Wolves of the World

WOLVES IN IBERIA—SPAIN AND PORTUGAL

The Hazards of Habitat Fragmentation: What Can Wolf Tracking Teach Us?

by Neil Hutt

In general our motto is not to oppose development or human activity (for example, by being critical of the construction of new roads or by blocking hunts) but to actively research the technical means for making activities like road construction or hunting compatible with conservation.

—Juan Carlos Blanco,
member of Wolf Project, Conservation Biology Consultants, Spain

The main threats to the long-term survival of wolves on the Iberian Peninsula are the same ones faced by large carnivores everywhere in the world: destruction of natural prey and habitat fragmentation. Once numerous in Portugal, wolves were on the decline by the early 20th century. Fully protected since 1988, an estimated 250 to 300 animals occupy approximately 30 percent of their former range, mostly in the north. Grupo Lobo, a nonprofit conservation organization, leads the effort to implement a comprehensive education program and to monitor wolf populations. The organization seeks solutions to some major challenges: What steps can be taken to reduce conflict with humans? What measures will improve habitat, reduce population fragmentation and minimize barriers to dispersal?

In neighboring Spain, wolves were severely persecuted until fairly recently. Subscribing to the old notion that a wolf-free country is a "civilized" country, Spain attempted to eradicate its wolf population. As in the United States and elsewhere in the world, the government distributed poison to landowners and paid bounties for wolves killed. Wolves in agricultural regions often became not so much predators as scavengers, adaptable opportunists that lived on garbage, rodents and dead sheep and cows. In mountain regions where the *campesinos* and *pastores* (farmers and shepherds) allowed livestock to range along the slopes and in the valleys, wolves killed vulnerable livestock in addition to their natural prey—red deer, roe deer, rabbits and wild boars.

But the view of the wolf as a scourge, a "beast of waste and desolation," is changing. For one thing, the public is more conservation conscious. For another, fewer people now reside in the country, so in areas formerly devoted to livestock raising and agriculture, prey species such as roe deer and wild boars are on the increase. Wolves are increasing, too, even though the wolf is classified as a game animal north of the Duero River and hunting is legal. South of the river, wolves are fully protected by the European Union's Habitat Directive.

According to current estimates ("Strategy for the Conservation and Management of the Wolf *[Canis*

Image courtesy of Juan Carlos Blanco

Juan Carlos Blanco and Yolanda Cortés fitting a GPS GSM collar on a wolf.

lupus] in Spain," December 2004) approximately 2,000 wolves live in Spain, and the population is stable, perhaps even growing. Spain has the largest wolf population in Western Europe, and on the European continent, only Russia and Romania have more wolves.

As wolves in Spain have begun to recover and to recolonize some of the more densely populated regions of the country, researchers are recognizing that data on population trends, distribution and the interaction between wolves and livestock are essential to developing a conservation and management plan for these controversial carnivores and for the endangered bear and the Iberian lynx as well. Gathering these vital data is especially important because of the on-going construction of fenced four-lane highways, many of which are being built in wolf range. For this reason, researchers like Juan Carlos Blanco and Yolanda Cortés are using cutting-edge technology to discover the location of ecological corridors that link carnivore populations and to determine the effect of barriers like highways and rivers on animal movements.

In an effort to discover whether habitat fragmentation by fenced highways, along with natural barriers like the Duero River (see map), deters or delays dispersal of wolves and other large mammals, Blanco and Cortés are using radio-tracking collars for monitoring wolves in a project funded by the Ministry for the Environment. Since 1997, the research team has radio-collared 16 wolves, 2 of them with GPS GSM (Global Positioning System–Global System for Mobile Communication) collars. A GPS GSM collar records the wolf's movements with the GPS and sends the locations over the mobile phones network (GSM) directly to the researchers' office via SMS (Short Message Service). Thus, the researchers can record the latest GPS position of the wolf. In the case of no network coverage, the GPS GSM collar will retransmit the stored SMS information the next time the GSM coverage is available.

The results of the study ("Wolf response to two kinds of barriers in an agricultural habitat in Spain" by Juan Carlos Blanco, Yolanda Cortés, and Emilio Virgos) were presented at the International Wolf Center conference in Colorado Springs, Colorado, in October 2005. The paper, published in the *Canadian Journal of Zoology* (2005), can be downloaded as a PDF file (see below). It is fascinating and well worth reading because it demonstrates the need for addressing the issue of habitat requirements in the debate over how best to conserve the great carnivores and other large mammals everywhere.

Blanco and colleagues discovered that highway barriers alone did not seem to delay or retard the expansion of an increasing wolf population in their study area, a flat, almost treeless agricultural region northwest of Madrid. This region is densely populated, and wolves are habituated to human activity. The study suggested, however, that the Duero River did, in fact, delay expansion for a period of 15 years. This was puzzling because the Duero in Spain is not much wider than a four-lane highway, although in Portugal, the river is wider where it enters the ocean, and the habitat on both sides is more disturbed by human activity than it is in Spain. The researchers concluded that habitat disturbance by humans on both sides of the river (two-lane roads, railroads, channels, small industry etc.) multiplied the barrier effect. In other words, one obstacle alone might not be formidable

enough to deter a wolf, but several close and parallel obstacles create a deterrent.

Blanco and colleagues conclude by recommending the construction of wildlife crossings on new four-lane highways, particularly with the increase in the number of gas stations, motels, restaurants and other facilities clustered along major roadways. Similar studies have been conducted in North America, demonstrating the critical importance of considering the subject of land use in the discussion of large carnivore conservation.

For the full paper "Wolf response to two kinds of barriers in an agricultural habitat in Spain," Canadian Journal of Zoology *83: 312-23 (2005), go to http://www.environmental-studies.de/projects/26/wolves-4.html, and click on the link on the last page.*

Juan Carlos Blanco and Yolanda Cortés prepare to release a radio-collared wolf.

Image courtesy of Juan Carlos Blanco