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THE DOMESTIC LIVESTOCK RESOURCES OF TURKEY: SOCIAL ASPECTS, GENETIC RESOURCES AND CONSERVATION OF COMPANION ANIMAL CATS (*FELIS CATUS*)

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ABSTRACT

Located at the boundaries of Europe and Asia, Turkey is home to an extraordinary variety of domestic animal species and breeds that include bees, camels, cats, cattle, dogs, domestic fowl, donkeys, ducks, goats, geese, horses, mules, pigs, rabbits, sheep, silkworms, water buffalo and several species of domestic birds (partridge, pheasant, pigeon and ostrich). In addition to the clearly distinct Angora and Van cat breeds a short-haired nondescript cat breed is found throughout Turkey. As well as private household ownership, Angora cats have been raised at Ankara Zoo which has belonged to the Ministry of Food, Agriculture and Livestock since 1939. The Van cat is raised at the Van Cat Research Centre at Yuzuncu Yil University in Van Province which also has a small clinic for the cats. There is a risk of extinction for the Angora and Van breeds but none for the short-haired nondescript type. This paper reviews social aspects, the genetic resources and conservation status of the native cat breeds of Turkey.

Keywords: Breed, Angora cat, Van cat, Turkish native cat, Genetic resources, Pet animal, Domestic animal.

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The domestic cat is important in the social and cultural environments of Turkey and has been kept as a companion/pet animal for many hundreds of years. Two local cat breeds are valuable additions to the biodiversity of domestic animals. This paper provides the first overview of the cat in Turkey.

1. INTRODUCTION

Some forty species of animal have been domesticated by humans [1, 2]. In part due to its geographical location at the meeting point of Europe and Asia, Turkey is home to almost half of these domesticated animals including include bees, camels, cats, cattle, dogs, domestic fowl, donkeys, ducks, goats, geese, horses, mules, pigs, rabbits, sheep, silkworms, water buffalo and several species of domestic birds (partridge, pheasant, pigeon and ostrich) [3].

The cat has advantages over dogs as a companion (pet) animal. Cats are more independent, demand less attention to their toilet needs, do not have to be taken out for exercise and are satisfied with less external grooming. Cats are not trained as are dogs and are generally less susceptible to disease and injury [4].

Turkish cat breeds have been involved in racism and become victims in racism arguments. According to the Star Newspaper of 31 October 2000, under the heading of “Kurdish Cat”, the Deutscher Tierschutzbund (German Animal Welfare Associations) had no interest in Van cats until they heard a rumour that claimed Turkish soldiers

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were exterminating them in Van Region. The newspaper claimed that “the Van cat was of interest to the Germans because it was raised in Kurdish area but the Angora cat did not arouse the same interest because it was not in a Kurdish area” [5].

The cat is one of the commonest figures as both stereotype and identity in Turkish folklore and myths [6]. Cats are also seen in many books and films as art or literature material [7-9]. During the 1990s when Turkey's capital Ankara was searching for a city emblem the Angora cat was a favourite candidate [10]. A study in Switzerland to identify the perpetrators of physical attack or robberies showed that the hairs of the Angora cat (together with other cats and dogs) could be used in forensic investigations [11].

This paper reviews cat production, cat genetic resources and cat conservation activities in Turkey.

2. DOMESTICATION AND HISTORY

As all domestic cats, Turkish cats are descended from the African wildcat (*Felis silvestris lybiaca*). The Fertile Crescent was a place where cats were first domesticated. Some archaeological remains show that cats were captured and attempts made to domesticate them by Predynastic Egyptians [12]. A genetic study has shown that the Angora cat is closely related to the Egyptian Mau and to Tunisian cats whereas the Van cat is more closely related to Israeli cats [13]. The small range of chromosome numbers – 36 or 38 – in the Felidae compared to 38 to 78 among the Canidae shows that cats have not evolved to the same extent as dogs [14]. Travelling between 1614 and 1626, the Italian Pietro Della Valle, drew attention to the Angora cat in Ankara. He noted the long hairs especially around the neck and tail and likened their tails to those of squirrels [15]. Princess Belgiojoso who visited Ankara in 1858 noted that Angora cats did not produce items for human consumption like goats but remarked that they were so beautiful, had different eye colours and had white long hair but some were deaf: they were not renowned as good hunters and spent their time being lazy inside the house [16]. An account in the Kölnische Zeitung Newspaper about the city of Gumushane in the nineteenth century noted that Angora cats were white, grey, yellow or of mixed colours and were very beautiful [17]. Cats from the eastern mountainous regions of Anatolia developed into long-haired breeds such as the Angora and the Van through natural selection and directed (in-)breeding. Long-haired cats were imported to parts of Europe as early as the 14th century by soldiers returning from the Crusades. They reached Britain and France from Asia Minor, Persia and Russia as early as the late 16th century. The Turkish Angora was recognized as a distinct breed in Europe by the 17th century. The Turkish Angora was used, almost to the point of extinction, to improve the coat of the Persian. Some cat associations consider the Persian to be a natural breed but Persians were developed from Turkish Angora mutations by British and American cat fanciers and in the 19th century Persians and Angoras were identical [18].

3. GENETIC RESOURCES

3.1. Overview

In a study comprising 1040 cats of 38 breeds including 17 Turkish Angora and 28 Turkish Van cats it was shown that both were closely related to the Russian Blue. They also had affinities with the British Shorthair/Scottish Fold and Sphynx/Devon Rex [19]. Another study showed Turkish Angora, Turkish Van and Persian differed from Siamese and Bombay cats. This study also indicated that Turkish Angora and Van cats had the PGD, ME and ESD loci but, unlike some other cat breeds, did not have enzyme loci CA 1, SOD, GPI and GOT [20]. An academic study investigated the genetic structure of various cat breeds through the use of microsatellites. The results indicated that the Van had very high levels of heterozygosity. Factorial Correspondence Analysis showed that Turkish Angora and Van cats were different breeds and were statistically different from Siamese and Persian cats [4].

Haematological characteristics analysed in Van cats showed Red Blood Cell counts as 7.8×10^6 , White Blood Cell counts as 5.6×10^3 and blood platelets as 1.16×10^5 . Mean values of haemoglobin concentration were 12.5 g/dl

and haematocrit was 43.94%. Mean Corpuscular Volume was 61.37 μ^3 , Mean Corpuscular Haemoglobin was 16.85 pg and Mean Corpuscular Haemoglobin Concentration was 29.04% [21]. The prevalence of blood types A and B was examined in 28 Angora and 85 Van cats. Frequencies of blood type A in Angora cats was 40.0% and in Van cats was 53.6%. Values for blood type B were 60.0% in Angora and 46.4% in Van cats. There was no blood type AB in either breed [22]. In a study of serum elements in Van cats levels of aluminium, barium, copper, manganese and strontium were statistically higher ($p < 0.05$) in male than in female cats but levels of arsenic, boron, cobalt, chromium, gallium, indium, iron, lead, lithium, nickel, selenium, silver, sulphur, vanadium and zinc did not differ between the sexes [23].

The levels of alanine aminotransferase, aspartate aminotransferase, glucose, total cholesterol, total protein, albumin, globulin, calcium, inorganic phosphorus and magnesium were determined in blood serum from Angora and Van cats. Differences between the breeds were significant in mid-gestation for alanine aminotransferase and in late-gestation for globulin and calcium [24].

3.2. Angora Cat (Turkish: Ankara Kedisi)

Angora cats originated in Ankara Province in Central Anatolia. They are known for being easy to train and for a gentle temperament. They have been described as affectionate, intelligent and playful but enjoy peace and quiet [25]. Turkish Angoras were taken to Canada in 1963 and were accepted as a pedigree breed in 1973 by the Cat Fanciers' Association. Until 1978 only white Angoras were recognized but now all North American registers accept the Angora in many colours and patterns. Breeders in Turkey are of the opinion that the cat fancy's fine-boned version of their national breed is unrepresentative of true Turkish cats which are much sturdier. American "Turkish" Angoras may have only a minimal remnant of the original Ankara Zoo DNA and are only "purebred" on paper [26].

A study on 67 Angora cats (33 at Ankara Zoo and 34 in private households) [4] showed average adult male weights of 3.8 kg and adult female weights of 3.4 kg. Litter size was 2.92 with a survival rate to weaning of 73%. In the 33 Zoo cats eye colour was different (dyschromatopsia: Turkish = "tekgöz" or odd-eyed) in 30.3% of animals, amber in 48.5% and blue in 21.2%. Among 34 household cats, dyschromatopsia was observed in 5.9% of animals, amber eyes were seen in 82.3% and blue eyes in 11.8% [4]. Another study showed that percentages of odd-eyed and non-odd-eyed colour were 54% and 46% [27]. Some 46% of all oestrous cycles were in spring and 64% in autumn [27]. Hair care in th Angora is easier than it is for Persian cats due mainly to shorter and fewer hairs [28]. The coat has been described as very fine and silky with a lovely sheen and minimal undercoat [29]. The beautiful hair of the Angora is very famous, with medium-length hairs on the body, longer around the neck and some curly hairs in the ears [4]. Fibre diameter has been shown to be 23.5 μm , hauteur 27.5 mm, barbe 33.1 mm, tenacity 7.55 g/den and elongation 33.8% [27]. The most common coat colour is white but there are also black, blue (Figure 1), chocolate, lilac, red, cream, tabby, grey, bicour and tricolour (white-black-orange) [30].



Figure-1. Blue Tabby Angora

Source: Photograph: Orhan Yilmaz

3.3. Van Cat (Turkish: Van Kedisi)

Van cats, known as “pişik” in the Van region [31] are intelligent and agile. They are talented hunters of mice, lizards, birds and flies and other small insects but do not hunt other household animals or domestic poultry: they will eat melon, water melon and some other fruits. Unlike most domestic cats the Van is a strong swimmer. They prefer human attention and if this is not provided they can become quite wild. When fondled, Vans jump onto a person's lap, slightly bite the hand and then lick it to show love whilst purring all the time. They can be quite jealous of attention by their owners to other cats or infants [31, 32]. When given food the cat twines itself around its owner's legs before it eats: it tests the temperature of its milk or food by means of its foot. It responds to its name at 2-3 months of age. The Van cat is thus not only a utilitarian pest control agent but also a valued household member and a close friend.

Van cats appeared first in England in 1955 where they were known simply as Turkish. A subsequent change to Turkish Van was to avoid confusion with the Turkish Angora. The Turkish Van Cat Club was established in 1983 and is committed to the promotion and welfare of Turkish Van and Vankedisî cats: it holds an annual show. The Van arrived in the USA in 1982. It was accepted into the Cat Fanciers' Association (USA) with a breed standard and championship status in 1994: Vantastix is a non profit organization that aims to further the championship development of the Turkish Van and to provide an association for the common interest of breeders in the USA. There is also a strong fancy in Australia [33].

The head shape is triangular, the body long and the tail long and fluffy. Average adult male weight is 3.6 kg and that of females is 2.9 kg. The oestrous cycle is from February through June and lasts about 10 days [31] although other sources say that 60% of cycles occur in the spring and 40% in autumn [27]. Gestation is about 62 days. After one month of gestation the female does not allow her abdomen to be touched and she starts to search for a quiet and dark place to give birth. Suckling lasts about 50-60 days [31].

Dyschromatopsia occurs in 73% of animals [27]. In the other 27% with both eyes of the same colour they are turquoise, blue or amber. The eyes of neonatal kittens are grey. From about 25 to 40 days the colour gradually assumes its permanent state [31].

The Van cat has long white velvety hair (Figure 2). Although its fur is thick, it usually shivers in cold weather [31, 32]. Fibre diameter has been measured as 25.6 µm, hauteur as 20.1 mm, barbe 23.4 mm, tenacity as 12.1 g/den and elongation as 24.0% [27].



Figure-2. Van cats at the Van Cat Research Centre, Van Yuzuncu Yil University

Source: Photograph: Orhan Yilmaz

3.4. Turkish Native Cat

Little formal study has been made on the Turkish Native cat but it can truly be described as nondescript. It is the ubiquitous household cat of the country, very common and widespread throughout. It receives little attention from its owners. Usually short-haired, it occurs in a wide range of colours and in many mixed colours (Figure 3).



Figure-3. Colour diversity in Turkish Native cats (left to right, top to bottom): bicolour Shorthair Turkish Native; black native cats from Van; heavily pregnant native female; ginger tabby from Istanbul; tabby and white Shorthair Turkish Native; tricolour Shorthair Turkish Native on the prowl

Source: All photographs: Orhan Yilmaz

4. CONSERVATION

Angora and Van cats are native breeds of Turkey. They were given legal status in 1997 when they were registered with the statements TS 12137 and TS 12138 by the Turkish Standards Institution [32, 34, 35]. The short-haired nondescript cat breed found throughout Turkey is not subject to official recognition.

Ankara Zoo, owned by the Ministry of Food, Agriculture and Livestock, has a small department for Angora cats that was established in 1939. There are now some morphological differences between Ankara Zoo Angora cats and Angora cats raised in private households in Ankara [4].

Van Yuzuncu Yil University established the Van Cat Research Centre on its campus. The Research Centre includes a clinic for cats. As of 2006 some 336 cats were registered and treated at the Centre. In the early twenty-first century, Van Yuzuncu Yil University and the Environment Directorate of Van Governorship prepared a Van Cat Project to conserve this breed but the project was not implemented due to financial difficulties [31].

5. CONCLUSIONS

Hundreds of cat breeds around the world are endangered or approaching extinction. The Angora and Van breeds are in danger of extinction but there is no risk for the Turkish Native. Stronger conservation programmes through a public-private partnership need to be established to ensure that the distinctive Angora and Van cats are conserved for future generations.

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