

# Intensive camera-trap survey in the National Park Mavrovo, Macedonia

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## Introduction

The Balkan lynx (*Lynx lynx martinoi*) is a Critically Endangered subspecies of the Eurasian lynx restricted to the border areas of Albania and Macedonia. In the frame of the "Balkan Lynx Recovery Programme"<sup>3</sup>, we conducted a first camera-trap survey from February 26 to April 26, 2008 in the area of Mavrovo National Park (Fig. 1). The aim was to find out where lynx are detected, to picture as many individual lynx as possible and to try an estimation of lynx abundance.

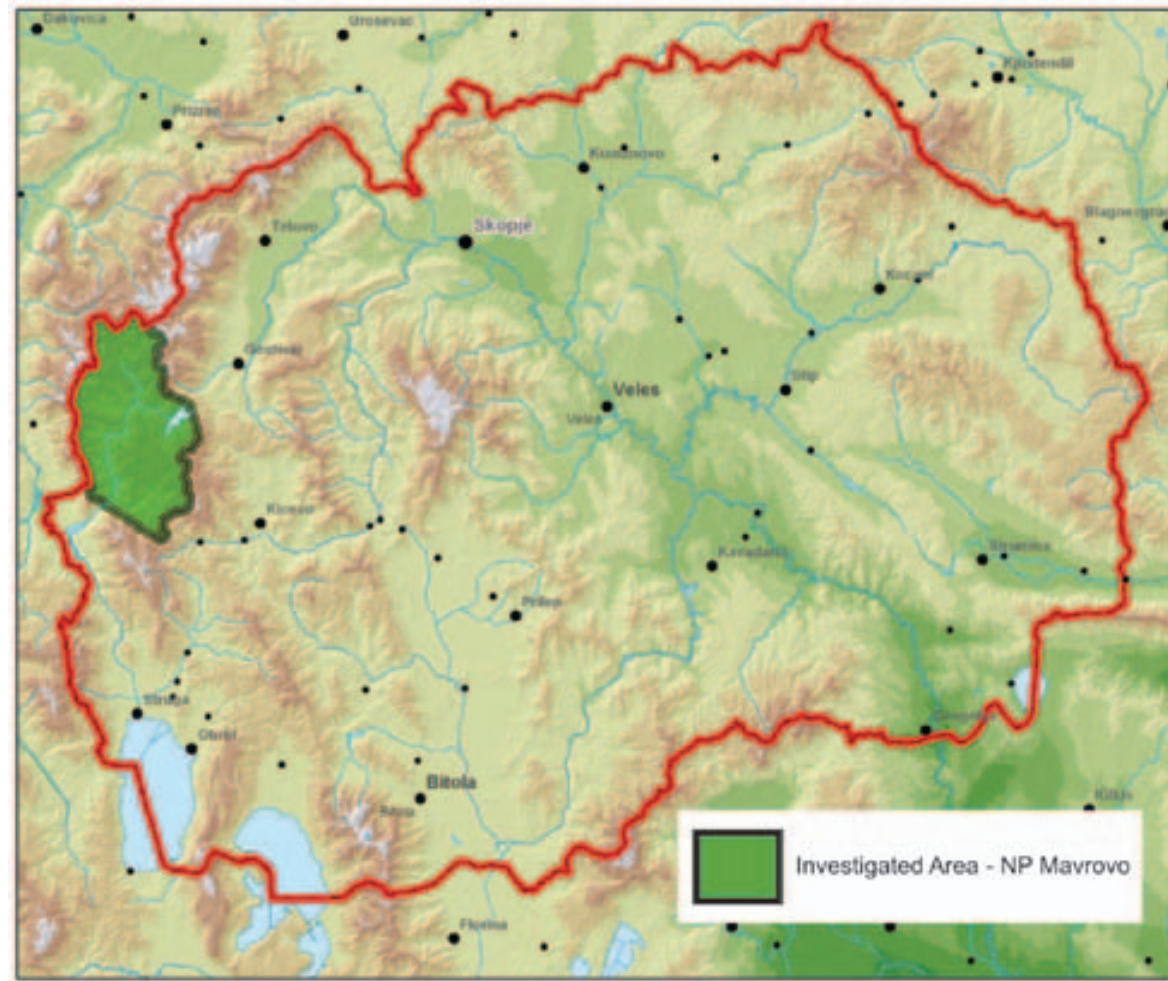


Fig. 1. Mavrovo National Park of 730 km<sup>2</sup> in western Macedonia has found to be the centre of the remnant Balkan lynx population in a baseline survey conducted in 2007

## Material and Methods

Our study design was adopted from the camera-trapping used for lynx monitoring in Switzerland (Zimmermann et al. 2006). In 32 pre-selected grid-cells (Fig. 3), we chose a promising site for "capturing" lynx (game path, hiking trail, forest road) and installed two opposing cameras (motion detector triggered Stealthcam) to picture both flanks of an animal simultaneously. As an attractant, we set a pole with Valeriana (Fig. 4). The cameras covered an area of 432 km<sup>2</sup>. The survey was run over 60 nights and camera sets were controlled every 8 days to make a function control and replace batteries or films.



Fig. 2. Trap Site No. 7 with two opposing cameras. The individual pelt pattern of lynx allows capture-recapture statistics, provided that both flanks are pictured

## Results

Potential total sampling effort was 1920 trap-nights, but sabotage, technical failures and six stolen cameras reduced the effective trap nights to about 1700. A total of 29 lynx pictures (10 right and 16 left flanks, 3 unclear) were taken at eight camera-trap sites (Fig. 4–7). Seven times we got both flanks of a lynx individual simultaneously. Most lynx were distinctively coloured (Fig. 4–6) but uniform individuals (Fig. 7) were hard to identify. The picture of a mother with cub proved reproduction in the study area (Fig. 6). Data analysis is not completed, but the pictures show at least 7–10 different individuals in the 432 km<sup>2</sup> study area. Moreover, we got 13 brown bear, 7 wolf, 10 red fox, 6 wildcat, 12 badger, 47 wild boar, 28 chamois, 36 roe deer and 30 brown hare pictures (examples Fig. 8–14). These results from the first camera trap survey in Macedonian are very promising. Pre-eminently, first pictures of the Balkan lynx were taken and proved that this Critically Endangered subspecies still exists in a satisfactory abundance in its core area. The camera trap pictures not only allow a first quantitative approach to Balkan lynx, but provide a welcome help for awareness rising.



Fig. 4. Site 29 – Gari, 11.03.-04.04.2008

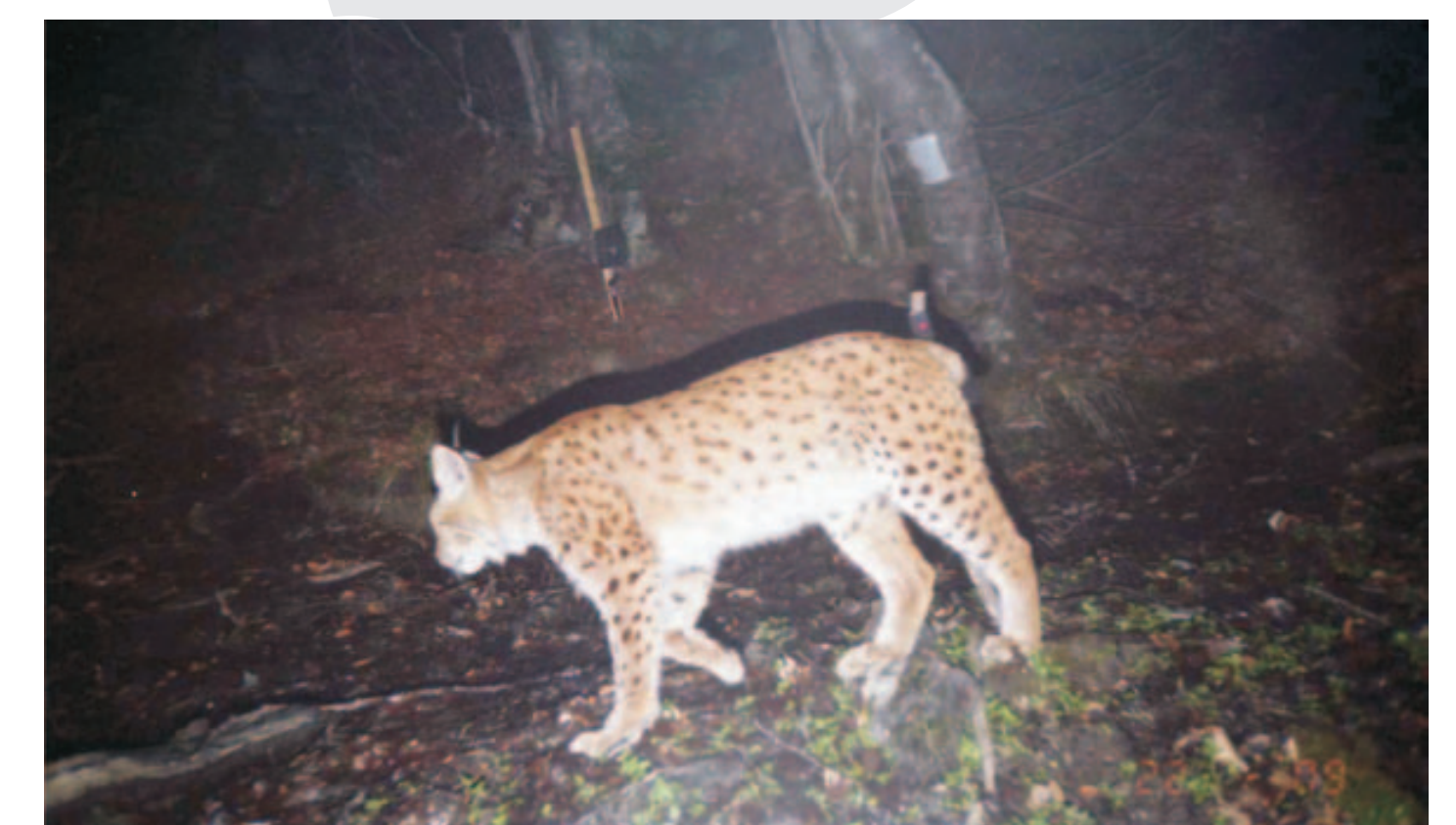


Fig. 5. Site 3 – Bibaj, 16.03.-17.04.2008



Fig. 6. Site 22 – Genevica, 24.02.-27.03.2008



Fig. 7. Site 15 – Sence, 09-17.04.2008

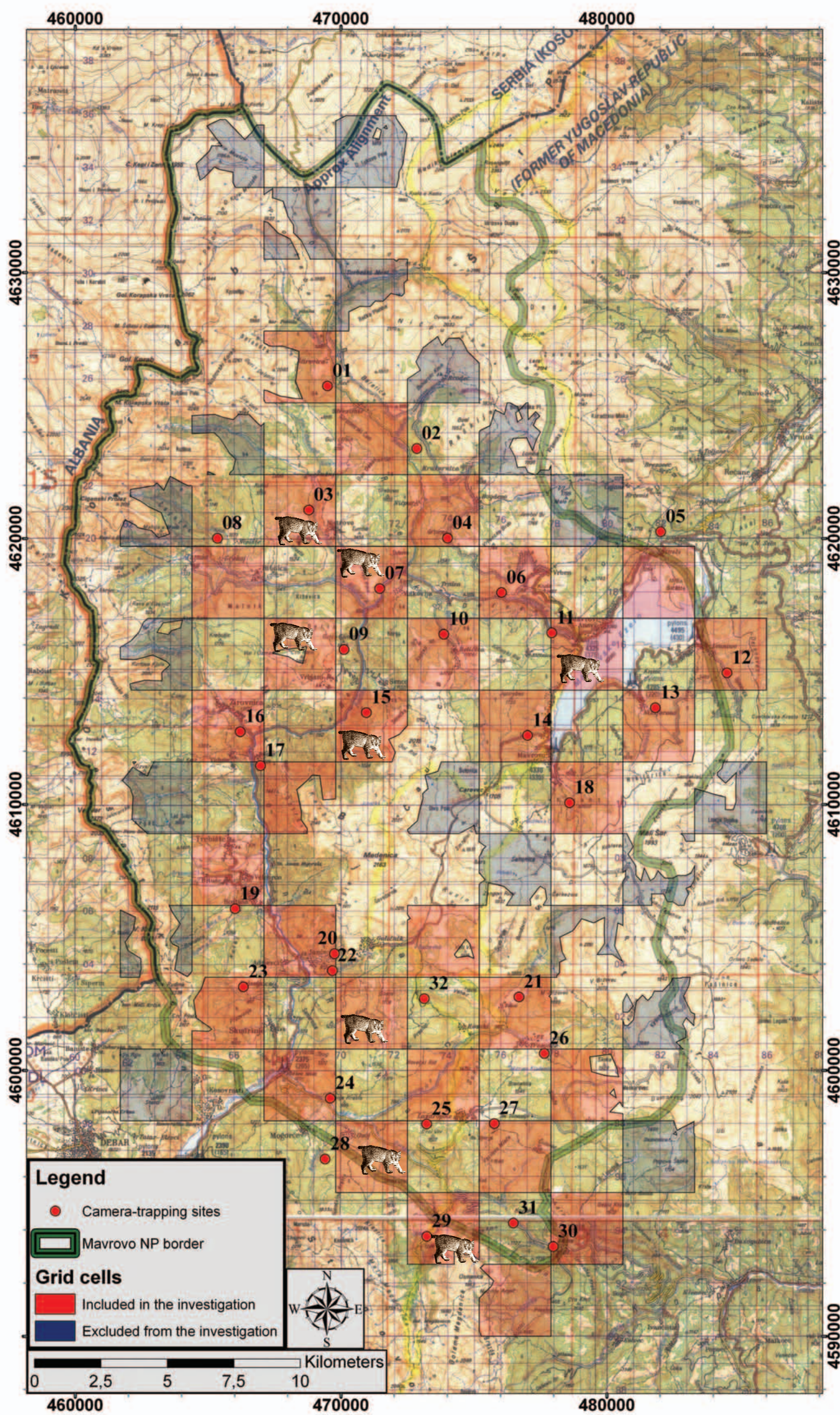


Fig. 3. Study area in Mavrovo NP with overlaid grid-cell map. The 32 well-forested grid cells with at least 1/3 of their areas below 1800m were considered good lynx habitat. In every second cell (red squares), a set of two cameras was installed at a promising site



Fig. 8. Wild boars, Site 24 – Elenskoc, March 2008



Fig. 9. Chamois, Site 17 – Boletin, February 2008



Fig. 10. Brown hare, Site 28 – Osoj, April 2008



Fig. 11. Roe deer, Site 31 – Jama, April 2008

## References

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Fig. 12,13,14. Wildcat, Site 21 – Selce, April 2008; Brown bear, Site 15 – Sence, March 2008; Wolf, Site 28 – Osoj, April 2008

<sup>1</sup>Macedonian Ecological Society

<sup>2</sup>Coordinated research projects for the conservation and management of carnivores in Switzerland

<sup>3</sup>The "Balkan Lynx Recovery Programme" is a partnership project between the Macedonian Ecological Society (MES), the Society for Protection and Preservation of Natural Environment in Albania (PPNEA), the Coordinated Research Projects for the Conservation and Management of Carnivores in Switzerland (KORA), the European Nature Heritage Fund (Euronatur), and the Norwegian Institute for Nature Research (NINA). The project is aiming to conserve the Critically Endangered Balkan lynx through a three step approach: (1) Compile baseline data allowing the development of (2) a range-wide Conservation Strategy that will be implemented through (3) national Action Plans. Further information at [www.catsg.org/balkanlynx](http://www.catsg.org/balkanlynx)

"Hi guys, I'm back in the picture!"

