

increased due to higher survival rates of cubs born in that year. Additionally, the total minimum number of bears detected was slightly larger in 2007 than 2006 (23 vs. 22). This, despite the low reproduction recorded last year (there were a low number of reproductive females in 2007). Although the total population still remains low, the general trend appears to be a population that is growing. However this growth is small and the status of the brown bear population is still of concern.

Monitoring the Status of Bears in Greece: The “Hellenic Bear Register”

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Brown bears are distributed in Greece over two disjunct populations. The larger population is located in the Pindos Mountains in the western part of the country and belongs to the Dinaric – Pindos population, while the smaller one is located in the Rodopi Mountains in the East and is a part of the Rodopi – Rila population. Despite more than two decades of efforts to protect the species, information on population status and trends, genetic diversity and movement patterns remains limited, thus preventing the implementation of effective conservation actions at a nationwide level.

In 2005, efforts were launched to investigate the population and genetic status of brown bears in the country. The project “Hellenic Bear Register” is a research initiative carried out by the Greek NGO ARCTUROS and aims at collecting valuable scientific data that

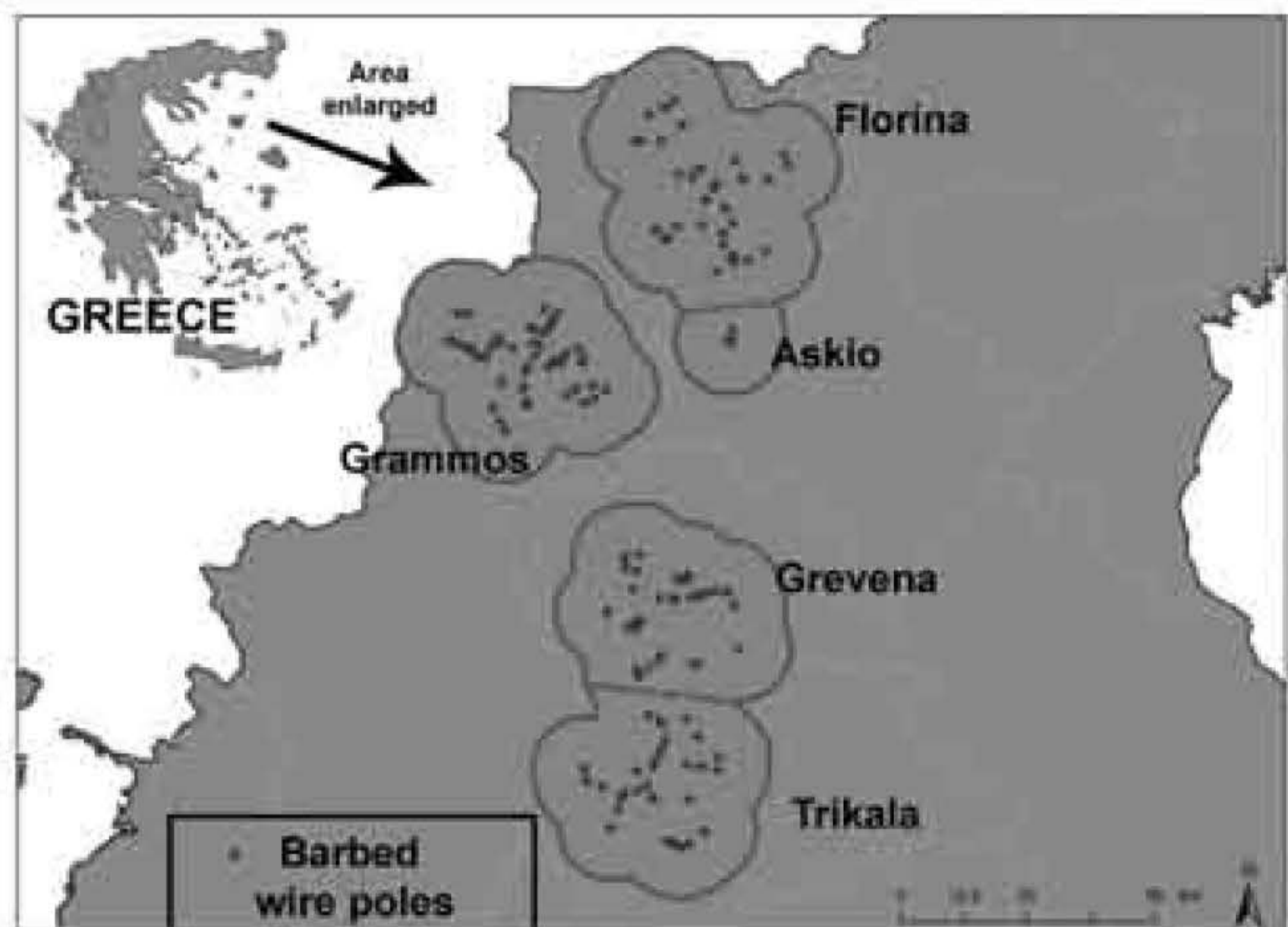


Figure 1: a) Map of Greece indicating the location of the 300 genetic sampling stations, in five different areas of the country, b) A telephone pole used as a genetic sampling station. The pole was “chewed off” by marking bears at a height of approximately 210cm and fell (© M de Gabriel Hernando).

will enable Greece to implement an informed and effective conservation and management strategy that will secure the future of brown bears in the country.

The project is already in its third and final phase. The first phase of the project was carried out within the framework of a doctoral thesis at the Aristotle University of Thessaloniki, looking into the marking behavior of

brown bears in Greece (Karamanlidis 2005). At the same time, genetic research carried out in collaboration with Dr. D. Paetkau at Wildlife Genetics International, involving the screening of 21 potential microsatellite markers, identified seven highly variable amongst them that are currently used for the individual identification of bears in Greece. During the first phase of the project, a pilot study

carried out in the area of Grevena in Northern Greece, during which, 30 power poles fitted with barbed wire were used as sampling stations for the collection of genetic material, managed to identify 49 different bears. The second phase of the project was carried out in 2006 – 2007 and involved the inspection of more than 4,500 power poles throughout the species range in the country, in order to identify poles that were heavily used by bears and that could eventually be suitable as genetic sampling stations. After intensive fieldwork, a network of 300 sampling stations in five different core areas of the species within the western nucleus was established in August 2007 (Figure 1). Through the analysis of hair samples collected during the pilot operation of the network in the autumn of 2007 the number of individual bears identified and currently monitored by the “Hellenic Bear Register” project has risen to over 75!

Ongoing and future actions of the third phase of the project include the intensive monitoring of the western nucleus of the population in the country until the end of 2009, as well as the establishment of a pilot monitoring project in the eastern nucleus of the species in the Rodopi Mountains. We would like to express our gratitude to the volunteers Sofia Bratsioti, Elena Ceron, Julien Dalvai, Jessie Jones-Morris and Charis Pilidis for their assistance in the field.

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Challenges and Problems Arising from the Range Expansion of Brown Bears in Greece

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Sightings of brown bears outside their range in Greece have been making the headlines more and more often recently (Karamanlidis 2006, 2007), indicating an expansion of the range of the species within the country. The sighting however, that took place at the beginning of this year, was beyond the wildest dreams of even the most optimistic bear conservationist. On the 12th of March, frightened residents from the village of Melivoia, at the foothills of Mt. Kissavos, reported the sighting of a young brown bear strolling along the road leading to their village. What first appeared to just be a prank, turned out to be true, after members of the field team of the NGO ARCTUROS confirmed there were claw marks from the bear on the hood of a car that was “unlucky” enough to have startled the young bear. The village Melivoia is located approximately 1.5 km from the Aegean coast of Greece! This sighting is the latest in a series of similar sightings in the area and is at the same time the easternmost appearance of an individual from the western population nucleus of the bears in the country. Members of ARCTUROS informed the villagers on how to react in case of an encounter, but also what to do in order to receive compensation in case of eventual crop or livestock damage. These actions were deemed necessary, because the range expansion of the species has been occurring in

areas in which brown bears have been absent for more than a century and people are totally unaware of its presence and habits. A couple of months ago, a similar appearance in the area of Elasona, ended with the poaching and subsequent mutilation of a bear by local shepherds who feared for their livelihood. In order to prevent such events and deal with the challenges and problems arising from the range expansion of the species in the country, ARCTUROS has established a “Brown bear Emergency Response Team”, which consists of two experienced biologists and is on call 24-7.

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Evaluating the status of brown bears in Albania and FYROM

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In Europe, brown bears have disappeared from large parts of their original range due to habitat loss, fragmentation, and degradation, and due to human persecution. Especially in the western and Mediterranean parts of Europe, brown bears survive mainly in small, fragmented populations that are threatened with extinction. Bear populations in Albania and the Former Yugoslav Republic of Macedonia (FYROM) are of significant biological and genetic value, as they constitute the connecting populations between the brown bear populations of Serbia, Croatia and Slovenia in the North and the endangered brown bear population in Greece. In Albania, the current estimate of the bear population is about 250 individuals; the species has been steadily declining in the last 20 years, and the current population size estimate is the lowest ever. In FYROM, the brown bear population is estimated to consist of fewer than 200 individuals (Zedrosser et al. 2001).

Despite their importance and endangered status, very little has been or is currently being done, regarding the study and management of brown bears in both countries. As a result, our knowledge over the status of the species is fragmented and still incomplete.

In order to reverse this situation, a joint project was launched in the spring of 2008 involving members of the NGOs ARCTUROS from Greece, MOLIKA from the FYROM, Transborder Wildlife Association from Albania and the Norwegian University of Life Sciences. The aims of the project are to provide baseline information on the status of the species, especially in the trans-boundary areas of Greece, while strengthening at the same time cooperation among the NGOs involved in the brown bear conservation in Albania, FYROM and Greece and preparing a trans-boundary management plan for the species. In order to collect basic information on the distribution, demographics, population size and trends of brown bears in both countries, field surveys will be carried out, during which, indirect signs of bear presence will be collected. In addition, a new, non-invasive study method using signs of presence on power poles will be used (Karamanlidis et al. 2007); this method will allow also the establishment of a network of genetic sampling stations and the subsequent genetic study of the species in both areas.

This project has received generous financial support from the Alertis fund for bear and nature conservation and the International Bear Association and financial and logistic support from the NGO ARCTUROS. We would like to express our utmost gratitude towards John Beecham and Harry Reynolds for their help in setting up the project.

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Greece- Egnatia highway: a growing barrier or an adaptation phase for bears?

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Permeability of the 37 km highway stretch of the Egnatia highway cutting through the Pindos bear population has now started puzzling researchers. Scheduled to be completed by December 2008, all mitigation structures with the exception of 2-3 wildlife underpasses and 2 green bridges (one to be negotiated with the constructors) are now in place. No less than 13 tunnels (8.85 km), 11 bridges (viaducts) (2.64 km) and 7 wildlife under/overpasses are mitigating about 32% of the 37km highway stretch.

Despite the apparently satisfactory density and spatial sequence of the mitigation measures, telemetry data (n=8,696 fixes) yielded from June to December 2007, from 6 adult radio-collared bears tend to show, at least during this monitoring period, an growing barrier effect of the highway over bears spatial behaviour. In particular, telemetry data show that the 2+2 km wide buffer zone along the 37 km highway stretch has been completely avoided by 2 out of 3 adult females of the sample, and it has been used by the 3 adult males mostly at night (average of 55.4% of total locations).

For all but one female bear (who had cubs this winter), longest trav-