the horse was retained as a noble animal with mules and donkeys serving as draught animals and beasts of burden. Of course, there are still people in rural areas that are using equines in agriculture, for instance pulling ploughs and transportation of goods, but this happens less and less often. The evidence in the literature suggests that donkeys have been subject to bad management under harsh conditions and there is an increasing awareness about their health and welfare (Pritchard et al. 2005). On the other hand, there is evidence suggesting that the donkey can be used in research for important horse diseases, such as equine infectious anaemia (Cook et al. 2001).

The current paper presents information about equines and, in particular, donkeys in Greece. Most of the information was obtained from interviews of donkey owners, using a purpose built questionnaire, in the course of a collaborative project with the 'Universite Joseph Fourier' of France researching the «Genetics of domestic cattle, Horses and Donkeys from Mediterranean countries». To our knowledge, there have not been any previous studies on donkeys in Greece. Hence, our aim here was to assess the status of donkeys (*Equus asinus*).

Materials and methods

A total of 37 donkey owners were interviewed using a purpose build questionnaire. Data collection started in 2002 and, over those years, we undertook pre-scheduled visits in different parts of Peloponnisos, Thessaly, Macedonia and Thrace. In the course of each visit, we interviewed the donkey owners asking questions about the available facilities, usage of donkeys, nutrition, management practices, as well as provision of veterinary care. Each individual animal was assessed (according to the method of Pearson and Quassat 1996). Thereafter, a composite hair sample from the mane and the tail, as well as a blood sample from the jugular vein and a faecal sample, directly from the rectum, were obtained for further analyses. As mentioned above, the objective of this study was to assess the status of donkeys in Greece. Hence, we used the data of the questionnaires to obtain descriptive statistics. Here, we provide concise information about major issues of donkeys in Greece. The research is continued by including more donkeys in the study, as well as proceeding with the analysis of hair, blood and faecal samples. Hopefully, those data will be the subject of a future publication.

Results and discussion

1. Donkeys and other equines in Greece

A total of 154 donkeys were included in the study. The majority of them (78.6%) were females (121 jennies vs. 33 jacks). Donkey numbers in Greece, compared to other equines, such as horses and mules,

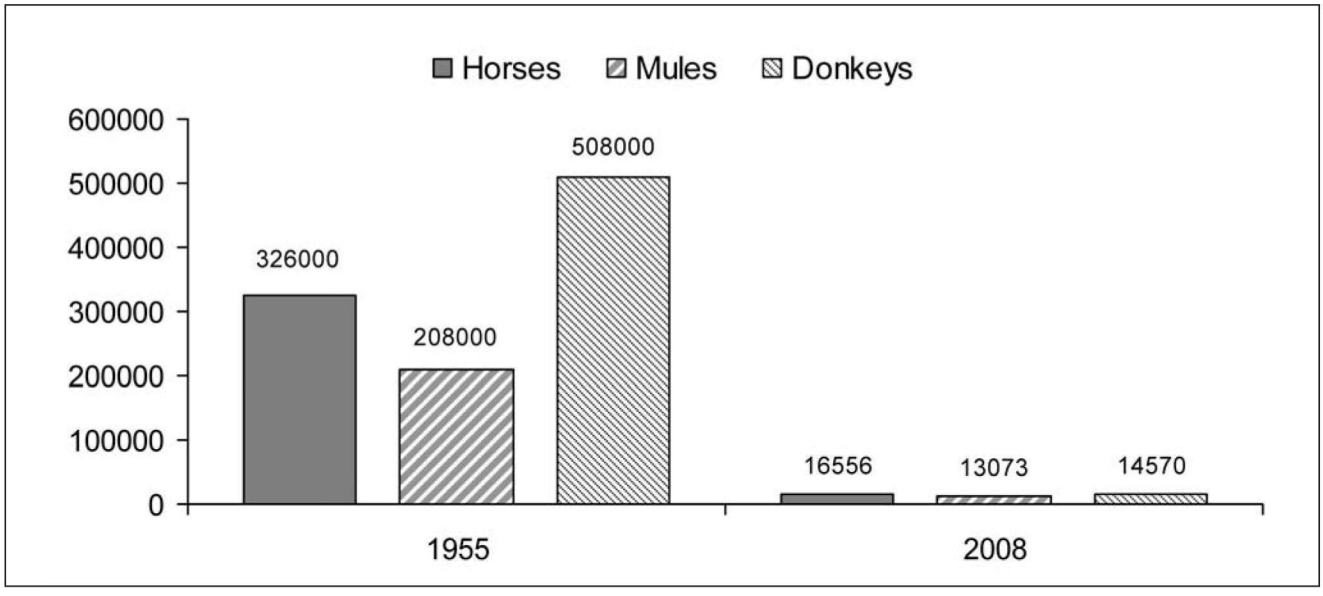

Figure 1. Number of equines in Greece between 1955 and 2008 (Source: Greek Ministry of Agricultural Development and Food, 2008).

are shown in Figure 1. Figure 1 shows the differences in the numbers of horses, mules and donkeys in Greece between 1955 and 2008. It should be noted, however, that during our research, we found that estimates of numbers of equines in Greece have varied between sources. For example, according to the official FAO statistics, the population of donkeys in Greece is estimated to be about 50,000 animals (FAOSTAT, 2008). But such numbers are unrealistic because, according to the data obtained from each prefecture, as well as the data from the Hellenic Ministry of Rural Development and Food (2008), the actual number of donkeys in Greece is just 14,570 animals allocated at different areas of the country as described in Table 1.

As it is shown in Figure 1, over the last decades the population of donkeys in Greece has decreased dramatically. From 508,000 animals in 1955, there were only 14,570 animals in 2008; a decrease of about 97%. The latter is clearly depicted in Figure 2, which shows the gradual decline of donkey population in Greece over the last 60 years, a trend that has not yet ended (Hellenic Ministry of Rural Development and Food 2008). Such trend has led us to believe that there is an urgent need of protection, preservation and perpetuation of the indigenous Greek donkeys.

Table 1. Donkey numbers in different areas of Greece in 2008

Area of Greece	Number of donkeys
Thrace	852
Macedonia	1,725
Thessaly	801
Epirus	1,138
Sterea Ellada (including Attiki)	1,921
Peloponissos	4,436
Islands of the Aegean sea	1,735
Crete	1,676
Islands of the Ionian sea	286
Total	14,570

2. Breeds of donkeys

The notion regarding donkeys is that a decision as to whether individual animals of a population are the result of crossbreeding or inbreeding cannot be based just on phenotypic traits, since it is restricted by their phenotypic diversity. There is abundant evidence in the literature which suggests that there is large variability in genetic and phenotypic characteristics of donkeys (Eley and French 1993: Pearson and Quassat 1996; Jordana et al. 1999; Aranguren-Mendez et al. 2001; Rossel et al. 2008; Zabek 2008).

However, there is not such information concerning the genetic structure and variation among Greek

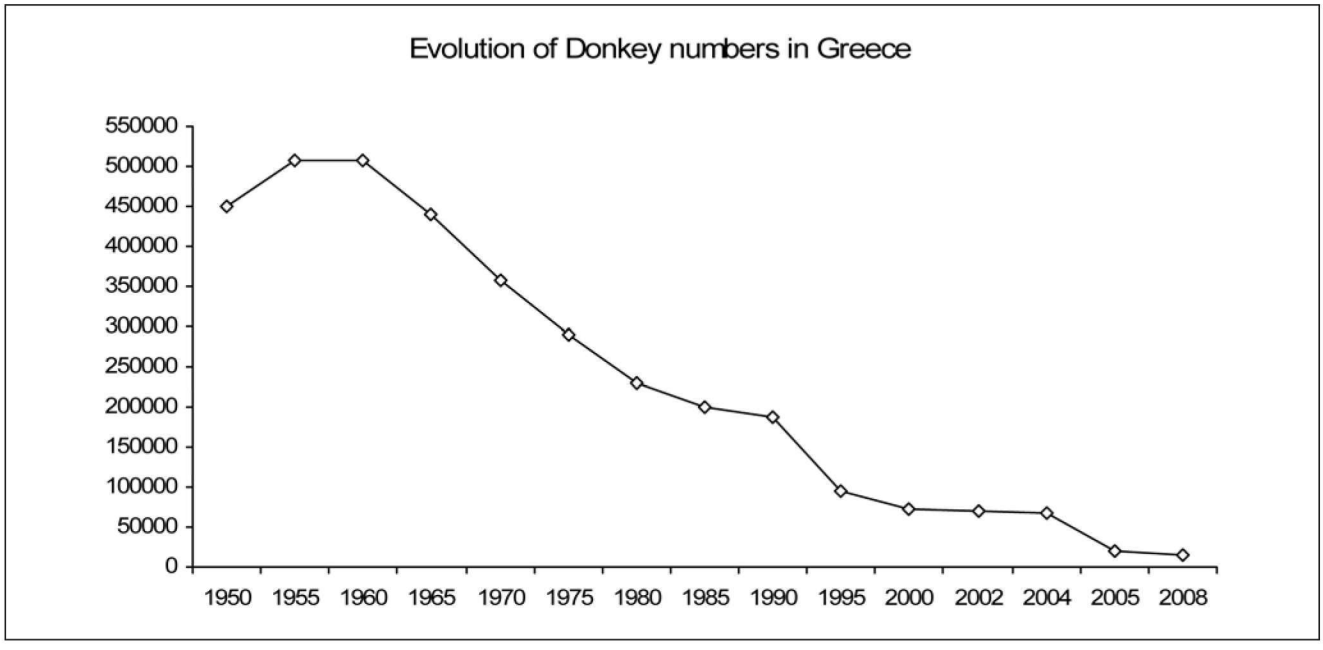

Figure 2. Evolution of donkey numbers in Greece over the last sixty years.

donkeys. The common practice in any breeding programme for donkeys was the importation of jacks from foreign breeds, imported from Cyprus, Sicily and France (Poitou). Such practice led to numerous crosses of donkeys (Arsenos and Papadopoulos 2005). Donkeys were, also, used for the production of mules, but the Institutes of Artificial Insemination in Thessaloniki, Athens and Ioannina (natural mating), where imported jacks were kept as part of national programmes for genetic improvement of local breeds, stopped such activities in the mid 70's. Subsequently, there has been a remarkable stagnation in donkey reproduction, which is reflected in the evolution of donkey numbers described earlier in Figure 2.

On the basis of their phenotypic traits, the donkeys reared in Greece today are characterised by a large diversity in phenotypes, as well as significant variation in other morphological characteristics, with body height ranging from 80 cm up to 150 cm and body weight from 90 kg up to 180 kg. In our study, the average heart girth of the examined donkeys was 111.43 cm and the average height was 107.34 cm. According to Karantounias (1968), the prevalent colours are light colours (such as grey and grulla), but the bay or bay-brown are, also, common). Those were, also, the dominant colours of the donkeys included in our study (Figure 3). In most cases, there is a line of dark hair along the back crossed with a similar one on withers.

Considering that the available data on body weight, height, heart girth, live weight, markings or any other phenotypic characteristic of indigenous Greek donkeys are scarce, it was very difficult to distinguish a "breed" of indigenous donkeys in Greece. Amongst the examined donkeys, we encountered less than 5% of animals that shared distinctive morphological characteristics of the Arcadian donkey. The Arcadian donkey originates from the Arcadia region in Peloponissos, where there has been a tradition of keeping donkeys. The Messinia prefecture hosts the largest number of donkeys (1,338 animals), whereas in the whole region of Peloponissos, there are 4,436 donkeys (about 30.0% of the total population in Greece). The Arcadian donkey is one of the most important indigenous donkey breeds. It is medium in size with body height ranging from 95 cm up to 120 cm and body weight from 90 kg up to 120 kg. Figure 4 shows a donkey which is believed to be a representative animal of the Arcadian breed. However, the aforementioned practice of using foreign jacks in breeding practices, together with the decline in donkey population, has resulted in the survival of a very small number of animals that share common characteristics and could be considered as a true breed. Therefore, studies of population, phenotypic variation and genetic structure of donkeys seem absolutely necessary.

Figure 3. Examples of the large variability of phenotypic characteristics amongst donkeys in Greece.

3. Donkey ownership and husbandry

A significant part of information regarding donkey ownership, as well as donkey management, was obtained from the questionnaires used. The results suggest that the donkey is an animal which does not seem to fit with today's cultural beliefs of modern Greeks. The latter is illustrated in donkey ownership, where the average age is above 60 years old (Figure 5). The majority of owners were males (34 males vs. 3 females).

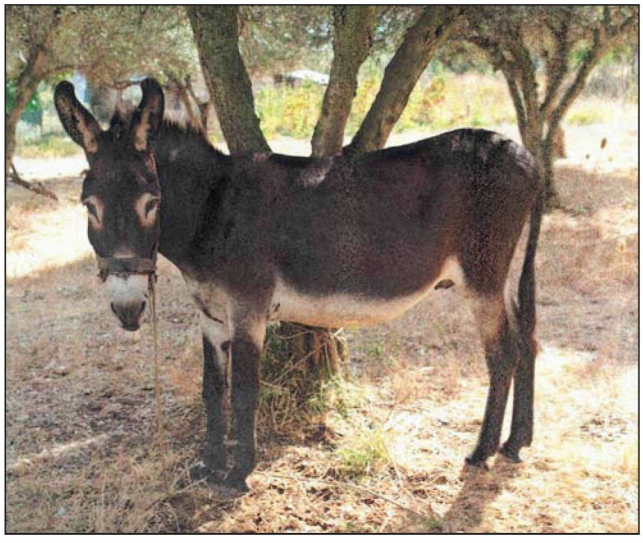

Figure 4. A characteristic jack of the indigenous Greek Arcadian Donkey.

The social and economic developments during the last decades changed the role of donkeys dramatically and their management varies significantly according to the type of ownership. The donkey has evolved from draught and pack animal in small agricultural holdings into companion animal with a spectrum of uses, such as leisure, recreation and companionship. Nowadays, donkey use and management reflect the culture and activities that are characteristic of a given geographical region. Most owners have just one donkey to cover transport needs of goods and themselves and, in general, those animals are in good condition. One important outcome of our research was the fact that the interest in donkeys over the last three years increased significantly due to their potential for milk production. Three farmers that owned more that 20 donkeys were milking them in an attempt to cater the needs of an emerging market for donkey milk products.

In some parts of Greece, particularly in mountainous areas and the islands, the donkey still holds an important position in the rural economy. In the islands, it is mainly used for touristy and recreational purposes. Owners that are involved in agritourism enterprises in the mainland Greece, as well as those in islands, usually keep more donkeys to accommodate the needs of tourists' transport. The notion is that the conditions under which these animals are kept and managed are not very satisfactory. Hardly any research has been done about the latter aspects in Greece, but, in general, there is a dearth of available data world-

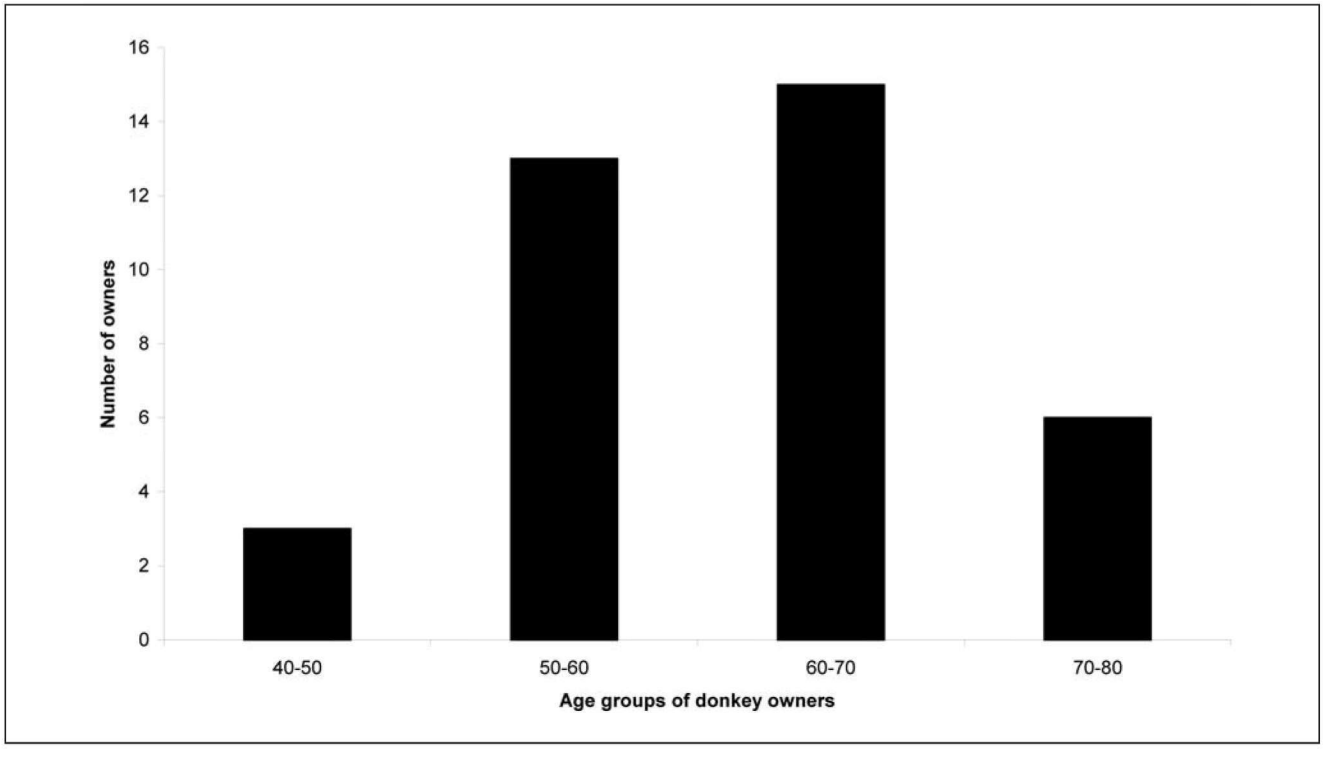

Figure 5. Allocation of donkey owners according to their age.

wide (Kaushik 1999).

Regardless of the type of donkey use, there are three different aspects that can be distinguished in each region of Greece. These are related to feeding, husbandry management and veterinary care. Feeding and husbandry practices differ enormously across different areas, reflecting differences in the cultural, economical and "emotional" importance of individual animals for their owners. The feeding practices employed by the interviewed donkey owners ranged from feeding traditional home cereal-based mixes to manufactured feed. Incorrect feeding was most often observed, whereas the common diet included mainly roughage (alfalfa hay and barley straw) plus small amounts of grain (oats and barley) or compound feed. Malnutrition was found only in four cases (2.6%). The type of the diet varied according to the type of ownership and there were seasonal variations in the feeding practices associated with the weather conditions and the availability of pasture. Some owners, particularly those running a donkey farm, devoted a lot of resources to their donkeys and it was the style of ownership that dictated the spending patterns (e.g. on veterinary care, shoeing etc). Donkeys used in agritourism enterprises, as well as those used by farmers as pack animals, were usually fed insufficiently, mainly due to the lack of professional advice regarding the nutrient requirements of donkeys, although such information is available in the existing literature (Ram et al. 2004; Svendsen et al. 2008).

4. Health and welfare of donkeys

The prevailing view is that donkey health and welfare should satisfy the basic five freedoms (Leeb et al. 2003, Pritcard et al. 2005). One aspect regarding the implementation of those five freedoms that remains very uncertain is that relating to resources in Greece. Virtually, very little information is available on the epidemiology of any donkey disease in Greece. Our research showed that many problems were associated with diseases originating in incorrect feeding, parasites and bad husbandry management. There is currently no central policy and available funding to support the wide range of necessary activities, such as education of owners and initiation of monitoring and epidemiological studies. Social attachment is important for donkeys, and since most donkeys live in some kind of social relationship with humans, it is important to look at specific aspects of donkey husbandry that influence the development of such relationship. The evidence in the literature suggests that a broad term for any human interaction with donkeys is associated with a spectrum of actions, from grooming and feeding to shoeing and actual physical training (Kaushik 1999, Leeb et al. 2003). In the course of our work, most of the donkeys we have encountered in Greece had foot and dental problems, whereas leg-tethering and absence of any vaccination programme raised concerns about their welfare status. Donkeys with limb and hoof deformities, as well as abnormalities of gait, were usually subject to leg-tethering at pasture, a common practice by many donkey owners in Greece. The interviewed owners were ignorant about the health and welfare implications of such practice. It seems that such problems and lack of proper management interventions are, also, common in other countries (Matthee et al. 2002, Leeb et al. 2003).

Based on existing surveys on parasitic diseases of equines in Greece (Kinis et al. 1985, Sotiraki et al. 1997, Papadopoulos et al. 2000) and in other countries of the Mediterranean basin (Bliss et al. 1985), it seems that parasites represent one of the most important causes of disease and reduced welfare. Towards this end, we have performed a preliminary pilot study to investigate the gastrointestinal parasitism of donkeys in Greece. A faecal sample was collected individually from a random number of 44 donkeys. All of the sampled animals included into this pilot survey originated from different parts of Northern Greece. They were adult working animals and none of them was treated recently with an anti-parasitic paste. The faecal samples were tested according to the Teleman's method, the Zinc Sulphate flotation method (MAFF 1986). The number of strongyle eggs per g (EPG) of faeces was calculated using the modified McMaster method (MAFF 1986). Fourteen out of 44 (31.8%) donkeys were infected with strongyle eggs. Additionally, 3 (6.8%) animals were infected with *Anoplocephala perfoliata* eggs. Infected animals carried from 150 to 1500 strongyle EPG of faeces, with an average of 614 EPG. The results are similar to those reported by previous studies. For example, Sotiraki et al. (1997) and Papadopoulos et al. (2000) suggested that strongyles (small and large) in equines in Greece vary from 37.8 to 95.2%. The prevalence is particularly high, since strongyles (larval stages) may cause severe colitis resulting to the animal's death. Other parasites reported by those authors include *Anoplocephala perfoliata,*

Strongyloides westeri (5.4% in donkeys), *Dictyocaulus arnfieldi* (2.7% in donkeys), *Eimeria leuckarti* (8.1% in donkeys), *Setaria equina* (2.7% in donkeys).

Epilogue

In our view, research in donkey welfare, health, nutrition and management has had a very low priority and the present state of knowledge for donkey status is poor. The lack of scientific information with regard to research on donkeys in Greece, but, also, at a European level, was one of the problems we faced while writing this paper. Recently, it appears that some issues such as welfare, genetics, as well as milk production, have again been given priority. Donkeys have become an "attractive" animal for promotion by charities and animal welfare groups, but, also, for potential farmers. Charities try to improve the health and welfare of working donkeys by educating owners and providing healthcare. However, it is clear that more research will be needed in the future.

A European regional description of the number, uses, breeds and strains could provide basic information about the current status and uses of donkeys. Once such information is available, it needs to become available to people interested in it. Such data will form the basis for designing any epidemiological study or conservation programme. Bearing in mind that the vast majority of donkey populations in Europe are allocated in countries of the Mediterranean basin (Portugal, Spain, France, Italy and Greece), which have similar climatic conditions and landscape, it is reasonable to expect that any research data will be valuable at both national and international level. Our experience suggests that even donkey owners are not fully aware of the potential of their animals. Given the trends currently affecting the status of donkeys in Greece, it is concluded that a conservation policy should be adopted, because the number of donkeys will continue to fall.

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