

What future for Bears in Western Europe?

The brown bear has been pushed to the remotest forests and mountains in western Europe and a small number of critically endangered populations teeter on the brink of extinction. But recent experience suggests that recovery may be achievable and that reintroduction can play a part in this.

CHARLES J. WILSON

John Craighead, in his Preface to *The Grizzly Bears of Yellowstone, 1959-1992*, said “*how fares the (grizzly) bear, so fares the ecology of the region*” – not a comforting thought, perhaps, for those of us interested in conservation in the UK.¹ But we are fortunate, at least, that elsewhere in densely populated western Europe you can still have the thrill of seeing these impressive animals amongst some of the wilder forests and mountains.

In fact, something of a renaissance for Europe’s large mammals has given some cause for cautious optimism in recent years.² But for the bear *Ursus arctos*, outside its relative strongholds in Scandinavia, the Carpathians and the Dinaric/Pindos mountains, the detailed picture is less assured. In central and western Europe, a handful of fragile populations teeter on the brink, facing varied fortunes – from extinction and stagnation, and attempts at reintroduction to, perhaps, tentative recovery. So what future do they have, and what lessons are there to be learnt for further reintroductions of the species?

Extinction

The brown bear in the Alps had been in decline since the late 18th century. By the mid-1800s it was extinct throughout most of the western Alps and by 1950 persisted in low numbers only in the Adamello-Brenta and Monte Cadria-Altissimo mountains in Italy³. By the 1980s there were only 14-16 individuals, producing an average of 1.2-1.4 cubs per year, but after 1990 there was no further evidence of reproduction and the population was functionally extinct.³ Despite intensive monitoring, only three bears were recorded in 1996-97 and in 2000-01 only a single elderly male remained³; an end to thousands of years of indigenous bears in the Alps.

In the Pyrenees, the story is similarly depressing; from a population of perhaps 100s in the first half of the 20th century, by the 1990s only five or six individuals were thought to remain.⁴ Genetic tracking corroborated this, finding only three adult males, one adult female and one or possibly more yearlings.⁵ Both here, and in the Italian Alps, the authorities took the decision to augment the populations – effectively reintroduction, given the plight of the indigenous bears.



Brown bear habitat in the Abruzzo region, Italy.

Photo: Charles Wilson

For the Pyrenean bears, however, the final insult was still to come. The start of 2004 was not auspicious. On New Year’s day 150 shepherds and farmers staged a protest against bear reintroduction, which had started by then, calling for the removal of one bear that had allegedly killed 100 sheep over the previous year.⁴ At this stage there were probably only two breeding-age females in the population. But in November of that year ‘Cannelle’, the only remaining indigenous female, was shot and killed by a hunter in the Aspe valley, supposedly in self-defence. The killing, in an area where a female bear and cub were known to be present, caused outrage amongst conservationists.⁶ Fortunately, her 10-month old cub, which was with her at the time, managed to survive on its own. But, in 2010, the last remaining indigenous male also disappeared, so closing the final curtain on the native Pyrenean population.⁷

Stagnation

The Apennine bear population, centred in the Park National d’Abruzzo, Lazio & Molise, for a long time, was believed to be the largest remaining remnant population in western and central Europe, south of Scandinavia. The animals here have been separated from the Alpine population for at least 400-600 years and are recognised as a distinct subspecies; the Marsican brown bear *Ursus arctos marsicanus*⁸, so especially important as an evolutionary unit.

The first serious attempt to census this population in the 1970s suggested that it was around 70-100 animals, and similar figures continued to be quoted until the mid- to late 1980s.⁹ However, only since around the turn of the millennium has the population received a level of scientific interest commensurate with its importance. Now more reliable estimates, using genetic tracking, put the population at 37-52 animals, suggesting it is “stagnant” at best, despite 1-7 females with cubs having been recorded annually in recent years.⁷ To a large extent this stagnation is down to human-caused mortality.^{8,9}

Reintroduction

With growing public support for conservation, and obligations placed on national authorities by legislation such as the EU Habitats Directive, attempts began, from the late 80s and 90s, to promote the recovery of the species using reintroduction. In Austria there were moves to ‘augment’ tentative colonisation by bears presumed to be wandering across the border from Slovenia, whilst reintroduction efforts got underway in both the Pyrenees and Alps in response to the plight of the indigenous animals.

In the Pyrenees, this started in 1996 with the release, in the Haut Garonne area, of Melba and Zivos, two sows translocated from Slovenia.⁴ The following year a male was released, but in September Melba was shot by a hunter – again, allegedly in self-defence. No further releases took place until 2006, by which time, despite the killings of Cannelle and Melba, there were believed to be 16-18 bears present.⁴ Four sows and a boar were released in 2006, bringing the total to around 20 animals, but one of the females died in a fall later that year, and the following year another female, Franska, was killed in a road accident. On examination, Franska was found to have shotgun pellets in her rump.⁴ By 2011, the total population, both sides of the French-Spanish border, was estimated at 22-27 animals.⁷

Emotions ran high over bear reintroduction in the Pyrenees. Numerous demonstrations took place against the reintroduction, mainly involving farmers and shepherds. Key supporters of the bears received death threats and one, a local mayor, was briefly taken hostage.⁴ Even so, not all farmers were opposed; some joined an ‘Association for Pastoral Coexistence’, whilst the Association for Economic and Tourist Development felt that the bears had been a boon for the local economy.⁴

In the Italian Alps things appear to have fared better. Here, reintroduction started with the release of a male and female, Masun and Klavdija, in 1999, again using Slovenian bears.¹⁰ Seven more were released over 2000-2002 and a small core breeding population successfully established.¹¹ No respectors of national boundaries, some animals wandered across frontiers and found themselves in trouble. In July 2005 one was spotted in Ofenpass National Park, Switzerland¹², and the following year a young male was shot dead under licence in Bavaria following reported sheep killing and attacks on pets and beehives.¹³ In 2008 another young male was killed in Switzerland because he showed no fear of man and was frequenting populated areas in search of food – non-lethal attempts to modify his behaviour had failed.¹¹

Both of these animals were offspring of Jurka, one of the females released in 2001. Jurka herself showed little fear of man and, because of concern that she was imparting this behaviour to her cubs, she was taken into captivity. Despite these problems cubs have been produced most years since reintroduction began and by 2012 the population was estimated at 43-48 bears.¹⁴

In Austria, small numbers of bears have long occurred in Carinthia, near the border with Slovenia. But in 1972 a lone male turned up and settled in the Ötscher area of Lower Austria, right in the heart of the country. By the 1980s the idea of developing a reintroduction project around this individual had taken shape. However, it was not until 1989 that the first bear was released as part of a WWF-Austria project.¹⁵ This animal, a female called Mira, was followed by another female and then a young male, in 1992 and ‘93. Three cubs were born in 1991 and five in 1993, and because other wandering individuals from Slovenia were recorded in 1994, no further releases took place.¹⁵ Prospects looked encouraging, but already problems were being reported. An increase in damage to pets and sheep led the local authorities to sanction the shooting of two ‘problem bears’ in autumn 1994.¹⁵ Despite this, with at least 31 cubs born between 1991 and 2006⁷, hopes might have remained high. However, genetic tracking showed that the population never exceeded 12 animals and most cubs disappeared as yearlings or two-year-olds. By 2011 no further evidence of the bears could be found and the population was declared extinct.⁷ The most likely reasons – a combination of low population size and illegal killings.

Illegal killing, of course, is difficult to prove, but a sad postscript to the Austrian story lends weight to this conclusion. A subadult male, known as Rožnik, turned up in a city park in Ljubljana in April 2009. Clearly an unsuitable location, he was immobilized, radio-collared and translocated to prime bear habitat in south-west Slovenia.¹⁶ Following release he wandered widely, crossing back and forth into Croatia and eventually into Austria on 27 May. The last signal from his radio-collar was received three days later, still in Austria, and on 11 June his skinned and decapitated carcass was found near a roadside, just inside the Slovenian border.¹⁶ An Austrian hunter was later charged with his killing and expelled, for life, from the Carinthian Hunters Association. Both hunting organisations and conservationists condemned the killing, but because large carnivores roam over wide areas and, as in Austria, land-holdings or hunting districts can be small¹⁶, it only takes a few ‘bad apples’ to have a serious impact.

Recovery?

Bears in Spain’s Cantabrian Mountains suffered decline as elsewhere. From a probable population of more than 125 at the turn of the last century, by the end of the 1980s it was estimated that they totalled no more than about 50-60 individuals in two small, apparently isolated, populations.¹⁷ By the mid-1990s, the eastern population of only 12-16 animals appeared to be doomed, with illegal killing the greatest threat.¹⁸ The western population was estimated at 50-65, but still threatened by poaching, with illegal shooting accounting for more than half the non-natural deaths recorded.¹⁸ However, observations of females with cubs began to hint at recovery from the late 1990s – although there was still only an average

of 1 or 2 females with cubs each year in the eastern population, in the western population this had risen from 5 or 6 in the late 80s/early 90s to as many as 11 in 2004.¹⁹ The authors of this study suggested that mortality in the population was reduced, thanks to increased conservation effort and ranger patrols.

The isolation of the two populations, separated by unsuitable habitat, a railway, motorway and other development, is still a significant problem. However, genetic evidence from samples collected from 2004 to 2008 identified three individuals in the eastern area which genetically grouped with the western population and a male that was tracked in both the western and the eastern areas. In addition, two siblings were identified in the eastern population whose DNA indicated that their father had been from the western group²⁰ – welcome evidence of connectivity between the two areas.

On top of this, in 2010 25 females with cubs were observed in the western population and three in the eastern population – using a recognised multiplier of x8 to roughly estimate the total population this suggests as many as 200 in the west and 24 in the east.⁷ This may seem implausible, given the status of the population only 10 or 15 years earlier, but a recent genetic study also suggests a population of 195-2107 and the Fundación Oso Pardo, a Spanish NGO dedicated to the study and conservation of the bear, now estimate about 180 in the western population and about 30 in the east²¹ – the highest number for more than a century.

On the brink

The promising signs for the Cantabrian bears and encouraging results from the Alpine reintroduction are clearly very welcome. But why did the Austrian project fail and why is progress in the Pyrenees so slow? And why has the Abruzzo population stalled, unlike that in Cantabria?

Populations such as these are on the brink – their position has been likened to being on the edge of a precipice, in a “cloud of uncertainty” – continual conservation effort is needed to keep pushing them back up hill to a more secure future, but comparatively little impact can be enough to send them over the precipice and toppling to extinction.²² Even where interest groups are willing to live with the bears, but want numbers limited to minimise conflict, this simply serves to keep them in the danger zone and continually at risk.

Clearly the Austrian project, with only three bears released, could only ever have succeeded in the most favourable circumstances and with augmentation by naturally dispersing bears. Fifteen years after the start of the project there were still only 8-12 bears in the reintroduction area²³, already the killing of two bears had been authorised and, with suspected illegal killings, it was unlikely the population could survive. In the Pyrenees, with eight bears released, fifteen years after the project started the population was estimated at 22-27, despite the shooting of at least two breeding-age females and two animals killed in road accidents. In the Italian Alps, with ten bears released, although five have been lost as a result of management actions, either killed or taken into captivity, and three have been



Mother brown bear with cubs in the Abruzzo National Park, Italy
Photo: Charles Wilson

killed in road accidents, the population is doing well. Here, unlike the other two areas, there are no reports of poaching or unauthorised killings. If the growth rate seen from 2002-2012¹⁴ continues the population here, after fifteen years, will have reached a minimum of 57 animals. However, management effort in this area has been considerable; in 2012 alone the team set up to deal with problem incidents handled over 400 calls and undertook 37 emergency response visits, 16 public meetings were held and numerous interviews and articles were provided for the press and broadcast media.¹⁴ Despite this, the recent growth in the population has apparently been accompanied by a fall in public acceptance of the bears, so continued management and outreach effort over the next few years will be critical.

In the Abruzzo there can be little doubt that human-caused mortality is a significant threat to the population. From 1970 to 2009 108 bears are known to have died; 82% of these were human-related, 66% of those illegally and 33% accidentally killed.²⁴ Three bears were poisoned in 2007; a female, cub and a male, known as Bernardo – one of the most frequently seen and photographed bears in the Park.²⁵ Another adult female was found dead in 2008 – possibly poisoned, and in 2013 one male was killed on a motorway near L’Aquila in May whilst another was shot dead in the Monte Marrone area in July.²⁶⁻²⁸ This continued toll is unsustainable for such a small population.

Hope for the future?

What is remarkable, however, about the recovery of the Spanish bears, the early success in the Italian Alps, and even the modest growth of the population in the Pyrenees, is just how resilient these populations can be. It seems that, given half a chance, they can recover to viable numbers, at least for the medium term. Certainly, for a reintroduction to be successful, not surprisingly, a reasonable number of animals should be released – and the ten released in the Alps probably points to a likely minimum – but the constraints on the populations are much more likely to be anthropogenic than biological. Stakeholder groups need to be engaged – there needs to be a winning of ‘hearts and minds’ so that the bad apples feel too much peer pressure to pursue their own selfish interests. But the relevant authorities and NGOs also need to be willing to put the necessary resources into liaison with the public and other stakeholders, and to put in place mechanisms to deal with problems when they arise – whether it is to provide information, advice or technical support, or to take management action, or pursue enforcement if necessary.

The growth in the Cantabrian population and success of the Alpine reintroduction give me hope that there is a longer term future for western Europe’s bears – perhaps the tables can also be turned in the Apennines and I can begin to feel more optimistic about the Abruzzo bears as well.

References

- Craighead, J. J., Sumner, J. S. & Mitchell, J. A. (1995) *The Grizzly Bears of Yellowstone: Their Ecology in the Yellowstone Ecosystem, 1959-1992*. Island Press, Washington, D. C.
- Deinet, S., Ieronymidou, C., McRae, L., Burfield, I.J., Foppen, R.P., Collen, B. & Böhm, M. (2013) *Wildlife comeback in Europe: The recovery of selected mammal and bird species*. Final report to Rewilding Europe by ZSL, BirdLife International and the European Bird Census Council. London, UK: ZSL. <http://www.rewildingeurope.com/programme/publications/wildlife-comeback-report/>
- Mustoni, A., Carlini, E., Chiarenzi, B., Chiozzini, S., Lattuada, E., Dupré, E., Genovesi, P., Pedrotti, L., Martinoli, A., Preatoni, D., Wauters, L. A. & Tosi, G. (2003) Planning the brown bear reintroduction in Adamello Brenta Natural Park. A tool to establish a metapopulation in the Central-eastern Alps. *Hystrix*, 14, 3-27.
- Cummins, B. (2009) *Bear Country: Predation, Politics and the Changing Face of Pyrenean Pastoralism*. Carolina Academic Press, Durham, North Carolina.
- Taberlet, P., Camarra, J. J., Griffin, S., Uhres, E., Hanotte, O., Waits, L. P., Dubois-Paganon, C., Burke, T. & Bouvet, J. (1997) Non-invasive genetic tracking of the endangered Pyrenean brown bear population. *Molecular Ecology*, 6, 869-876.
- BBC News (2004) <http://news.bbc.co.uk/1/hi/world/europe/3975525.stm>
- Kaczensky, P., Chapron, G., von Arx, M., Huber, D., Andrén, H. & Linnell, J. (eds.) (2013) *Status, management and distribution of large carnivores – bear, lynx, wolf and wolverine – in Europe. Part 2*. IUCN/SSC Large Carnivore Initiative for Europe, report to the European Commission.
- Ciucci, P. & Boitani, L. (2008) The Apennine bear: a critical review of its status and conservation problems. *Ursus*, 19, 130-145.
- Wilson, C. J. & Casellucci, C. (2006) The Apennine brown bear and the problem of large mammals in small populations. *ECOS*, 27, 75-81.
- Jonozovic, M. & Mustoni, A. (2003) Translocation of Slovenian brown bears into the Adamello Brenta Natural Park, Italy. In *Living with Bears: a Large Carnivore in a Shrinking World* (eds. B. Kryštufek, B. Flajšman & H. I. Griffiths). pp. 341-365. Ecological Forum of the Liberal Democracy of Slovenia, Ljubljana, Slovenia.
- Dalpiatz, D., Frapporti, C., Groff, C. & Zanghellini, F. P. (eds.) (2009) *2008 Bear Report*. Forestry and Wildlife Department of the Autonomous Province of Trento. www.orso-provincia.tn.it
- BBC News (2005) <http://news.bbc.co.uk/1/hi/world/europe/4720185.stm>
- Times Online (2006) <http://www.thetimes.co.uk/tto/news/world/europe/article2600814.ece>

- Groff, C., Bragalanti, N., Rizzoli, R. & Zanghellini, P. (eds.) (2013) *2012 Bear Report*. Forestry and Wildlife Department of the Autonomous Province of Trento. www.orso-provincia.tn.it
- Rauer, G. (1999) Status and management of the brown bear in Austria. In *Bears: Status Survey and Conservation Action Plan* (eds. C. Servheen, S. Herrero & B. Peyton). pp 56-58. IUCN/SSC Bear and Polar Bear Specialist Groups, IUCN, Gland, Switzerland and Cambridge, UK.
- Kaczensky, P., Jerina, K., Jonozovic, M., Krofel, M., Skrbinšek, T., Rauer, G., Kos, I. & Gutleb, B. (2011) Illegal killings may hamper brown bear recovery in the Eastern Alps. *Ursus*, 22, 37-46.
- Wiegand, T., Naves, J., Stephan, T. & Fernandez, A. (1998) Assessing the risk of extinction for the brown bear in the Cordillera Cantabrica, Spain. *Ecological Applications*, 8, 539-570.
- Clevenger, A. P., Purroy, F. J., Cienfuegos, J. N. & Quesada, C. N. (1999) Status and management of the brown bear in eastern and western Cantabria, Spain. In *Bears: Status Survey and Conservation Action Plan* (eds. C. Servheen, S. Herrero & B. Peyton). pp 100-110. IUCN/SSC Bear and Polar Bear Specialist Groups, IUCN, Gland, Switzerland and Cambridge, UK.
- Palomero, G., Ballesteros, F., Nores, C., Blanco, J.-C., Herrero, J. & García-Serrano, A. (2007) Trends in number and distribution of brown bear females with cubs-of-the-year in the Cantabrian Mountains, Spain. *Ursus*, 18, 145-157.
- Pérez, T., Naves, J., Vázquez, J. F., Seijas, J., Corao, A., Albornoz, J. & Domínguez, A. (2010) Evidence for improved connectivity between Cantabrian brown bear subpopulations. *Ursus*, 21, 104-108.
- Fundación Oso Pardo (2013) <http://www.fundacionosopardo.org/index.php/el-oso-pardo/cuantos-osos-hay-y-donde-viven/>
- Schwartz, C. C. (2001) The paradigm of grizzly bear restoration in North America. In *Large Mammal Restoration: Ecological and Social Challenges in the 21st Century* (eds. D. S. Maehr, R. F. Noss & J. L. Larkin). pp. 225-229. Island Press, Washington, Covelo, London.
- Rauer, G., Gutleb, B. & Wagner, W. (2004) 15 Years of Bears in Austria. *Large Carnivore Initiative for Europe: Feature Article Series*, 5, November 2004.
- Boitani, L. (accessed 24/02/14) The challenge of saving *Ursus arctos marsicanus* the Abruzzo brown bear. <http://cor.europa.eu/en/activities/commissions/enve/work-in-progress/Documents/10%20Boitani.pdf>
- Wildlife Extra (2007) <http://www.wildlifeextra.com/go/news/italy-bears912.html#cr>
- Italy Magazine (2008) <http://www.italymagazine.com/italy/abruzzo/marsican-bear-found-dead-abruzzo>
- The Telegraph (2013) <http://www.telegraph.co.uk/news/worldnews/europe/italy/10082747/italian-bears-may-get-underpasses-and-private-bridges.html>
- The Italian Insider (2013) <http://www.italianinsider.it/?q=node/1586>

Charlie Wilson is a Senior Specialist in Natural England dealing with wildlife legislation and management issues – mainly concerning mammals. In his spare time he pursues an interest in the conservation of Europe’s large carnivores and the brown bear in particular. Email: wildlifeadv@btinternet.com