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Aims of The UK Wolf Conservation Trust

- To enhance the conservation, scientific knowledge and public awareness of the environment.
- To stimulate greater interest in Wolves, their food, their habitat and their behaviour.
- To provide opportunities for both ethological research and for people to interact with Wolves.
- To improve the chances of survival of European Wolves in the wild.
- To set up an education programme for schools, conservationists and dog trainers.

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Editorial



Welcome to a special themed edition of Wolf Print, focusing on the Iberian wolf (*Canis lupus signatus*) in Portugal.

Five articles give an insight into how the Iberian wolf has fared historically, and what work is now being done to help secure the wolves' future survival. Livestock guarding dogs (LGDs) are increasingly becoming one of the main methods used to help prevent livestock depredation. Interestingly, this seems to a more accepted practice in countries where wolf populations have never been totally eradicated, and where LGDs are now enjoying a renaissance themselves.

Grupo Lobo is an NGO (non-governmental organisation) working for the conservation of wolves in Portugal by providing scientific research and education, as well as a wolf centre that homes captive wolves. Visit their website for further information. Details can be found on page 6. Our thanks to Grupo Lobo for helping to co-ordinate this special issue of Wolf Print.

Our apologies for Wolves of the World being a much-shortened version in this issue. We wanted to present the different aspects of wolf conservation Portugal, which has led to some space constraints. We have, therefore, only managed to include three reports from France, Switzerland and an interesting little piece from Japan, which we wanted to include following on from the report on wolves in China and Japan in the last issue (No. 19).

It would seem that wolves in Italy should be very wary of crossing political boundaries. Migration into France and Switzerland has led to protests from sheep farmers in both countries, and in turn this has led to wolves being culled following livestock depredation. Dealing with such conflict situations is one of the biggest challenges that wolf conservationists face. The problems have been exacerbated due to farmers in these countries not having had experience of large carnivores preying on their livestock. Animal husbandry has been adapted to this, with sheep being able to roam more freely, with very little protection. This raises lots of issues and challenges for both wolf conservation advocates and opponents. But one thing remains clear. Wolves may be culled to alleviate problems in the short term, but as a protected species they are here to stay.

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Inside this issue...



Status and Conservation of the Iberian Wolf in Portugal



Human Dimensions in Iberian Wolf Management in Portugal



The Wolf in Rural Communities' Culture in the North of Portugal



The Isolated Wolf Population South of the Douro River: Status and action priorities for its recovery



Recovering the use of Livestock Guarding Dogs to Protect the Iberian Wolf in Portugal



Wolves of the World



Status and Conservation of the Iberian Wolf in Portugal

by Francisco Álvares



Figure 1 – Trends in wolf distribution in the Iberian Peninsula (Adapted from Grande del Brio, 1984; Blanco et al., 1990; Petrucci-Fonseca, 1990; ICN, 1997)



Photo: Francisco Álvares

during the breeding season and includes a wolf damage compensation programme. In addition, the Iberian wolf is listed as “Endangered” in the Portuguese Red Data Book.

According to the first national wolf census, conducted in 1994-1996 (ICN, 1997), the Portuguese wolf population occupied an area of 18,000km² which represented about 20% of the original distribution area. At that time, the estimate corresponded to approximately 300 wolves (about 55-60 packs) in Portugal.

A new national wolf census was conducted between 2002 and 2003, and although the results are not fully analysed, it seems that wolf population status and distribution are similar to the ones obtained in the middle 1990s; however, unstable wolf nuclei were

In Portugal there is a subspecies of grey wolf that is endemic to the Iberian Peninsula (Portugal and Spain), the Iberian wolf (*Canis lupus signatus*, Cabrera 1907). This subspecies is slightly smaller than northern wolves. On average, an adult is 140cm from nose to tail tip, is 70-80cm tall and has a weight of 35-55kg.

In the early 20th century, the Iberian wolf occurred in almost the whole area of the Iberian Peninsula. In that period, wolf distribution started to decrease due to human persecution, with wolves disappearing from east to west and from south to north of the Peninsula (Figure 1). Today, Iberian wolves only occupy northwest Iberia and a small isolated area in southern Spain, in Andalucía’s Sierra Morena Oriental (Figure 1). Iberian wolves were still present across Portugal in the 1930s, occurring on coastlands and near Lisbon (Figure 2). However, in the middle 20th century an alarming regression of wolf distribution started to occur mainly due to a ferocious direct persecution and major habitat changes particularly in forest cover and prey availability (Figure 2).

CURRENT STATUS OF IBERIAN WOLF IN PORTUGAL

In Portugal, specific legislation has fully protected wolves since the 1990s. This law forbids wolf capture or killing, habitat destruction and disturbance of wolves, mainly

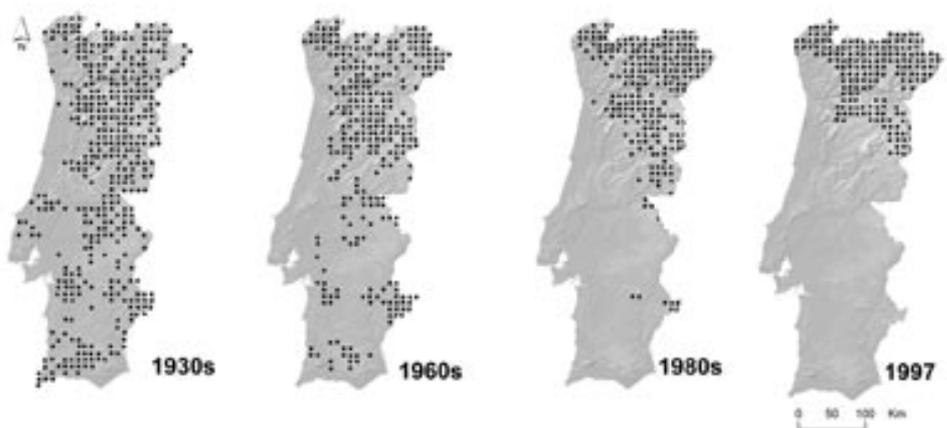


Figure 2 – Trends in wolf distribution in Portugal (Adapted from Petrucci-Fonseca, 1990; ICN, 1997; Petrucci-Fonseca & Álvares, 1997)

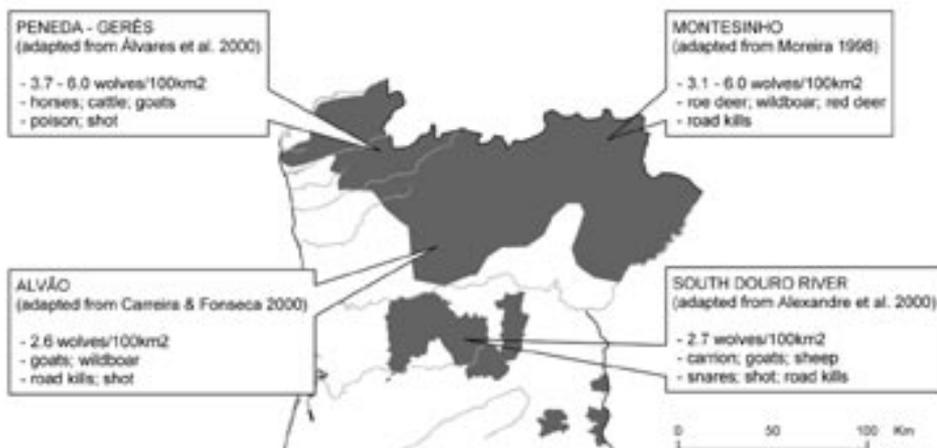


Figure 3 – Ecological features in different regions of the Portuguese wolf population (density, main prey and most frequent non-natural death causes)

localized in some marginal and humanised areas (Grupo Lobo/ICN, unpublished data).

Currently, wolves survive mainly in the mountainous regions of north and central Portugal which have a low human population density and an important agricultural and husbandry industry (Figure 3).

The main and more stable wolf nuclei are located in Peneda-Gerês National Park (NW Portugal), Montesinho Natural Park (NE Portugal) and Alvão Natural Park (central North Portugal). These three wolf nuclei are a regular source of dispersing animals due to their reproductive stability. These regions thus have a strong influence in maintaining wolf packs in the more unstable surrounding areas.

Wolf distribution area in Portugal is not continuous, because there are two populations divided by the Douro river. The population in the north shows stability and is contiguous with the Spanish wolf population, while the small and isolated population in the south, shows a high degree of fragmentation and faces a danger of extinction.

THE ECOLOGICAL DIVERSITY IN PORTUGUESE WOLVES

In spite of the reduced wolf range in Portugal, this carnivore shows a wide ecological diversity, which is a reflection of diverse habitat conditions and wolf high adaptability (Figure 3). In the rough mountains of NW Portugal (Peneda-Gerês National Park), the wolf feeds mainly on free ranging horses and cattle (almost 50% of wolf diet) and on goats (37% of wolf diet), which leads this region to have the highest values of economic damage due to wolf predation in Portugal. This fact generates a huge conflict between man and wolf, which results in high illegal persecution mainly through poisoning (15% of known mortality) and shooting (32% of known mortality). Nevertheless, this wolf nucleus reaches high densities (with pack size up to 15 wolves), only possible due to the reduced humanization of habitat and to high prey availability.

In NE Portugal (east region of Montesinho Natural Park) there is a high density of wild ungulates (roe deer, red deer and wild boar) that represents the wolf's main prey (around 70% of the diet). Consequently, this wolf

nucleus does not suffer from an evident direct persecution by man, allowing wolf densities to be high.

The region of Alvão mountains represents an intermediate situation, where wolves feed mainly on the two most common ungulates in the area: goats (constituting 70% of wolf diet) and wild boar (15% of wolf diet). South of the Douro River wolves show a similar ecological behaviour, although they frequently feed on carion and garbage dumps. The wolf ecological features in these two Portuguese regions reflect the ecology of the majority of the Iberian wolf population, and across the whole of southern Europe. Wolves surviving in humanised areas occur in median and low

densities. They take advantage of the availability of food due to human proximity, but pay a high price by suffering a significant non-natural mortality. Wolves living in such conditions are in a precarious balance, and can be threatened by growing habitat deterioration and fragmentation.

THREATS AND PERSPECTIVES TO WOLF CONSERVATION

The present critical situation of the Iberian wolf in Portugal and the regression that this species has been facing during the last decades are due to direct or indirect human causes. Today, the main threats that the wolf faces in Portugal are scarcity of wild prey (red deer and roe deer), habitat deterioration due to forest fires and human incursion, and habitat fragmentation due to the proliferation of barriers to wolf movements (such as dams and highways). The existence of high numbers of feral and stray dogs also represents a problem to wolf conservation because these dogs often produce livestock damages that are mistakenly attributed to wolves by farmers. For those reasons wolf conservation measures in Portugal should ensure the minimisation of the economic impact of wolf damage, habitat improvement and educational campaigns.

Currently, several research studies and conservation measures regarding wolves are being conducted in Portugal. The Nature Conservation Institute (ICN) is the governmental institution responsible for wolf conservation and management in Portugal. It has been ensuring and improving wolf legislation (namely the damage compensation



Photo: Francisco Álvares



Photo: Francisco Álvares

system) and has been managing habitat for wolf conservation mostly inside protected areas (which comprises 30% of national wolf range). ICN has recently assured measures to support damage prevention (mainly through a livestock guarding dog distribution programme in NE Portugal) and has implemented a Dead Wolf Monitoring System. This system was devised to systematically register wolf death occurrences nationally, to obtain a better knowledge of wolf death causes and to provide biological material for the

development of relevant scientific studies. Grupo Lobo, on the other hand, has been conducting intense educational and awareness campaigns for wolf conservation and has developed several lines of scientific research on wolves as well as practical conservation measures (see text box about Grupo Lobo on page xx). The continuous wolf monitoring started almost a decade ago in some wolf nuclei and the two wolf national censuses (in 1994-1996 and in 2002-2003) have been carried out by both ICN and Grupo Lobo.

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GRUPO LOBO

Grupo Lobo is an independent and non-profit association that was founded in 1985 to work on Wolf Conservation and its habitat in Portugal. In 1987, Grupo Lobo started the Signatus Project – A Strategy for Wolf Conservation in Portugal, which operates on two levels. For the first one, focused on developing an educational campaign, Grupo Lobo has a large collection of pamphlets, newspaper articles, movies, photographs, CDs and also a travelling exhibition, which is available for anyone interested in learning about wolves. Whenever asked Grupo Lobo gives talks to different groups: students, hunters, livestock owners, etc.

The second level aims at scientific research employing a number of strategies: monitoring wolf populations (distribution and census), ecological studies involving radio-tracking programmes, ecological modelling to identify suitable habitats for wolf conservation and to define reintroduction areas for wild preys, genetics, parasitology, recovering traditional livestock guarding dogs use, conducting human dimensions research and understanding the cultural relationship between humans and wolves.

Grupo Lobo is also responsible for managing the Iberian Wolf Recovery Centre (IWRC), where disabled/wounded wolves, or wolves kept in deficient captivity conditions, are cared for and studied. The IWRC runs an international voluntary programme and a wolf adoption programme for anyone interested in wolf conservation. Contact: globo@fc.ul.pt; Website: <http://www.lobo.fc.ul.pt>



Photo: Rui Vasco

Human Dimensions in Iberian Wolf Management in Portugal

by Clara Espirito-Santo and Francisco Petrucci-Fonseca

The integration of human dimensions (HD) research into wildlife management started in the late 1970s in North America and in the 1990s in Europe. In Portugal, HD research emerged in the mid 1990s with some occasional studies focused on wolf management, particularly because of the historical conflicts with livestock owners, hunters and locals (Figure 1). As in many countries around the world, wolf management in Portugal tends to be more socio-political in nature than biological. Biologists have examined several aspects of wolf biology in Portugal, but the human component has not received the same attention from wildlife researchers. Wolf management involves not only an understanding of the biology of the species and its habitat, but also an understanding of public attitudes and knowledge of the species, and opinions about possible management approaches. Public involvement into wildlife management decision-making is still at an early stage in Portugal. Decision-making is still a top-down approach with no input of the public's views, concerns or needs.

HUMAN DIMENSIONS RESEARCH IN PORTUGAL

In order to understand the human component in the wolf management process in Portugal, the Grupo Lobo started two main projects. The first study, started in 1994, was a quantitative analysis of attitudes, beliefs, and fear toward wolves among the general public, and various interest groups at a national level. A self-administered questionnaire containing four sections covering attitudes, beliefs, and fear toward wolves, and socio-demographic data was mailed to the general public, environmental NGOs, livestock owners, hunters and journalists randomly selected from the national population. In 1999, a similar questionnaire was mailed to 100 schools from the 1st to the 12th grade (6-18 years-old), using different wording according to the age of the respondents.

Data was collected from 6556 respondents: 272 from the general public, 262 from environmental NGOs, 229 livestock owners, 693 hunters, 240 journalists, and 4860 students. The results show that attitudes toward wolves were neutral to moderately

positive among all interest groups. Environmentalists and students expressed the most positive opinions followed by journalists and hunters. Livestock owners and the general public showed the least positive opinions. Hunters and environmentalists had the highest knowledge about wolves, and livestock owners and the general public scored the lowest from all respondents, but scores were consistently low among all groups. In general, more than half of the questions on wolf biology were answered incorrectly. Students, the general public and livestock owners showed more fear of wolves than the media, hunters or environmentalists. When we analysed the relationship between the three variables, results were similar in all groups. Positive attitudes were associated with higher knowledge about wolves. Fear was negatively related with both knowledge and attitude. People with a less positive attitude and a lower knowledge score expressed a stronger fear of the wolf. This study also showed that adults and elderly with low scholar education, living in rural areas were more negative toward wolves than young respondents with high scholar education, living in urban centres. Overall, the positive feelings expressed by environmentalists and hunters might be a result, respectively, of an easy access to information and a direct contact with nature. On the other hand, it was surprising the lack of knowledge registered among journalists. All interest groups could benefit from more information about the wolf. The fact that attitude and fear were strongly associated to knowledge about wolves led us to believe that, among the Portuguese population, outdoor activities of environmental education would have real positive effects on the Iberian-wolf conservation.

QUANTITATIVE AND QUALITATIVE HD RESEARCH

The second study developed by Grupo Lobo from 2001 to 2003 was the first quantitative and qualitative study on HD in wolf management in Portugal. It was focused on a specific region in Central Portugal (South of the Douro River) where a wolf small population lives, isolated from the main population in the North (see C. Grilo et al., in this issue). The main goal of this quantitative research was to understand attitudes and beliefs toward wolves and wolf management in Portugal, to test whether these attitudes and beliefs vary between interest groups and across space, and to identify factors affecting



Figure 1 – Wolves hunted in Portugal in the 1970s (photo F. Álvares/Grupo Lobo)

them. Data was collected through 1753 personal interviews (Figure 2) with 1209 respondents from the general public, 111 livestock owners, 105 hunters, and 328 high school students, in three different zones: Aveiro/Viseu (n=573), Guarda (n=590), and Castelo Branco (n=590). These regions were divided according to the administrative boundaries of the counties and to a gradient of wolf density: a relatively stable wolf subpopulation lives in Aveiro/Viseu, wolves occur irregularly in Guarda, and wolves disappeared from Castelo Branco in the 1970s. Interviews were conducted using a questionnaire with 68 items covering attitudes, beliefs, experiences with wolves, importance of wolf management issues, and socio-demographic data.

some interest groups like hunters, livestock owners and students are close to a neutral position in their opinions about wolves, the general public either love or hate wolves. The various interest groups have different opinions regarding wolf management, but although inter-group differences occur, intra-group attitudes are in general homogeneous.

Overall, opinions toward wolf management do not differ significantly between regions. For example, wolves' impact on small game species or wild ungulate populations, like the roe deer or the wild boar, is not an issue of concern among surveyed hunters across the study area. In terms of wolves' impact on livestock, all interest groups strongly agree that wolves feed primarily and cause abundant damage

toward finding the most appropriate management measures.

Livestock owners are completely in favour of a compensation system supported by the government for damage caused by wolves. Those living in wolf range think it is more appropriate to pay compensation only to those who make some effort in preventing attacks from wolves. When the perceived impact of wolves on livestock and wild prey increases, there is higher agreement with payment of compensations to livestock owners, independently from the preventive methods in use. Half of the general public agree with money from taxes being used by the government for compensation, but the vast majority of the public thinks that the government should help livestock owners in implementing methods for preventing wolf attacks on livestock like good guarding dogs or electric fences. Involving various interest groups, particularly livestock owners and ICN in the discussion of compensation issues is very important for proper management of the wolf. Managers and the interest groups should think whether compensation mechanisms are a good approach for minimizing conflicts and increasing tolerance, and should evaluate the benefits and the sustainability of such mechanisms on a long term.

ATTITUDES AND KNOWLEDGE

Knowledge levels about wolves vary between the various groups, with hunters being the most knowledgeable and students the less knowledgeable. Regional differences do not occur among livestock owners and hunters' knowledge levels, but do occur among students and respondents from the general public. Students from Castelo Branco score the lowest from all the respondents probably because they have never lived in contact with wolves.

Attitudes and knowledge about wolves are correlated in some cases, mostly among respondents from the general public. While some respondents have positive attitudes associated with some knowledge about wolves, others have a good knowledge but their opinions are negative. These respondents are mainly elderly, living in rural areas, who consider wolf management issues to be very important, and want to keep up to date on these issues. The relationship between attitudes and knowledge depends on the issue. Knowledge reduces fear toward wolves and fear is negatively associated with attitudes, which means that "fear" is an important variable when analysing the association between knowledge and attitudes. Although knowledge about wolves does not generally have a clear relationship with attitudes, high levels of scholar education seem to play a major role on improving attitudes. These and other socio-economic factors, like gender, age, residence and occupation, or the kind of experiences with wolves and the interest on wolf management issues, have a strong association with opinions about wolves and wolf management.



Figure 2 – Interviewing a shepherd about wolves, in Castelo Branco - Portugal (photo C. Espirito-Santo)

The qualitative HD research aimed for an understanding of the key issues and solutions regarding wolf management at a regional and national scale, the key roles of each interest group, and who should be involved in the decision-making in the perspective of each group. Unstructured interviews were conducted usually with members of the executive board level of 31 interest groups: livestock owners associations, hunting associations, wolf biologists, environmental NGOs, and members from ICN (the governmental Institute for Nature Conservation, responsible for payment of wolf caused damage on livestock).

ATTITUDES TOWARD WOLVES AND WOLF MANAGEMENT

Results from the quantitative analyses show that attitudes of the general public are not homogeneous among all respondents. The public splits in two main groups, one in each extreme of the attitudinal spectrum. While

on livestock. Although wolves take less than 1% of the available livestock inside the study area (based on damage databases from ICN), some villages have registered more than 300 wolf attacks in a five-year period (1997-2001). The vast majority of the respondents do not know the number of domestic animals killed by wolves every year but still believe that the impact of wolf predation is very high. When people's tolerance toward wolves is in question, it is the loss they perceive, rather than the real loss that influences public opinion toward the predator. Actual damage is in general much lower than perceived damage, also because damage caused by feral dogs is often attributed to wolves. However, if the public is willing to discuss ways of dealing with wolf-livestock problems and finding solutions to address those issues then the stage for human-wolf coexistence is set and managers only have to work with the interest groups



KEY ISSUES IN WOLF MANAGEMENT

The qualitative research allowed the identification of many issues and solutions around wolf management on the perspective of each interest group. The groups identified a wide range of issues covering agriculture and livestock issues (e.g. abandonment of agriculture; disappearance of traditional husbandry methods), communication issues (e.g. behavioural conflicts due to mistrust between interest groups), biological issues (e.g. lack of wild prey), legal and political issues (e.g. Common Agricultural Policy reform; ICN top-down approach for managing wildlife), and cultural issues (e.g. myths about captive wolves being released into the wild; childhood stories). All groups agreed that the abundance of feral dogs, poaching, and lack of good habitat for wolves, environmental education and biological data are major key issues in wolf management. The interest groups can see there are issues of common concern and similar solutions to address key issues. The interviews acted as a means to open lines of communication and allowed the opportunity to begin building possible partners for future HD work and discussion concerning wolf management. Discussing issues of common concern to all groups is a good starting point for a process of conflict resolution.

The respondents do not only identify issues and problems around wolf management, but also come up with long lists of solutions to address those issues and solve the problems. The groups clearly recognise the need to integrate other interest groups and the local communities on the decision-making. Besides the interest groups sampled in this study, more than twenty other groups were pointed out as important players on a future debate. The Ministries of Environment and Agriculture are given the highest number of roles on wolf management, but the interest groups always assume for themselves some tasks to address wolf management issues. The importance of this project and the urgency of a joint work were recognized by all respondents from the various interest groups.

Successful management from a human perspective largely rests on the ability to listen to and incorporate differing interest group values, attitudes, and beliefs in the decision-making process, reaching consensus and gaining public acceptance of the final decision. Clearly, Portuguese wildlife managers have to shift from a traditional top-down to a bottom-up approach with a deep process of public involvement from the early stages of the decision-making. Wolf management is, at its core, the management of people, and if people are part of the problem they must be part of the solution.

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Her professional interests include endangered species conservation (particularly large carnivores), conflict resolution in wildlife management and public involvement on decision-making. In 1999, she started working at Grupo Lobo (Wolf Group in Portugal)

in various research projects aimed at understanding public attitudes toward wolves. She has been participating in national and international workshops and conferences focused on large carnivore conservation. Contact: cesanto@hotmail.com

The Wolf in Rural Communities' Culture in the North of Portugal

by Francisco Álvares and Pedro Primavera

In 1997 an anthropological study, co-supported by Grupo Lobo, was initiated with the goal of gathering information on different cultural manifestations of the wolf in rural communities in north Portugal. Data was collected in around 90 rural villages through personal interviews with inhabitants older than 60 years old. The results show that the complex cultural manifestations resulting from wolf-rural communities interaction are related with two distinct views of this carnivore: one admits him as a real threat to livestock; the other presents the wolf as a mythic and supernatural beast, and which is promoted by ancient and religious oral traditions that associates the wolf with an anti-Christ figure. The cultural manifestations associated with wolves in North Portugal have great affinities with the wolf in the

cultural tradition of several North Spanish regions (Galiza, Asturias and North Castilla y León), which demonstrate the ethnic and cultural similarity between the people inhabiting the mountains of NW Iberia.

THE WOLF AS A THREAT TO LIVESTOCK

There is no doubt that, for a long time, wolves have represented a real threat to livestock, causing important economic damage on the weak rural economy. For that reason, over the centuries, communities developed several methods to prevent wolf predation on livestock. One of them is the native breeds of livestock-guarding dogs, which is simultaneously a cultural and a biological legacy. Traditionally, where wolves occur, the shepherds protect the throats of these massive dogs by using articulated iron collars with sharp spikes or nails pointed outwards



Figure 1: Livestock guarding dog with iron protective collar (Photo: S. Ribeiro)



Photo: Francisco Álvares

(Figure 1). Less frequently dogs are provided with articulated iron armour for the protection of their abdomens and backs.

THE BYGONE ART OF TRAPPING WOLVES IN PORTUGAL

Rural communities have used several methods to capture and kill wolves. The most impressive method are the fojos do lobo or stone wall traps or pits. The structures built for capturing wolves were of three distinct types. The simple fojo was formed by a single pit in the ground (with or without levelled stone walls surrounding the hole) located along a frequently-used wolf trail, into which wolves fell after being attracted by dead or living bait, or pursuit by a hunting party or by means of a rotating trap-door mechanism. The goat fojo was a 15-30 metres diameter circular stone wall inside which living bait (most frequently a goat) was placed. The walls of this trap allowed wolves an easy entrance but it was almost impossible for them to get out, due to a last row of overhanging stones. The convergent walls fojo was a V-shaped trap formed by two long stone walls (each one up



Figure 2 – A convergent walls “Fojo” or wolf trap and result of a hunt party-with 2 dead wolves - in one of these traps in the 1950s (Photos: F. Álvares)

to 1km long and 2m high) which converged into a deep pit, where wolves were driven by a hunting party made up of large numbers of local people from one or more villages (Figure 2).

Capturing a wolf in one of these wolf traps was a cause of great satisfaction and joy to the rural population. The captured wolf, alive or dead, was shown in all the surrounding villages, with hunters collecting rewards and enhancing their reputations. The pelt of captured wolves was offered to prominent local personalities or, less frequently, used in festivities. Due to their great durability, the pelts could also be used in the manufacture of agricultural clothing.

The first references in Portugal to the use of these wolf traps go back to the 10th century, and these were regularly used among rural communities until the end of the 19th century. In certain Iberian regions, the “Fojos” were still used until the late 1970s. Although similar structures for capturing wolves are known in other European regions (such as Scandinavia, Alps, Romania and Hungary) and in North India, it was in the NW Iberian mountains that these stone-made traps attained their most elaborate development. However, most of these monuments of high ethnological value and great touristic potential have fallen into ruin, mainly due to negligence and apathy. Fortunately, in the last few years several restoration projects have been implemented, many of them with the scientific support of Grupo Lobo.

TALES OF A MYTHIC AND SUPERNATURAL BEAST

The fascination, hate and fear that the wolf provokes, has produced over the centuries a great number of tales and superstitions which present the animal in a villainous light. There are several folk tales and proverbs that demonstrate a certain admiration for wolves and some knowledge of wolf biology and ecology. However the majority manifest a distorted view of the wolf, investing the animal with supernatural powers. This cultural



vision of the wolf reflects human desires and fears and has nothing to do with the real wolf. Among the rural communities very often the wolf is spoken of as a mythical figure.

In north Portugal, in spite of the fact that there are no authenticated cases of humans being attacked by healthy wolves, tales of wolves carrying out long-term persecutions of farmers, and devouring isolated travellers have persisted up to the present day. Such stories form an oral tradition which is common to the entire Iberian Peninsula. We found several superstitions associated with wolves, for example that simply being in the presence of a wolf makes people’s hair stand on end and renders them speechless for several days. Other beliefs suggest an association between the wolf and Satan, such as the one which maintains that wolves never eat the right arm of their victims, because it is the arm used to make the sign of the Cross. We also find that ancient prayers intended to ward off the evil influences of the wolf or to prevent wolf attacks on livestock, are still recited today by many shepherds.

One of the most striking beliefs still present in the mind of rural inhabitants in the north of Portugal is the werewolf. It is strongly believed that a curse placed on a normal person can turn him into a wolf-beast

which attacks humans and animals. This may be due to a paternal curse, the fact of being an illegitimate child or by being the seventh same-sex consecutive born child of a family, unless his/her older brother is made his/her godfather. Among rural people, it is believed that if anyone wounds the werewolf, the moment he sheds blood he will regain his human shape.

In the far north of Portugal and in Galiza (Spain) there survives the belief in the Fada dos lobos or Peeira dos lobos which means wolf’s fairy. It is a woman (usually elderly) who has the power to communicate with and control wolf packs, wandering with a pack through the woods during the night, to help lost travelers find their way home or to attack those who have dared to harm the wolf’s fairy.

THE WOLF AS A CREATURE WITH A HEALING POWER

Apparently, a few centuries ago, the use of the wolf’s throat was a common practice. One of the most impressive cultural manifestations connected to wolves is the use of wolf’s body parts to cure human or livestock illnesses. It is known that, in some Iberian Peninsula regions, until the beginning of the 20th century, a wolf’s teeth (mainly

canines), fur or blood was used to heal certain human sickness. However, the perceived magic properties of certain wolf parts is implicitly recognized in the *gola do lobo* or wolf's throat, still in use in North Portugal. The wolf's throat is a piece of mummified wolf's trachea (or windpipe) used to cure a illness called *lobagueira*, provoked by the wolf's 'poisonous' breath. This breath is believed to hover around the places where the wolf walks or to come from wolf's excreta. It is believed that this disease is commonly carried by the domestic pig, an animal that still represents the main source of meat for these rural populations. It is believed that dogs and goats can also carry the illness without showing any symptoms, and infect pigs. To prevent *lobagueira*, farmers still recite little prayers or charms, and throw salt and fireplace ashes over vegetation used for cattle bedding and food or over livestock recently attacked by wolves. However, even with all these precautions and conjurations, the disease could infect the pigs' corral, making these animals apathetic, and debilitating them with pain. The only way of healing these pigs would be to pour water through the wolf's throat and immediately give it to the sick pigs to drink (Figure 3).

A few centuries ago the wolf's throat was commonly used in several regions of NW Iberia. Its generalized use has been lost since the beginning of the 19th century, with the only known exception of Barroso (a small and remote area in North Portugal), where several shepherds still use theirs to heal the *lobagueira*. Some of these wolf's throats are more than 150 years old and have been passed down from generation to generation as a precious heirloom. However, in the near future, there is no doubt that the use of the wolf's throat will only exist in the memory of these rural communities that still coexist with the wolf.

Figure 3 – A "Wolf throat" and a woman pouring water through it (Photos: F. Álvares)



THE WOLF AS A CREATURE WITH A RECENT MYTHS: ARE WOLVES BEING RELEASED?

Though it may seem strange, there are modern myths that can greatly obstruct wolf field research and wolf conservation. In many rural areas of north Portugal, asking or talking about wolves can antagonise the villagers. This is because the outsider (often a wolf researcher) might be one of those who are 'releasing' wolves. In Portugal, as in many European regions, there is a widespread rumour – particularly among the rural populations but also among the media and even some "wildlife conservationists" – that the government, researchers or environmental associations are deliberately releasing massive numbers of wolves into the wild.

Rural populations believe that wolves are only released and do not breed in the wild anymore. They say that these released wolves are different from the 'old ones' or 'the real ones', although the descriptions of the

differences between the two are quite incoherent. This belief may have its origins in the confusion of wolves with feral/stray dogs and with the great ignorance among rural people concerning true wolf biology and population dynamics.

LESSONS FROM ANCIENT MYTHS STILL SURVIVING IN RECENT TIMES

It is a matter of urgency to study and record all these vanishing cultural manifestations that exemplify the cultural importance of the wolf to rural communities. Not only are there anthropological reasons, because these manifestations express the intimate bonds that link the rural people to their natural environment and combine pagan beliefs with catholic religiosity, but they also provide us with important information about rural communities' attitudes toward wolves, which can help to reduce human-wolf conflict.

In addition, in NW Portugal (mainly in Peneda-Gerês National Park), several wolf conservation actions are being conducted to take advantage of this rich cultural heritage and hopefully make wolves more acceptable to local communities. Education and awareness campaigns focused on children and adults living in wolf areas have been undertaken with the aim of giving them greater knowledge of this vanishing wolf-related cultural heritage and replacing irrational wolf myths with proper scientific knowledge. Because the Iberian wolf distribution area coincides with economically less-favoured mountainous regions, several eco-tourism activities (especially stone wolf-traps' restoration and guided tours centred on wolf ecology and wolf-related culture) have been also implemented.

Information request: We kindly request researchers who may have any information on this subject (cultural relationships between wolves and rural communities) in other European or Asiatic regions, to contact us by e-mail (to francisco_alvares@hotmail.com or pedroprimavera@hotmail.com).

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The Isolated Wolf Population South of the Douro River: Status and action priorities for its recovery

by Clara Grilo, Sara Roque, Helena Rio-Maior and Francisco Petrucci-Fonseca

Major habitat changes associated with the construction of several dams along the Douro River (one of the major Iberian rivers) in the 1950s has bisected the Portuguese wolf population. Meanwhile, the decrease of the Iberian wolf population from the South and Central Iberian Peninsula has led to the progressive isolation of a small population south of the Douro River in Portugal. This population seems to be the only viable one south of this river, although controversy surrounds the survival and status of a Spanish Wolf population in Sierra Morena (south Spain in Andalusia Province) (Llaneza et al. 1997, Blanco & Cortés 2002). This fact gives Portugal a heavy responsibility to provide suitable conditions for the maintenance of the Portuguese Wolf Population South of Douro River and its future recovery in the Central Iberian Peninsula.

MAIN THREATS AND MAJOR CONSERVATION PROBLEMS

Besides the lack of prey, human persecution, habitat loss, and reduction of genetic variability, new threats have increased the danger of extinction of this small Iberian wolf population. Extensive logging and the clearing of forests by fire (destroying every year 250km² on average) has been reducing wolf shelter areas. The construction of new roads and other infrastructures can jeopardise the future of this predator in the region due to road casualties and population fragmentation.

Over the last ten years wolf road kills amount to about 10% of the total population (Rio-Maior et al. 2003). Moreover, a highway (IP3) has been constructed on the west limit of the wolf range and crosses a pack territory dividing the wolf distribution area (Figure 1). This new highway may be acting as a barrier and/or filter to animal movements, thus increasing wolf population fragmentation. The construction in the near future of Wind Turbine Parks comprising an area of 20% of the wolf's range is being planned. These infrastructures are associated with the opening of new paved and forest roads, increasing human access to natural areas unspoiled until now. Most of them are located in Natura 2000 sites that were proposed in order to contribute to the recovery of the Iberian wolf population. The necessary minimisation measures of all infrastructures proposed for Natura 2000 sites (including the mentioned highway) that could reduce the threat of wolf extinction in the area are being neglected.

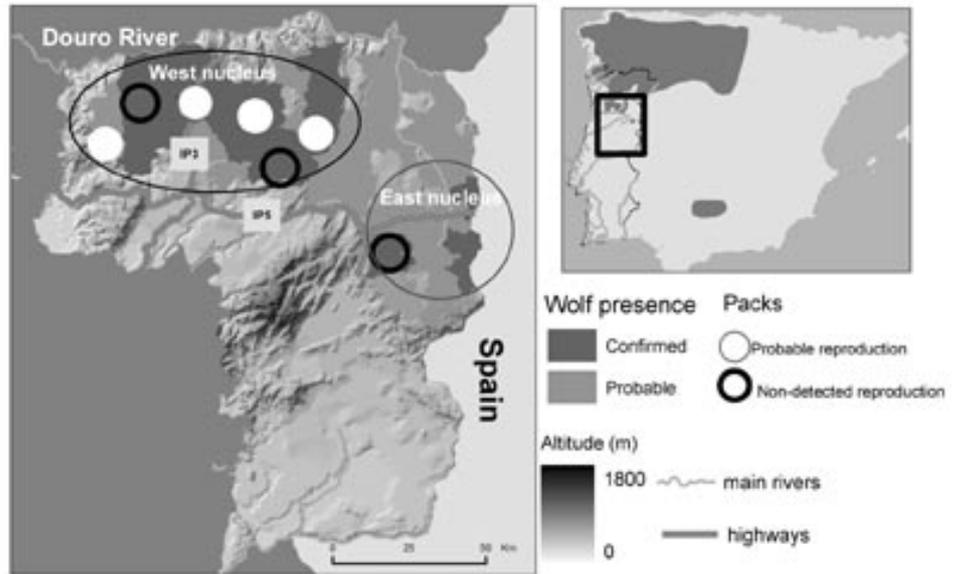


Figure 1 – Wolf South Douro River distribution.

Current wolf legal protection does not seem to be sufficient to avoid local wolf extinction. A management plan for Iberian Wolf conservation and recovery that considers the dispersal of individuals and natural range expansion is needed. Management measures should be applied to promote wolf expansion to areas outside the current distribution that still offer suitable habitat for the wolf. A long-term study was initiated in 1991 aiming to increase knowledge of wolf ecology, to monitor population evolution and to look at potential area expansion. The study area was defined taking into consideration wolf distribution in the South Douro River area since the 1970s (Petrucci-Fonseca 1990) and the results obtained so far allow the pointing out of some guidelines for wolf conservation in the area.

CURRENT POPULATION STATUS AND FEEDING HABITS

Wolf monitoring shows the existence, in 2003, of seven packs distributed across an area of approximately 5000 km² (Figure 1), split into two nuclei. The West Nucleus is the most viable one in the medium/long term, since there is evidence to suggest that reproduction has taken place in half of the packs that are part of this group. The East Nucleus has only one confirmed pack with no evidence of reproduction and appears to be in a very precarious situation. Further, in the area along the Spanish border, wolf presence

was confirmed but it seems that there are no established packs. This presence is probably due to dispersers, solitary wolves or members of very unstable packs (Roque et al. 2003a). The results demonstrate the danger of extinction that this wolf population is facing. Furthermore, although data are not sufficient to reach a final conclusion, exchanges of individuals between both nuclei, which is fundamental for the survival of this population, seems to be very difficult.

The feeding habits studies reveal a large dependence on livestock, which represents 75% of frequency of occurrence (F.O.) in scats (n=506). Cattle and goats are the main domestic prey and wild boar the most important wild prey (F.O.=7%). The presence of cattle does not represent a predatory selection, but results from the availability of cattle carcasses – dumped on the field inside wolf range (an illegal action according to European Union legislation). In these sites wolves can find an important amount of “easy food” resulting from carcasses dumped by the cattle industry, pig farms and poultry. In fact, approximately half of the wolf's biomass intake results from its scavenging habits. Nevertheless, damages to livestock are still frequent. The highest values for predatory impact were recorded for goats and sheep - respectively 2.1% and 1.7%. Each pack shows a different impact on livestock depending on the availability of livestock and husbandry methods in each territory (Roque et al. 2003b).

In order to overcome the lack of wild prey, occasional roe deer reintroductions were made in the last few years by the local governmental department of the Ministry of Agriculture and the Institute of Nature Conservation (ICN). Nevertheless, the impact on the wolf diet is still far less than was expected. At present, the very low occurrence of roe deer (F.O.=0.2%) in the wolf's diet reveals that this species is an insignificant prey item. However, recent data seems to show an increase in the consumption of this wild prey. The large dependence on domestic prey and carcasses at dumping sites reflects the threat that this population is currently facing. This situation is clearly distinct from the one found in the Iberian wolf population living north of the Douro River, where packs cause widespread damage to livestock, mainly cattle and horses (ICN 1997, Álvares et al 2000) or feed almost exclusively on wild prey (Llaneza et al. 1996, Moreira 1998).

POTENTIAL OF THE SOUTH DOURO RIVER REGION FOR WOLF POPULATION RECOVERY

A habitat suitability model was built in order to evaluate the factors that seem to affect wolf distribution and to assess the potential of the South Douro River region for wolf conservation and recovery. The model underlies the importance of two factors in determining wolf habitat: high prey availability and reduced human pressure (Grilo et al. 2003). Wolf presence was confirmed in highly suitable habitat areas, though strong fragmentation lines exist (Figure 2). In spite of a discontinued wolf presence near the Spanish border, this area seems to have potential for wolf recovery. Moreover, the Spanish wolf population is only 50km away from the East Wolf Nucleus. Improved cooperation between Portuguese and Spanish

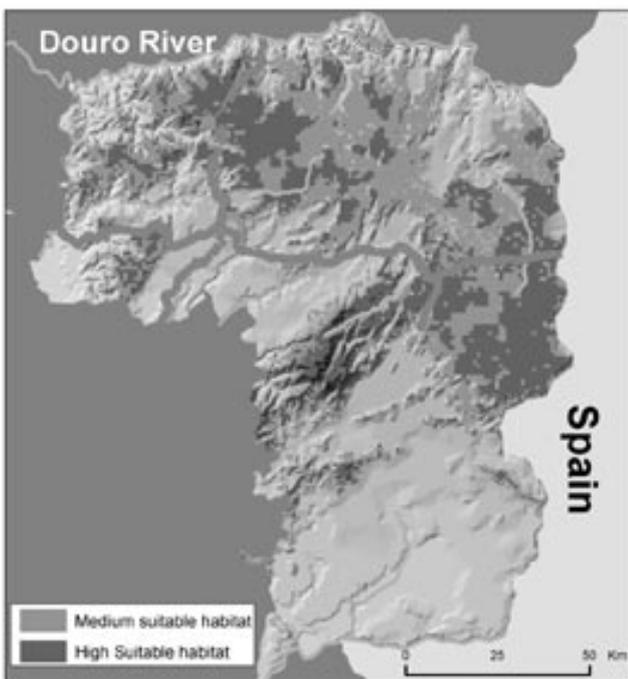


Figure 2 – Habitat suitability model for Wolf population South Douro River.

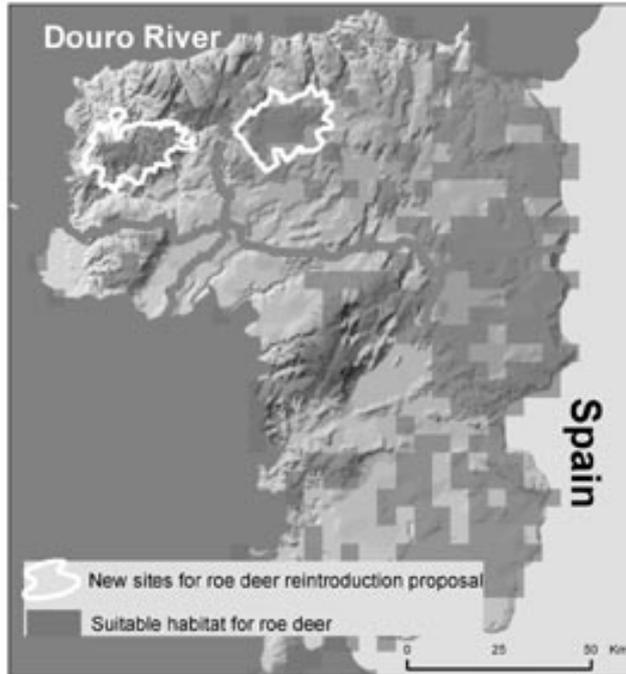


Figure 3 – Proposed areas for future roe deer reintroduction programmes.

authorities would appear extremely important to establish a regional conservation strategy focused on connecting the two wolf populations from these countries to improve their viability.

More reintroductions of the wolf's wild prey species, such as roe deer are still needed in order to provide alternative food resources for the predator. Based on roe deer ecological requirements the suitability of the South Douro River region for the reintroduction of this prey was assessed. Although roe deer are currently nearly absent, this region still has significant areas with suitable habitat for the species (Grilo & Petrucci-Fonseca 2003). New roe deer reintroduction areas were identified overlapping areas of suitable roe deer habitat and areas of high wolf damage (Figure 3). Nevertheless, further research is needed to evaluate the current roe deer density and to assess habitat carrying capacity to assure the success of future reintroduction plans.

HIGH WOLF ROAD CASUALTIES AND POSSIBLE SOLUTIONS FOR HIGHWAY IP3 PROBLEM

Analysis of the road network's impact on this wolf population was assessed through a monitoring programme, including a survey of wolf road casualty spots and

crossing points on the main unfenced roads and all highway IP3 passages in the wolf range (Rio-Maior et al. 2003). By comparing wolf road kill spots and crossing points, one can conclude that the main factor associated with wolf road casualties was traffic volume. The implementation of adequate traffic calming measures, like bumpers, near cross and kill spots could reduce wolf road kills. For a seven-month period wolf signs were registered only in one passageway of IP3. This is an overpass characterized by abundant vegetation cover on both sides, promoting habitat contiguity. This result indicates, on the one hand, that IP3 acts as a

barrier to wolf movements and, on the other hand, that wolves can use those passages with adequate habitat management in surrounding areas. This management can be achieved by using the same vegetation included in the surrounding habitats and a soil cover depending on the type of vegetation to be favoured, and by screening the area in order to minimise the disturbance of animals by light or noise. Thus, adaptation of existing engineering works that have been designed for other purposes can be an adequate solution.

NATURA 2000 – INSUFFICIENT TO SUSTAIN WOLF CONSERVATION

To conserve the Iberian wolf in this region, the wolf suitable habitat must be managed in order to maintain quality and avoid practices unfriendly to wolf survival. The current Natura 2000 Sites list proposed by the Portuguese government is insufficient to sustain wolves in the short/medium term period. In the region there are only two Natura 2000 sites suitable for the wolf: "Sierra Montemuro" and "Sierra Freita-Arada", comprising 40% of the Wolf Population South of Douro River range. For this reason, Grupo Lobo and WWF/Adena proposed a new site - "Lapa" - to the European Commission to be included in the Natura 2000 network. This site comprises the territories of three wolf packs with regular reproduction over the last few years (Figure 4). Efforts on wolf habitat protection will allow the expansion of this isolated wolf population; moreover, it will act as a stimulus for regional wolf recovery, thereby promoting Iberian wolf viability and accomplishing the goals of the Habitats Directive scientific criteria (Art. 6°)2.

CONCLUSION

The results point out some clear actions needed to accomplish the goals of Iberian

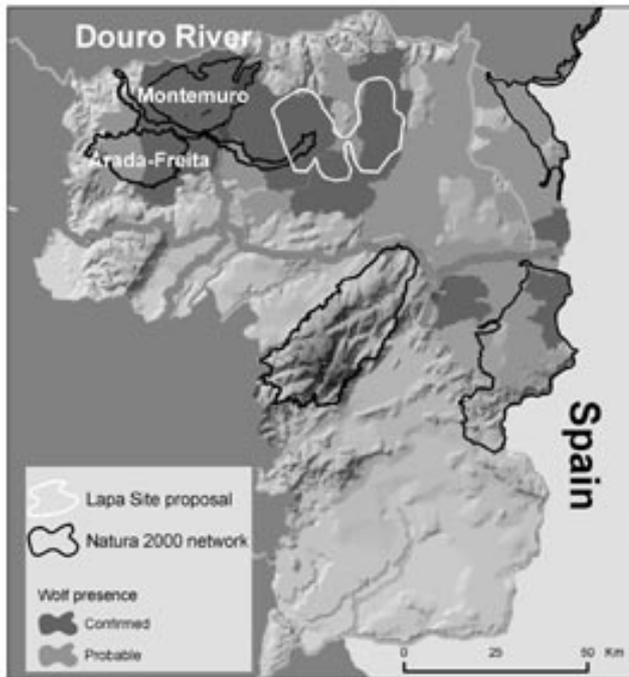


Figure 4 – Proposal of Lapa site to be included in Natura 2000 network.

wolf conservation efforts. Their application depends on the involvement of local populations in decision-making and on the availability of governmental or private funds. Due to the complex relations between man and wolf the recovery of Iberian wolf in the South Douro River region is a big challenge for those involved in it. Nevertheless, if everyone fulfils all their duties and obligations, Iberian wolf recovery in Portugal can be a reality in the future.

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Recovering the use of Livestock Guarding Dogs to Protect the Iberian Wolf in Portugal

by *Silvia Ribeiro and Francisco Petrucci-Fonseca*

Since 1997, Grupo Lobo, in collaboration with other agencies, has been responsible for integrating and monitoring more than 80 pups from Portuguese livestock guarding dog (LGD) breeds in goat and sheep flocks from the north and central Portugal. With this action we expect to reduce wolf damages and the resulting conflicts with livestock producers, thus contributing to the Iberian wolf conservation. At the same time we are also contributing to increase the economic viability of the traditional livestock production based on the extensive grazing system.

PUTTING CONFLICTS IN PERSPECTIVE

It is well known that one of the major causes for the human/wolf conflict is the damage this predator causes to livestock. Nevertheless, this same argument may have different regional significance since it can depend on cultural, social and economic factors. In most of the Portuguese wolf distribution area, livestock production is the main subsistence activity of human rural communities. Flocks are grazed under the extensive traditional grazing system, being led everyday to the mountain by one or two shepherds. This is a hard way of life with a very low income, where any loss can be significant. Although wolf damages are compensated by the

Institute for Nature Conservation (ICN) (based on weekly market value), animals that disappear or indirect losses from the future production of the animals attacked are not compensated. Also, delays in payments are common and can sometimes take up to a year. All these factors can have a big influence on the rural household economy and consequently on the tolerance towards the wolf.

Wolf damages are usually perceived as being higher than real damages and as having a larger economic impact than other accepted losses. In some regions there is some indifference regarding livestock mortality due to disease. In some flocks this mortality can reach half of the yearly kid goat production. Therefore, we must take into consideration the limited effectiveness of the compensation measures commonly used to reduce conflicts and implement the use of alternative tools that minimise potential conflicts. One alternative is the implementation of livestock protection measures that can actively prevent damages.

Today, with the efforts on nature conservation and the increasing incentives from the European Union for maintaining livestock production in the traditional way, there is once again the need to implement the use of effective methods of livestock protection and management that take into consideration the conservation of large carnivores. One of the most effective and widespread protection methods is the use of LGDs. The recent subsidies from the European Union for traditional livestock production have, nonetheless, caused other problems, by promoting an increase in the number of young and inexperienced livestock producers and in the number of animals per flock not accompanied by the necessary reinforcement in protection.

THE RETURN OF LIVESTOCK GUARDING DOGS

The use of livestock guarding dogs is part of the grazing system traditionally used throughout Eurasia, where several breeds of LGDs were selected to protect domestic animals from predators, like the wolf or the bear. In Portugal there are four recognised breeds of LGDs: *Cão de Castro Laboreiro*, the smaller one, with its origin in the northwest mountains of the country; *Cão da Serra da Estrela*, with its origin in the highest mountain in central Portugal, from where it borrowed its name and has two varieties -

short and long-hair; *Rafeiro do Alentejo*, that comes from the southern plains; and *Cão de Gado Transmontano*, the fourth and larger breed that was recently recognised and exists in the northeast mountains of Portugal.

Despite their importance and effectiveness in reducing damages, the use of LGDs has decreased in the last century mainly due to the decline of the traditional grazing activity and the general reduction of wolf populations (see F. Álvares in this issue), thus rendering useless those larger and more expensive dogs. This situation has led to the general loss of knowledge regarding LGDs' adequate raising and education, and their replacement with smaller hunting dogs, thus increasing flocks' vulnerability to predation. It has also put at serious risk the Portuguese breeds of LGDs, by drastically reducing their numbers and consequently promoting inbreeding and crossbreeding which could ultimately lead to their degeneration.

STEP BY STEP

The action initiated by Grupo Lobo to recover and implement the use of LGDs in Portugal has been developed in four phases. The first phase consists of the global analysis of wolf damages and the selection of priority areas. A subsequent selection of the livestock producers from those areas that have higher damages is made based on an interview. During this interview the existence of adequate conditions for integrating an LGD and the motivation of the livestock producer to participate are assessed.

In the second phase the selection of the pups is carried out, based on the quality of the parents (e.g., absence of diseases, typical morphology and good working behaviour). Before receiving the pup, the livestock producer signs a collaboration contract accepting to comply with some basic conditions concerned with the pup's raising, welfare and adequate socialisation. This contract enables the exclusion of livestock producers that are not following the conditions considered necessary for raising a LGD and the transference of his dog to another flock.

After weaning, usually around 6-8 weeks of age, the pup is integrated into the selected flock. In this third phase the pup is confined to the corral/stable and kept in strict contact with the animals of its flock during 2-4 weeks before starting to accompany the flock during grazing. In those first weeks of socialisation with the flock the pup should be kept with



Photo: Rui Vasco



Figure 1. A long-haired Cão da Serra da Estrela male pup perfectly socialized with the livestock. (Photo: Raquel Simões)

the existing lambs or kid goats while the flock is out grazing. However, caution is needed and younger lambs/goats should be promptly isolated in case of excessive play/biting from the pup. These initial weeks are also important for the flock to become familiar with the presence of the new pup in their midst and decrease the fear/aggressiveness towards him. Since some livestock breeds are particularly aggressive, a shelter for the pup should be prepared. Usually the pup learns quickly to avoid the aggressive blows and will prefer to stay among the livestock. After those initial weeks of socialisation the pup is ready to start accompanying the flock during the grazing period. This initiates the fourth phase during which the monitoring of the pup's physical and behavioural development is conducted. Dogs are accompanied regularly (at least every 1-2 months) during the entire grazing period of the flock until reaching 12-18 months of age. The pup's behaviour towards the animals in the flock, the shepherd(s) and the other dog(s) from the flock, as well as toward strange animals/persons is registered (Fig.1).

The data are later analysed to evaluate the dog's efficiency. This monitoring also enables the timely correction of undesirable behaviours exhibited by the dog or by the shepherd and the control of the dog's sanitary condition. This was considered to be very important since most livestock producers have a considerable lack of knowledge in what comprises basic veterinary care.

The dogs are provided with appropriate dog food until they reached adulthood and with the necessary veterinary care. Nevertheless, a mortality rate of 24% was registered with most dogs dying of disease ($n=8$), while two were poisoned, four disappeared and the remaining four died of other causes (run over by car, shot by hunters, killed by wolves).

THE KEY TO SUCCESS AND HOW TO ANALYSE IT

The secret to have a good working LGD is adequate socialisation with animals in the flock. This means placing the pup with the

flock during the socialisation period (at 6-8 weeks of age) and to limit the contact with other dogs, animals or persons. This will ensure that the pup will direct all its social behaviour towards the animals in its flock enabling the establishment of strong social bonds that are the basis for the emergence of adequate attentive, trustworthy and protective behaviours. These are the essential behaviour components defined by Raymond Coppinger and collaborators (Coppinger & Coppinger, 1978) for this type of dogs. An attentive dog should follow the flock in its daily movements during grazing thus maintaining its proximity with it (Fig.2). A trustworthy dog should not disrupt the flock activity nor should actively chase, injure or kill livestock. A protective dog should be alert to the flock and to any strange situation and protect it from potential threats (Fig.3). The correct identification and analysis of these behaviours is very useful when evaluating the dogs' efficiency, given that damages' reduction is not always a good index. Therefore the efficiency of the adult dogs has been

evaluated according to three different criteria: damages' reduction, dog's behaviour and owners' satisfaction.

A comparison of the average number of damages per flock in the three years before and one year after the integration of the dog (i.e., when it reached adulthood) was performed. The results show a general reduction in the number of damages, from 33% to 100%. When analysing the number of damages from each flock in relation to the damages in nearby flocks, there was a reduction from 10 to 40% in 60% of the cases. Nevertheless, the results also show a considerable variability in the annual number of damages, demonstrating that other factors, apart from the dog's presence, like the density of predators or the type and availability of wild and domestic prey, could also be responsible for the observed reduction. Apart from fluctuations in prey density we should also take into consideration that some species have more effective anti-predator behaviour than others. The level of protection in neighbouring flocks can also change rapidly if we consider the death and substitution rates of LGDs. Furthermore, illegal mortality of wolves by poison is not infrequent and can cause the sudden extermination of entire packs thus decreasing predation. The fact that the number of damages could be misleading regarding dog's efficiency is exemplified by some flocks that maintained or slightly reduced the number of damages although they have experienced a significant increase in the number of attacks that were being efficiently deterred by the dogs (Petrucci-Fonseca et al., 2000).

Nearly 90% of adult dogs were exhibiting attentive behaviour towards the flock (Fig.4). Nevertheless, seven juvenile dogs were identified as not behaving correctly. This situation resulted mainly from inadequate behaviour by the shepherd that was reinforcing its bond with the dog or limiting the contact with livestock. In two cases the shepherds did not change their behaviour and the dogs were transferred to other



Figure 2. A juvenile Cão de Castro Laboreiro male following its flock during the grazing period. (Photo: Raquel Simões)



Figure 3. A juvenile *Cão de Castro Laboreiro* male stays alert to any potential threat. (Photo: Raquel Simões)

flocks and in another case the dog was definitely removed.

Only one adult dog was not trustworthy and was immediately removed after killing two sheep. Excessive play behaviour in juvenile dogs can become a real problem and was thus immediately corrected to prevent it from being reinforced. All adult dogs exhibit protective behaviours (alert to the flock activity and movements, barking in strange situations, placing themselves between intruders and the flock, chasing and occasionally fighting intruders) and actively prevent wolf attacks. Shepherds are generally satisfied with their dogs: 95% consider them very effective and 60% say the dogs were responsible for the observed damages' reduction.

ACCEPTANCE AND IMPACT OF THE ACTION

Despite the initial suspicion about these dogs, there has been an increasing acceptance. The number of requests for dogs has also been increasing exponentially mainly from shepherds that have heard about their efficiency or have seen them working. Presently we have more requests than we can satisfy. An effort will be made to associate all interested livestock producers in order to establish contact among them, facilitating the exchange of pups and experiences. The knowledge of participating livestock producers about Portuguese LGD breeds, raising LGDs and recognising good working dogs has improved significantly. Training actions are also scheduled for the end of this year to overcome the lack of knowledge of the livestock producers concerning dog behaviour, welfare and basic veterinary care.

LIMITS TO SUCCESS

Although LGDs can be a very good help they can be powerless in some situations, namely when they are insufficient in numbers or the management of livestock is not adequate. Big flocks with few or no shepherds, livestock that spreads during

grazing, pastures with dense vegetation or high predatory impact, all demand a higher number of LGDs. Even in well-protected flocks, it is common for some animals to stray, thus becoming an easy prey for the wolves. Although dogs in the same flock can accompany different groups of livestock, when the number of stray animals is very small they usually stay with the larger group. In this case, the work of the shepherd in gathering the flock is very important. The presence of the shepherd is also useful because any undesirable behaviour or situation can be corrected and thus increase the efficiency of LGDs. Furthermore, raising a LGD requires an extra commitment by an inexperienced shepherd and more than a year is necessary before the dog may be fully effective. Taking this into account, alternative or



Figure 4. An adult short-haired *Cão da Serra da Estrela* male displaying adequate attentive behaviour. (Photo: Raquel Simões)

complimentary methods to LGDs, namely electric fences and fladry and other traditional protection methods, are being tested. The success of these actions requires the implementation of the methods that best complement and adapt to each situation.

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Wolves of the World

EUROPE

France

PARIS, July 19 (AFP) - France on Monday authorised its first wolf cull since the 1930s in order to reduce a colony of some 50 animals which sheep-farmers say are wreaking havoc in the southern Alps.

Ecology Minister Serge Lepeltier told a news conference in Paris that up to four wolves can be shot by the end of the year if attacks on sheep flocks continue.

Lepeltier said the four authorised kills represent 10 percent of the officially established population, which is of 39 animals, rather than of the widely accepted figure of 55. He also said that if the first three animals to be shot are female, there will be no further kill.

The government had initially planned to authorise the killing of between five and seven animals, but was forced to reduce the number under pressure from environmentalists who want to see the wolf move beyond its enclave in southeast France.

Source:
<http://www.ttc.org/200407191306.i6jd6ke01632.htm>

Switzerland

New law puts wolf in the firing line

The government in Switzerland has introduced a new law making it easier to kill wolves that prey on livestock, even though the endangered animal is a protected species. The legislation is a compromise demanded by parliament to take into account the concerns of sheep farmers.

There has been a small wolf population in Switzerland since 1995, but sheep farmers have not welcomed the predator's reappearance. Wolves have killed dozens of sheep since they crossed over into the Swiss Alps from Italy.

Regulations were introduced in 2001 permitting the shooting of any wolf believed to have killed at least 50 sheep over a four-month period, or 25 in a single month. The minimum has now been lowered to 35 sheep over a four-month time frame, but the cantons will be allowed to lower the number to 15 within a year if wolf attacks continue.

The government has also agreed to compensate sheep farmers for lost livestock, footing 80 per cent of the bill, with the rest coming from the cantons. It will also continue to subsidise a pilot project, which employs shepherds and sheepdogs to look after herds grazing in areas where wolves have been spotted.

Two environmental groups, the World Wide Fund for Nature and Pro Natura have now handed in a 70,000-signature petition demanding that the wolf's "protected status" remains. The campaigners are urging parliamentarians not to follow the lead of the Senate, which voted in favour of taking the wolf off the protected animals' list. They argue that there is enough space for the animal in Switzerland and say they are fighting against the "extermination of the wolf with the authorities' blessing".

It is believed that keeping the status quo would work to both the wolf and farmer's advantage. If the House of Representatives decides this autumn to no longer protect the wolf, farmers would no longer receive government compensation for any losses.

Pro Natura and the WWF say they are offering to help farmers improve the protection of their flock, using guard dogs and shepherds. But they continue to face opposition from farmers.

Source:
<http://www.swissinfo.org/sen/Swissinfo.html?siteSect=105&sid=1276619>

ASIA

Japan

Extinct wolf a symbol of what Japan has lost

The Japanese wolf officially became extinct 99 years ago. More accurately, there has not been a confirmed sighting since the last of the species was captured in the village of Higashi-Yoshino, Nara Prefecture, in 1905.

But is the species really extinct? My thoughts turned to various extinct animals when the Paleontological Society of Japan last Sunday released a picture of a wolf's skull, said to be the largest ever discovered.

Two years ago, a forum titled "Nihon Okami-no Sonogo" (What's become of the Japanese wolf?) was held in the village of Otaki in Saitama Prefecture. There had been reports of wolf sightings and howls heard. In this village, they once tried to lure wolves by playing an audio tape of howling Canadian forest wolves.

Folklorist Kunio Yanagita was also interested in the Japanese wolf. In the early Showa Era (1926-1989), Yanagita wrote in his book "Okami-no Yukue" (Wolf's whereabouts): "I do not subscribe to the theory that this species is extinct."

However, he was unable to conclude the animals were still around, either. With too little evidence to go on, he noted, "My sense tells me we may never know the answer."

In Australia, a cloning project is under way to bring an extinct species back to life. The project team has taken a DNA sample from the preserved specimen of a Tasmanian tiger, and has succeeded in partially duplicating this sample. The Tasmanian tiger is believed to have been extinct for 68 years.

The concept of "regeneration" is the theme of "Warai Okami" (Laughing wolf), a novel by Yuko Tsushima published by Shinchosha.

The author draws a parallel between Japanese wolves and a boy and a girl who are living in the chaos of post-World War II Japan. In the novelist's mind, the Japanese wolf is a symbol of what Japan is losing today, and the wolf also stands for the vitality that can "regenerate" contemporary society. A monument inscribed with a haiku was erected in the village of Higashi-Yoshino five years ago. The haiku by Toshio Mihashi says: "I walk/ With that wolf/ That is no more."

The Asahi Shimbun, June 29 (IHT/Asahi: June 30, 2004) (06/30)

Source:
<http://www.asahi.com/english/vox/TKY200406300120.html>

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Douro River

Montemuro

Arada-Freita

