

Life and Behaviour of Wolves: Activity Study in Croatia

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Life and behaviour of wolves: Activity Study in Croatia

Activity patterns of large mammals in both time and space are complex. They are driven by the necessity to achieve biological requirements and affected by a number of environmental factors. The main aim of my research is to explore the inter-relationship of wolf activity patterns with climate, prey species and humans. This knowledge will be used to evaluate the influence of environmental factors and inform management procedures.

Pete Haswell reports on this UKWCT-sponsored research project.

Back in 2011 ideas for the research began to be formed and initial data collection began. The work centres around two main sets of data collection: activity counter data from wolves wearing GPS collars fitted with a motion sensor and camera trap videos/photos.



Collecting a DNA sample

MODERN TECHNOLOGY

In the past, monitoring animal activity using VHF telemetry collars was very time-consuming and it was hard to obtain good volumes of data that wasn't daytime biased. I have previously spent time monitoring activity this way and I can tell you that listening every 15 minutes during the night is pretty tiring. It was also only previously possible to know if the animal was active or inactive. With the progressions of modern technology a huge amount of data is now available from modern tracking collars with motion sensors. Not only do modern collars produce a data output for activity every five minutes but the output is also an incremental score (0-255) dependent on the amount of movement the collar experiences in either a forward or side-to-side motion depending on what you want to look at.

In 2011 I travelled to Croatia to calibrate the data produced by tracking collars and identify three levels of activity type: resting, walking and running. These behaviours cover most major wolf behaviour and give more information about wolf activity than was previously possible. In short, the

data collection involved fitting tracking collars to wolf-sized dogs and lots of running, walking and resting to collect data outputs. We then examined and analysed how the scores obtained matched up to the different types of activity being performed. The work was relatively successful and we

now have a method of identifying wolf activity type from the data sets collected from wolves wearing tracking collars in Croatia. We have large datasets from the past 14 years and we also endeavour to keep collars on wolves in Croatia each year if possible to collect more information.

CAMERA MONITORING

2011 also saw the beginnings of motion-activated camera monitoring in the Gorski Kotar (North West) region of Croatia.

The cameras provided a wealth of data, more than we were expecting. It became clear that camera monitoring could provide information about the activity of a variety of animal species as well as human land use. Thanks to

generous donations from the Trust we have now managed to expand camera monitoring to the Velebit Mountains in central Croatia. For my research interests the cameras will be providing data on ungulate activity patterns and those of people in the local area as well as information about habitat-use by wolves and their ungulate prey species. Preliminary analysis is beginning to suggest that deer are active throughout the day in Gorski Kotar but are selective about what types of areas they use dependent on human activity. They will use the same areas that people use but at different times. This data will also permit me to examine the influence of human and prey activity on that of wolves when combined with the information from tracking collar motion sensors.

NEW CAMERA TRAPS

In May this year (2012) I returned to Croatia to assist Professor Kusak with establishing our new camera traps and to support the year's most intensive fieldwork period coinciding with the wolf denning season. The denning season is one of the most pivotal times of year for tracking wolves and gathering social information, den

locations and even genetic samples.

After some brief work at the University in Zagreb my fieldwork began in the Velebit Mountains. I spent some days at a bear sanctuary attending a training event for the



Suho wolf taken by automatic camera

large carnivore emergency response team and wildlife researchers from many of the surrounding countries. We were based out of a town called Krasno which in English means beautiful and indeed it was.

BREATH TAKING FORESTS

Croatia has escaped a lot of the industrial development that much of Europe has experienced and really has some breathtaking forest that stretches for miles on end. The forests are dense and the forestry seems pretty sustainable. Only those trees of suitable age are selectively harvested in a ten-year rotation system which maintains continuous forest cover as well as pockets of disturbance-free refuge habitat for wildlife. The major highways also offer a great amount of habitat connectivity and safety for animals from road traffic accidents through fencing and green bridges and crossings.

We stayed in the region for a few more days and began our search for information on local wolf packs. There are approximately 1,000 brown bears in Croatia and we constantly stumbled across their signs and even saw one, along with other wildlife like red and roe deer as well as a wildcat and badgers. There are around 200 wolves at a much lower density than the bears and, as we all know, wolves can range over vast areas. We searched hundreds of kilometres of forest roads looking for signs of wolves and focal areas of activity. During these first days in the Krasno pack territory the only canine signs we found were those of foxes and, interestingly, potential tracks from a golden jackal. We travelled to Gorski Kotar to investigate a fresh lynx predation searching for signs of wolves along the way. We spent the rest of my trip between Krasno and a remote forest cabin in Gorski Kotar.

We spotted our first wolf tracks in the territory of the Snježnik pack, a place full of memories for Josip and very close to his heart after many years of monitoring the activity of Hilda there. We found a few tracks in the area and some evidence of scent-marking but nothing substantial to indicate a pack of wolves breeding in the area. We are still waiting to learn if a complete breeding pack is still present in the area after the disappearance of Hilda last summer.



Examining wolf tracks

SEARCHING FOR SCAT

We travelled north-west and further towards the Slovenian border in order to search the territory of the Suho Pack. As disgusting as it sounds, what we were really hoping to find was wolf poo, more politely called scat. Finding scat is sadly like finding treasure for a field biologist who has just spent days or weeks searching for signs of elusive mammals. Scat is used to mark out territory boundaries and advertise wolf presence and particularly during the denning season, if found on a continuous basis, is an indication of a den site or later on in the summer a place where wolves are keeping pups at a rendezvous site.

We began finding wolf scats at a secluded location in the Suho territory and were not disappointed with continuous finds over the coming weeks. We also take samples from the scats to send for DNA analysis which will reveal the numbers of individuals we discovered in the area and their relatedness to other wolves in the country and even further afield. This helps to shed light on wolf dispersal, survival success in various locations and core strongholds of stable populations amongst many other avenues of exploration.

For the remainder of my time we searched numerous pack territories with varying success but managed to gather some great information on the



Krasno pack as well as a lot of DNA samples. Whilst searching, we mapped habitat features such as forestry activity, new road developments and plotted all of the wolf data we collected. This offers us valuable information on habitat use, human disturbance and assists with population estimation and territory identification.

THE RESEARCH CONTINUES

Over the next few years I will be combining all of our data past and future to piece together the picture of how humans, wolves and ungulates interact in the Croatian forests, to explore how management effects the actions of large mammals and how an understanding of the intricacies of these patterns can be used to inform management procedures.

Pete Haswell

Pete Haswell, BSc Hons Environmental Science (Biodiversity and Conservation), is collaborating with Josip Kusak on a project the UKWCT supports in Croatia. You can read more about his work on his website: <http://petehaswellwolfresearch.wordpress.com>