



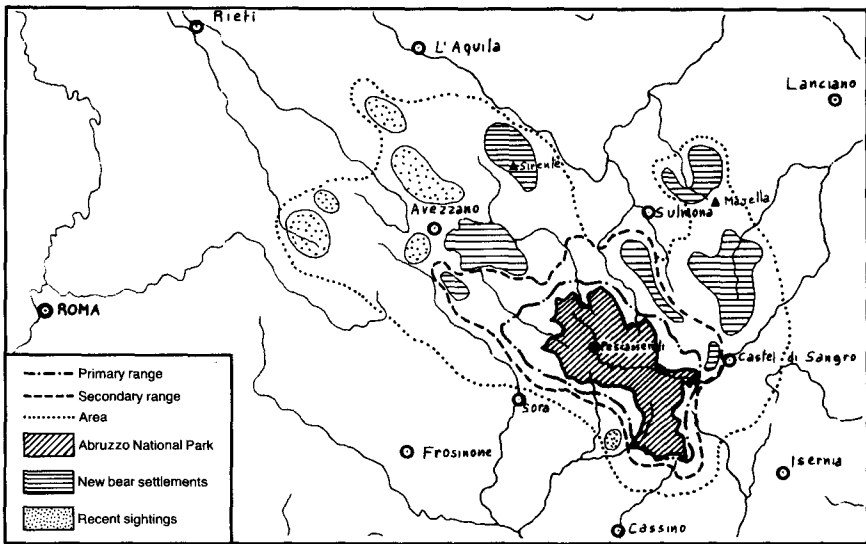
## Dilemma of the Abruzzo Bears

*Franco Zunino*

**The brown bears in and around Italy's Abruzzo National Park live quite comfortably with the fairly dense human population surrounding the park. The people like the bears, even though they eat sheep, and are not afraid of them. But these same people also favour economic development, notably tourism, and tourists have now increased to the point where the disturbance they create is a serious threat to the bears. In particular tourist pressure in high summer has driven the bears to scatter into areas where they have little protection.**

The largest population of brown bears in western Europe, excluding Greece, is in central Italy, in and around the Abruzzo National Park in the heart of the long Apennine mountain chain. It is also the most southerly. Numbers are estimated at between 70 and 100 animals. They were studied for the first time ten years ago by the author and by Professor Stephen Herrero of the University of Calgary, Canada. The Abruzzo brown bear *Ursus arctos marsicanus* is classed as a subspecies but in fact does not differ clearly from any other brown bear population, and the belief that the bears are smaller, being a southern population, is not well founded. Like other populations the Abruzzo bears have some very large animals, both male and female; 120-180kg is usual for an adult male.

In 1923, to protect both the bears and the unique population of the Apennine chamois *Rupicapra rupicapra ornata*, a national park was created which now



covers about 42,000ha, and preserves what is probably the most natural area in Italy for its special scientific interests. As well as brown bear and chamois, the large mammals include wolf, pine marten *Martes martes*, otter, wild cat, badger and red squirrel, the last a darker southern variety; among the birds are golden eagle, peregrine falcon, goshawk, eagle owl, rock partridge *Alectoris g. graeca* and white-backed woodpecker *Dendrocopos leucotos lilfordi*. The woodpecker is a south-eastern subspecies confined in Italy to the Abruzzo park forests and the Gargano peninsula. Roe and red deer, which had been exterminated, have been reintroduced. Wild boar occur, but are very rare. With large tracts of beech forests, calcareous glades and alpine meadows, the park has a rich flora of rare and interesting species, including the only site in central and southern Italy for the lady's slipper orchid *Cypripedium calceolus*.

The Abruzzo National Park includes only about 800 sq km of the bears' primary range, covering about 400 sq kms. Their total range is about 1500 sq km, and includes more than 30 towns and villages each with 500-5000 inhabitants. Many paved roads and gravel and forestry roads criss-cross the area; the valley bottoms are cultivated and there is much human activity. In so densely populated an area, bears are in close contact with men and their works. Nevertheless, brown bears have survived there quite easily and in large numbers until now. For a delicate balance has developed between men and bears, in which both have their place and the bears are able to survive.

The people of the Abruzzo do not hate bears, even though the animals regularly damage their crops, especially corn, and kill sheep and, rarely, calves. (They now get compensation for losses from the Regional authorities.) The Abruzzo people are probably a unique and interesting case of men and predators living together. The people see the bear as a good friend, and nobody, not even a child, is particularly afraid to meet one in the wild. They do not want to see bears exterminated, as they would like to see the wolf. They say that the bear kills for eating, the wolf for fun: this idea probably derives from their cultural sheep-rearing heritage, for bears generally kill one or a few sheep in an attack, where wolves kill many. Nevertheless, lacking any exact knowledge of the bears' delicately balanced requirements, local people readily set about 'taming' their mountains and forests, exploiting the hardwoods and pastures, building holiday and ski resorts. Some municipalities have been



attracted by this sort of development for economic growth, and have given up portions of their domain to build holiday and ski resorts. Thus the very people who do not want to destroy bears also want the sort of development that harms them indirectly.

Fortunately a large part of the bear range is within the boundaries of the Abruzzo National Park and protected by law, even if environmental protection is difficult because the park authority does not own the land. However, the National Park rents most of the wilder places; this is the only way to save the bear habitat, particularly the denning and feeding areas, which should be strictly protected as soon as possible.

But a new danger is now threatening the Abruzzo brown bear, and that is scattering. In the last few years bears have increasingly been seen outside the park and outside their historic range. This results in a fragmentation of the population, with bears settling in areas where they have little protection, or where lack of supervision makes poaching easy. The reason for this development, as the author showed in a recent study made with the help of the Forest Service local offices, is the tremendous increase in tourists in the Abruzzo National Park, and the touristic use of wild places. A network of easy paths and numerous camping grounds and picnic areas surround the scattered wild places that make the park. There are 19 authorised camping areas, and on average each one affects about 1930ha.

In 1979 about 114,500 visitors used these camping grounds, an average of over 6000 persons for each and 3.1 tourists/ha in areas directly affected, with a pressure of 938.5 tourists per day in the camping season (June – September). In the peak season, July 1 to September 10, 38,390 tourists used the six most popular camping grounds, in the very heart of the park, and indirectly affected an area of 9600ha (3.9 persons per ha); they had direct impact on 5400ha (averaging 7.1 persons per ha) and a pressure of 533.1 persons per day.

But 'tourist man' is not the same as 'shepherd, wood-cutter or farmer man'. This 'new' man, who will be coming to the park more and more, does not respect the delicate balance formed over centuries of proper relations between local people and their environment; he goes everywhere noisily and at all times,

disturbing the bears, even in their 'refuge areas', where they have their dens. These are often quite near roads or other man-made structures and may be small, even only a few hectares, but if they are destroyed or disturbed there are no suitable alternatives for the bears. The park territory, consisting of low mountains and valleys, is easy to travel over, with paths everywhere, many of which have been converted into roads, simply by widening them with a bulldozer. This path and road network connecting the numerous camping grounds, shelters, holiday resorts, towns and villages greatly facilitates human penetration of the national park, and the great tourist invasion of the wild in summer and other holidays drives the bears to scatter in their search for solitude; as a result they have been sighted occasionally over an extremely large area of about 4300 sq km: 25km to the west of their original range, 23km to the north-east, and 30km to the north. Some have settled in new areas, which could be a good thing if they can survive. Some have settled in the Sirente and Majella Mountains, both of which fortunately are areas planned for regional nature parks.

Inevitably there is pressure from tourist interests for economic development of the area. In fact this area is not so poor as is often suggested, and mass use of the national park by tourists is at times criticised by local people who see it as vandalism of their forests. The only right solution is for tourist use and other economic development to be compatible with the environment, in and especially outside the national park boundaries, for the sake of both bears and men.

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## Marine Iguanas and Feral Dogs

Galapagos marine iguanas *Amblyrhynchus cristatus* evolved their anti-predator behaviour against Galapagos hawks *Buteo galapagoensis*, and were therefore quite unadapted to cope with the feral dogs that have become serious predators on some islands. According to Hans Kruuk and Howard Snell in the *Journal of Applied Ecology*, small iguanas stay close to rock crevices, into which they can dash when a hawk (or a dog) appears; the large iguanas, too big for the hawks, are slower to flee from the dogs. In addition the large territorial male iguanas tend to stay out on the rocks at night when the dogs are particularly active; they are also of course more rewarding prey. In the Caleta Webb colony on Isabela, studied by Kruuk and Snell, more than a quarter of the iguanas as well as eggs were being taken by dogs, much more than the population could stand. If the dogs are not exterminated this colony will become extinct, like the one at Tortuga Bay, Santa Cruz.

## Turtle Discovery in Orissa

In the 1975/76 nesting season over 150,000 Pacific ridley turtles *Lepidochelys olivacea* are estimated to have nested on the beach at Gahirmatha, Orissa, which had only recently been discovered and reported by Dr H. R. Bustard. Now a second mass nesting ground has been found about 100km to the south, between Nadiakhia muhana and Akasia muhana (19°98'N – 20°1'N and 86°4'E – 86°45'E). Between three and four kilometres long, it is estimated to have about 100,000 breeding females. These two beaches, together with others in the State – Hukitola island, Paradwip, Astaranga, Konark (Chandravaga beach) Puri, Paluru and Gopalpur – brings the total annual nesting population for Orissa to some 300,000. The Gahirmatha population is inside the Bhitarkanika Wild Life Sanctuary, declared in 1975 by the Government as part of the India/FAO/UNDP Crocodile Breeding and Management Project, and so is protected.