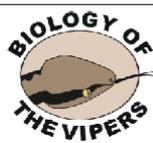


3<sup>rd</sup> Biology of the Vipers  
Conference Calci (Pisa, Italy)  
31<sup>st</sup> March-2<sup>nd</sup> April 2010



Museum Nat History of  
University Pisa



# Viperids in the snake community in Bou Hedma National Park central Tunisia

**Mohsen KALBOUSSI (1) & Dino SCARAVELLI (2,3,4)**

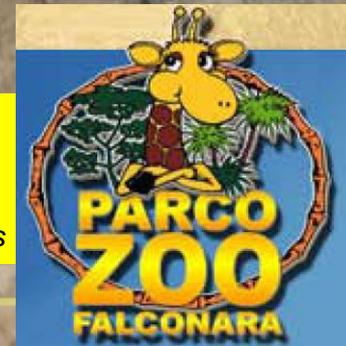
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Partially founded by  
Parco Zoo Falconara  
*research and conservation projects*



As most of North Africa Tunisia is certainly very interesting for its reach reptiles fauna.

Also the central part of the country is the border of different biogeographical belts

**66 species**



## Reptiles of Tunisia

### Reptiles

#### Order

#### Chelonians

1. *Caretta caretta*
2. *Chelonia mydas*
3. *Dermochelys coriacea*
4. *Emys orbicularis*
5. *Mauremys leprosa*
6. *Testudo graeca*



### Squamates

#### Amphisbaenians

1. *Trogonophis wiegmanni*
2. *Chamaeleo chamaeleon*
3. *Varanus griseus*
4. *Uromastyx acanthinura*
5. *Trapelus tournevillei*
6. *Trapelus mutabilis*

#### Lizards

7. *Tarentola deserti*
8. *Tarentola mauritanica*
9. *Tarentola neglecta*
10. *Hemidactylus turcicus*
11. *Euleptes europaea*
12. *Stenodactylus sthenodactylus*
13. *Stenodactylus petrii*
14. *Tropicolotes tripolitanus*
15. *Chalcides chalcides*
16. *Chalcides mertensi*
17. *Chalcides ocellatus*
18. *Chalcides boulengeri*
19. *Scincus scincus*
20. *Eumeces schneiderii*
21. *Scincopus fasciatus*
22. *Trachylepis vittata*
23. *Timon pater*
24. *Podarcis hispanica*
25. *Psammodromus algirus*
26. *Psammodromus blanci*
27. *Ophisops occidentalis*
28. *Mesalina olivieri*
29. *Mesalina guttulata*
30. *Acanthodactylus boskianus*
31. *Acanthodactylus blanci*
32. *Acanthodactylus erythrurus*
33. *Acanthodactylus maculatus*
34. *Acanthodactylus scutellatus*
35. *Acanthodactylus dumerili*
36. *Acanthodactylus longipes*



### Ophidians

---

*Eryx jaculus*

*Leptotyphlops macrorhynchus*

---

*Naja haje*

*Natrix maura*

*Natrix natrix*

*Lytrochilus diadema*

*Hemorrhois hippocrepsis*

*Hemorrhois algirus*

*Spalerosophis diadema*

*Spalerosophis dolichospilus*

*Coronella girondica*

*Malpolon insignitus*

*Malpolon moilensis*

*Macroprotodon cucullatus*

*Macroprotodon mauritanicus*

*Psammophis schokari*

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*Telescopus tripolitanus*

*Cerastes cerastes*

*Cerastes vipera*

*Vipera latastei*

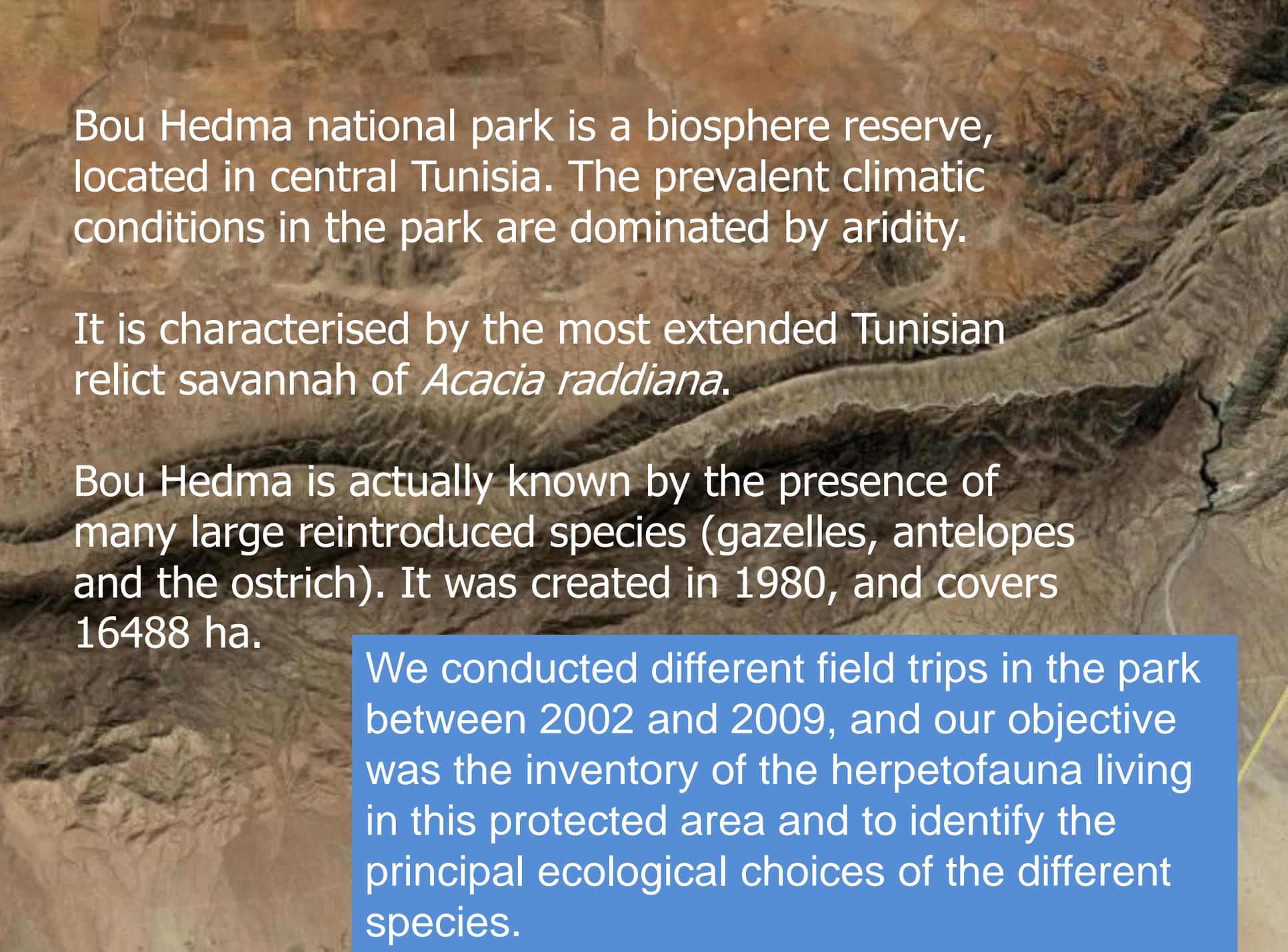
*Macrovipera lebetina*

*Daboia mauritanica*

*Daboia deserti*

---

*Echis leucogaster*

An aerial photograph of a desert landscape in Tunisia. The terrain is arid and rocky, with a prominent, winding, dry riverbed or gully cutting through the center. The colors are various shades of brown and tan, indicating a dry, rocky environment. The text is overlaid on the left side of the image.

Bou Hedma national park is a biosphere reserve, located in central Tunisia. The prevalent climatic conditions in the park are dominated by aridity.

It is characterised by the most extended Tunisian relict savannah of *Acacia raddiana*.

Bou Hedma is actually known by the presence of many large reintroduced species (gazelles, antelopes and the ostrich). It was created in 1980, and covers 16488 ha.

We conducted different field trips in the park between 2002 and 2009, and our objective was the inventory of the herpetofauna living in this protected area and to identify the principal ecological choices of the different species.



**Localization of the park**

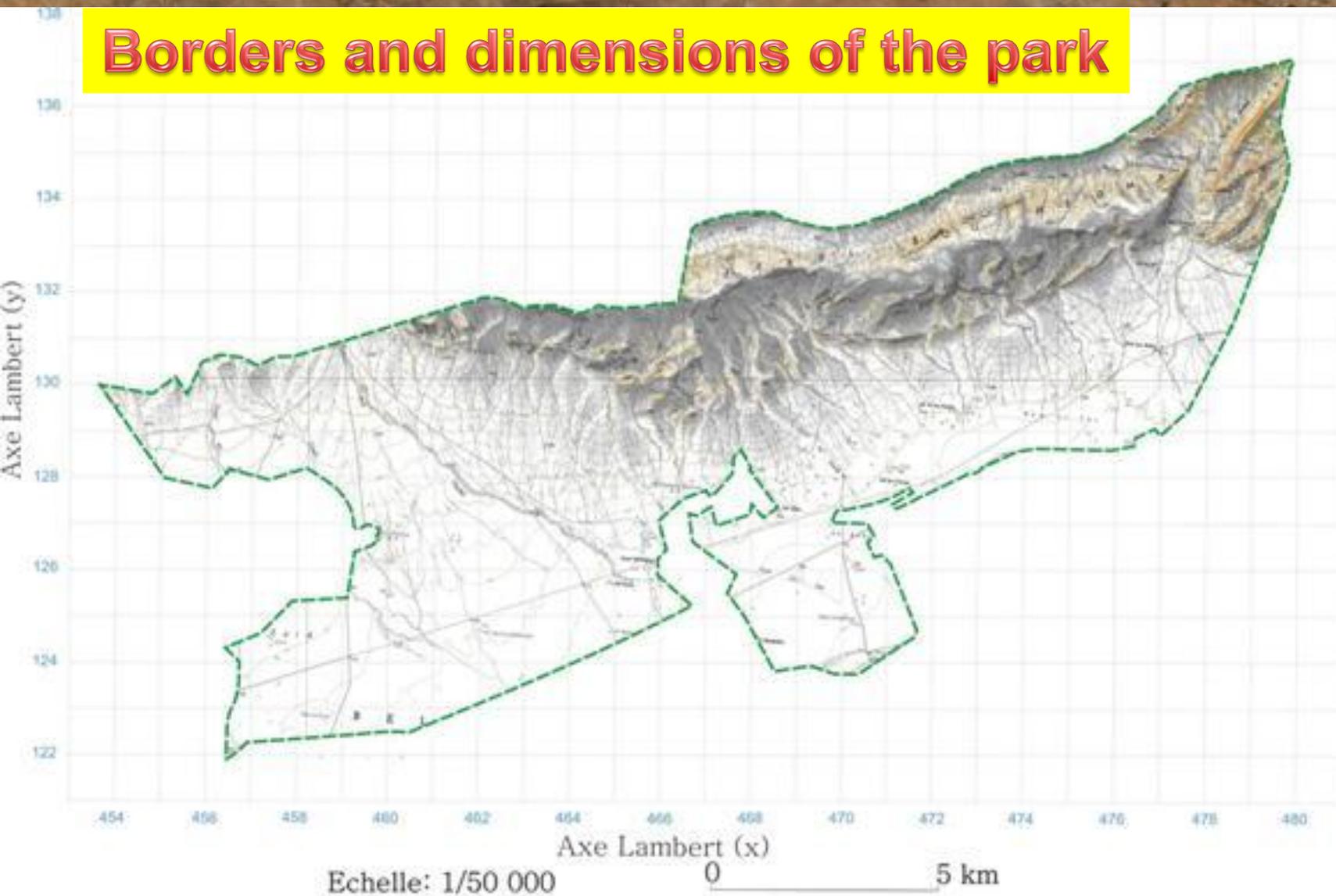


**Localization of the park**

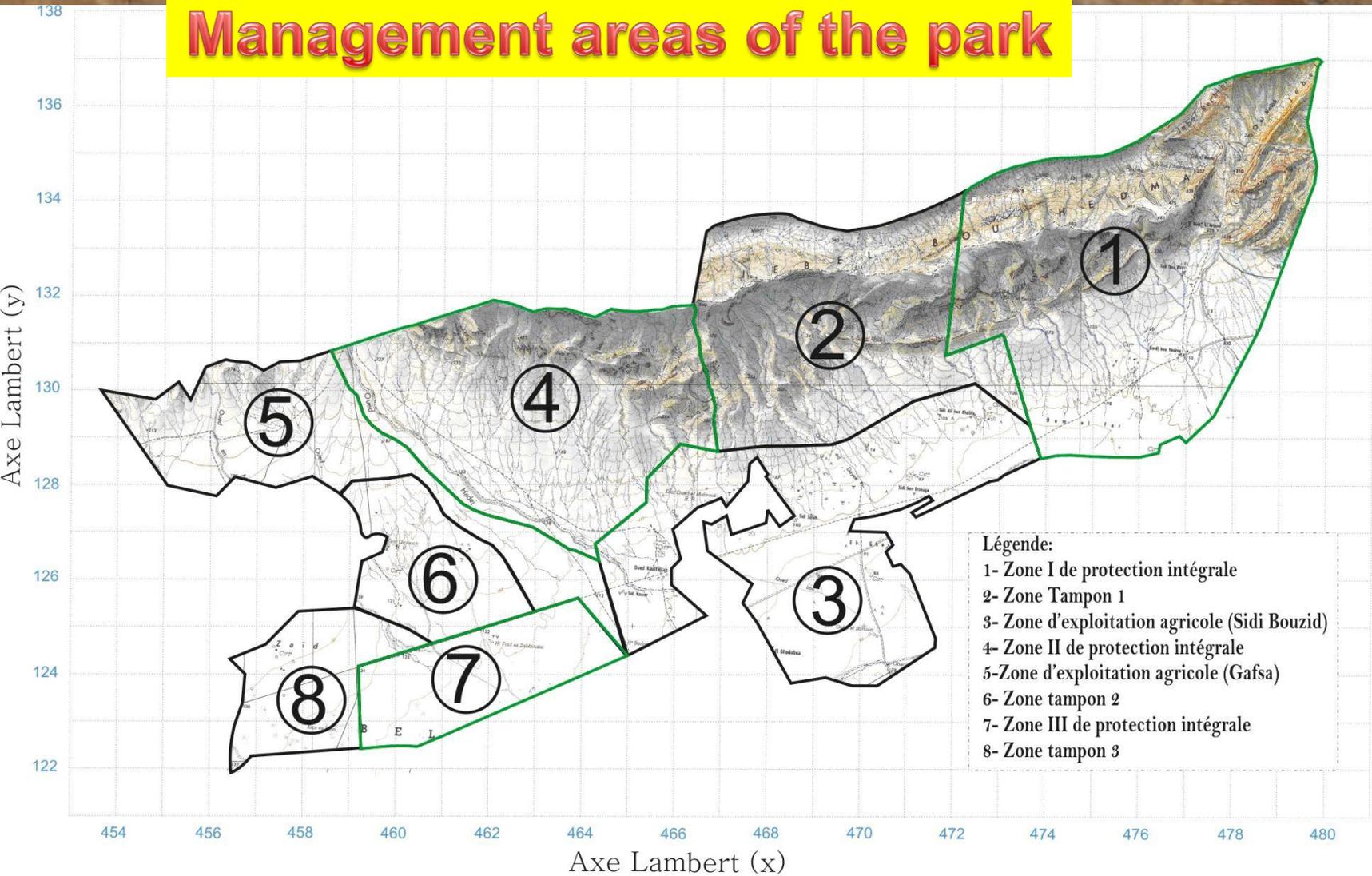


**The park**

# Borders and dimensions of the park



# Management areas of the park



Echelle: 1/50 000

0 5 km

# Park Centre: facilities and visitors educational point

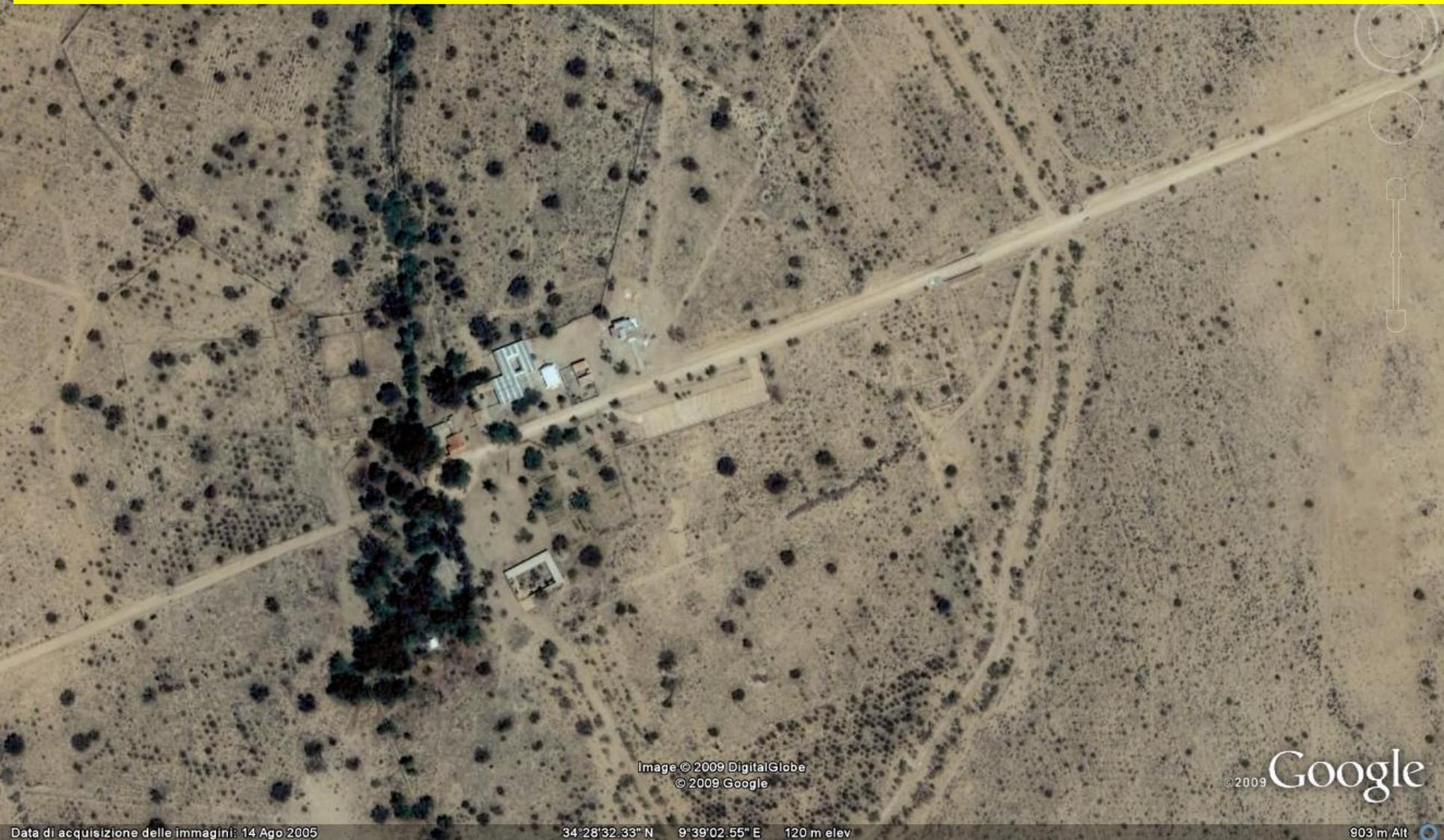


Image © 2009 DigitalGlobe  
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Data di acquisizione delle immagini: 14 Ago 2005

34°28'32.33" N 9°39'02.55" E 120 m elev

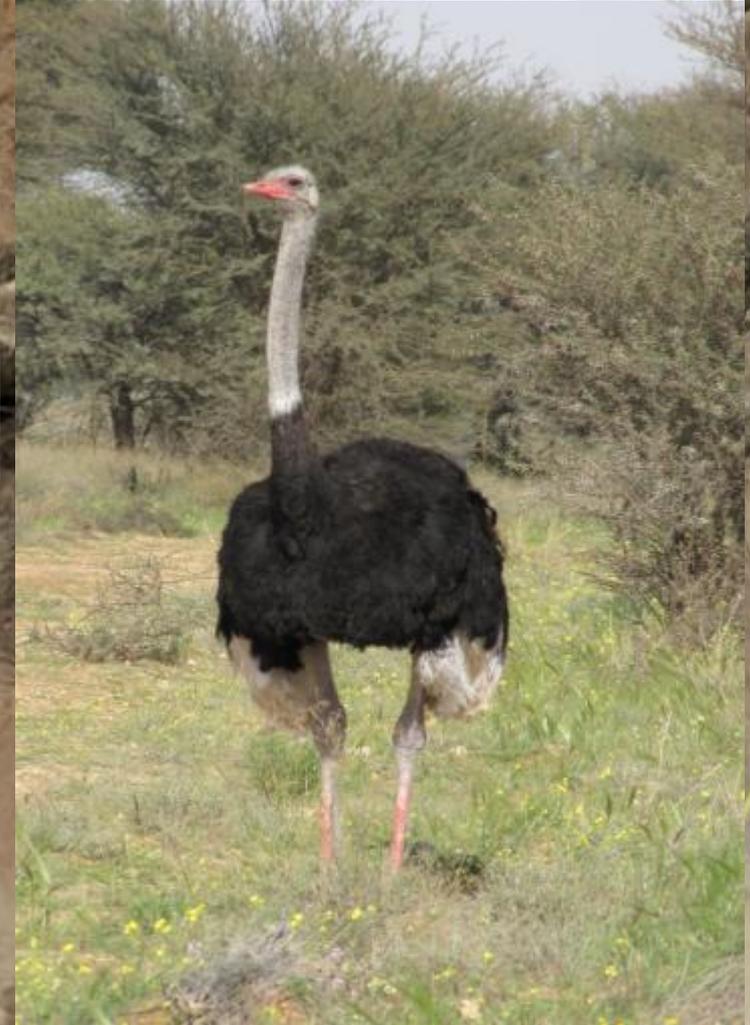
903 m Alt



***Acacia raddiana*: the protagonist  
of the last forested savannah**



**Reintroduction projects:  
effective results**





**Reintroduction projects:  
effective results**

# Snakes

Of 24 snake species recorded in Tunisia, 10 species are actually recognized in the park area (45%).

Viperidae have here 3 species on 7 of the family

*Cerastes cerastes*, *Daboia deserti* and *Echis leucogaster*.



The other 7 species occurring in the snake community are represented by two families: Elapidae with *Naja haje* and Colubridae with *Hemorrhois algirus*, *Hemorrhois hippocrepis*, *Malpolon insignitus*, *Macroprotodon cucullatus*, *Psammophis schokari*, and *Malpolon moilensis*.



**Snakes**

# Snakes



*Naja haje*



# Snakes

*Hemorrhhois algirus*



Interesting to note is the record of *Malpolon insignitus* for the first time in the park.

Here in the hands of the discover, M.Kalboussi



Among the vipers only *C. cerastes* is classified as Low concern by IUCN but both *D. deserti* and *E. leucogaster* are Near Threatened.

*C. cerastes* is the most common species in this area, inhabiting the plain savannah as well as the mountain shrub land and the arid neighbouring of the desert, but also all the steppic areas around.



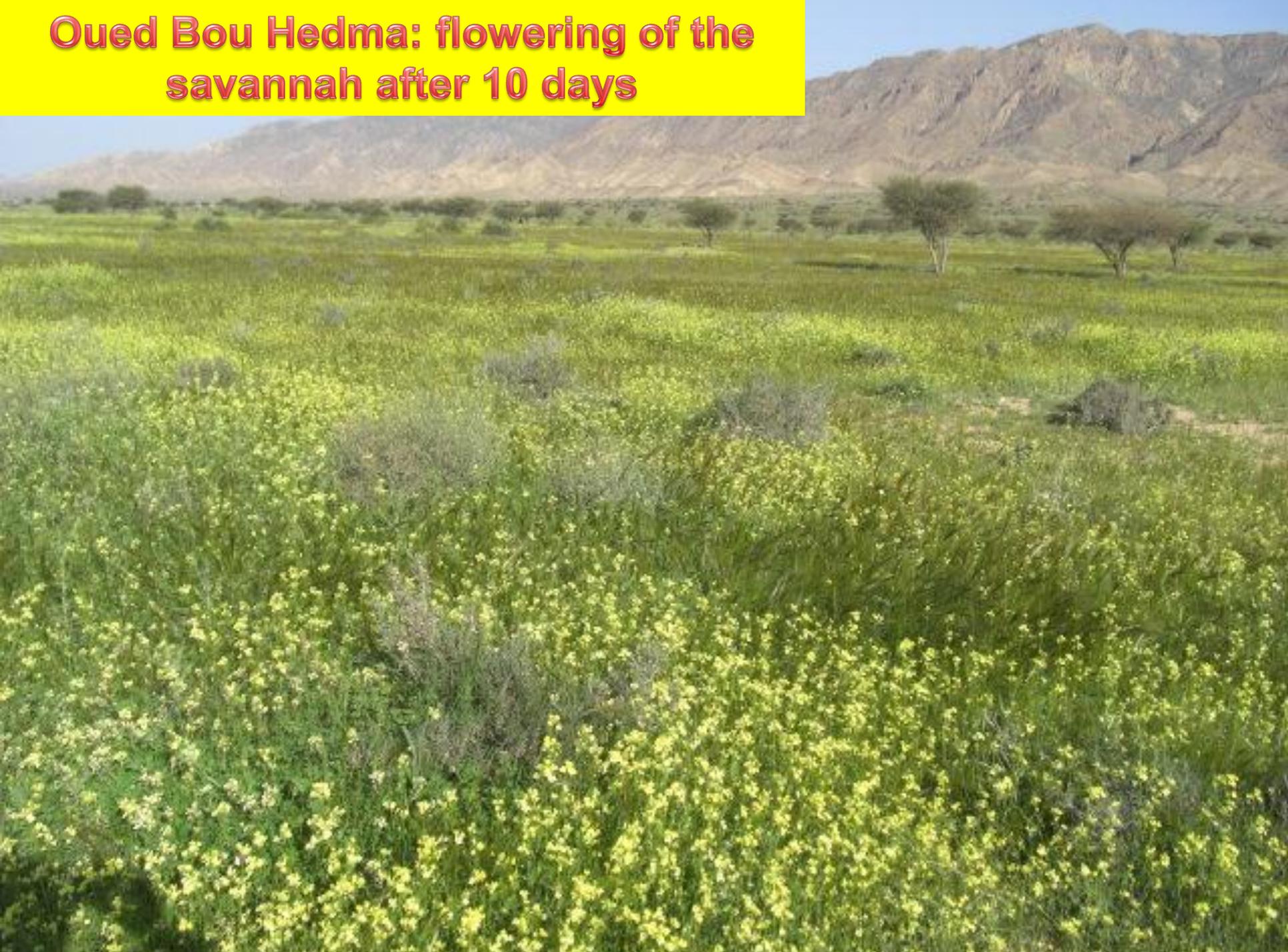
**Oued Bou Hedma: sandy soil around the creek, were the vipers live**



Oued BouHEdma: the flood after the storm



**Oued Bou Hedma: flowering of the savannah after 10 days**



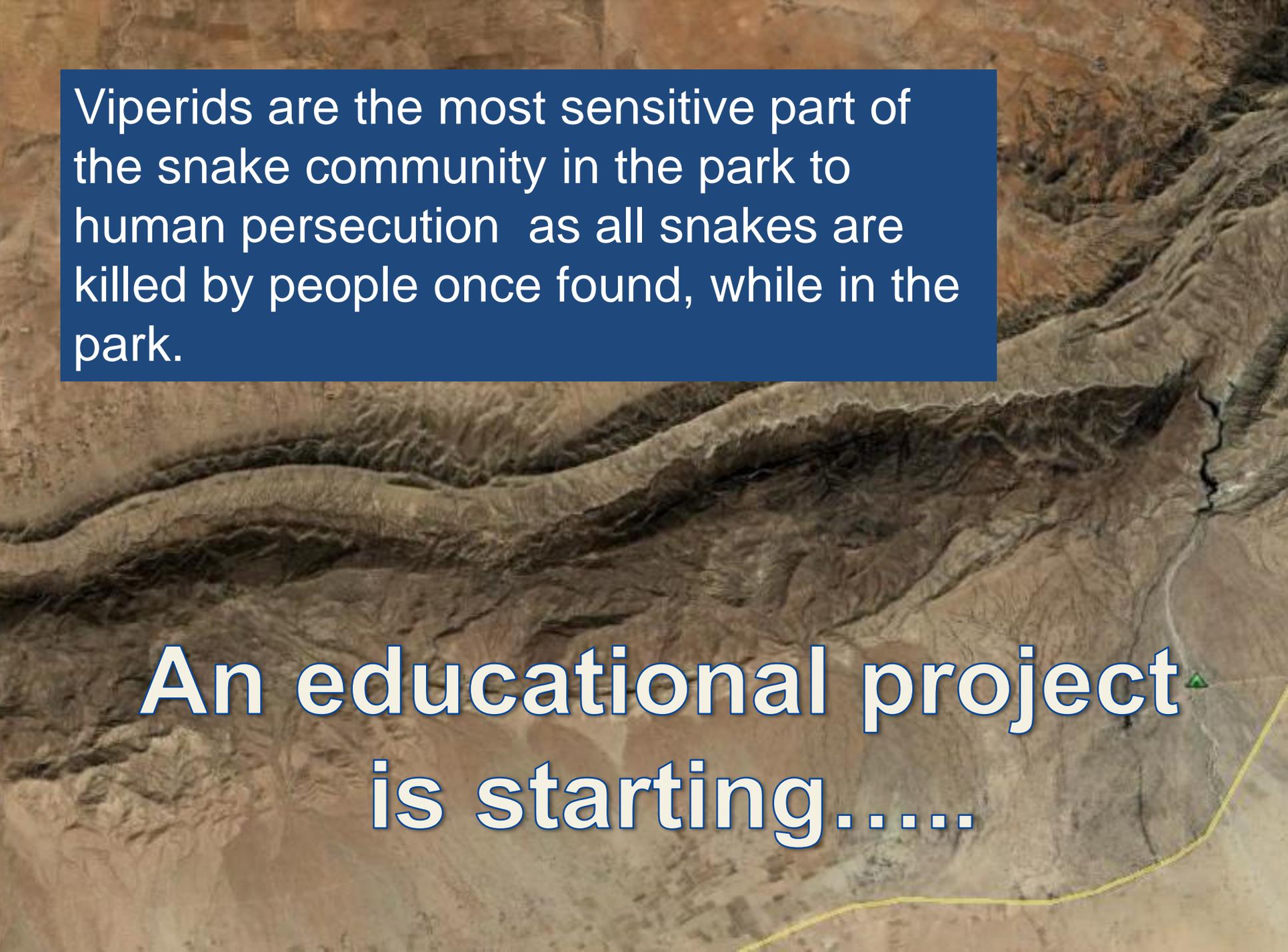
*D. deserti* was found in very few individuals only in the upper parts of Mont Bou Hedma which covers the southern part of the park and overhangs the surrounding plains.



*E. leucogaster* was found only once in the mountainous part of the park. It is one of the most rare Viperid species in Tunisia.

## Arid slopes of the mountain ridge



An aerial photograph of a desert canyon with layered rock formations and a winding river. A blue rectangular text box is overlaid in the upper left quadrant.

Viperids are the most sensitive part of the snake community in the park to human persecution as all snakes are killed by people once found, while in the park.

**An educational project  
is starting.....**



**The study in the field was followed by  
the local forest guards and people**



**Here the personnel of the park after a day talking on snake and wildlife protection**



**A local festival was occasion for education activities with the inhabitants**

We hope to find the possibility to go deeper in the study and to have the opportunity to increase the local awareness on reptiles



Merci  
Thanks

شكرا

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University Pisa



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# Abstract Book

Marco A.L. ZUFFI (Editor)

Museum Natural History and Territory, University of Pisa, Italy



Photo by Giacomo Radi



used for laboratory experiments (experiments are going on) and for educational purposes (e.g. to learn how to manipulate snakes, for school exhibitions, etc.).

Vipers and Education

Viperids in the snake community in Bou Hedma National Park, central Tunisia

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\*reference author

Key-words: Viperid, Snake community, Tunisia, Bou Hedma National Park.

Bou Hedma national park is a biosphere reserve, located in central Tunisia. The prevalent climatic conditions in the park are dominated by aridity. It is characterised by the most extended Tunisian relict savannah of *Acacia raddiana*. Bou Hedma is actually known by the presence of many large reintroduced species (gazelles, antelopes and the ostrich). It was created in 1980, and covers 16488 ha. We conducted different field trips in the park between 2002 and 2008, and our objective was the inventory of the herpetofauna living in this protected area and to identify the principal ecological choices of the different species. Of 24 snake species recorded in Tunisia, 10 species are actually recognised in the park area (45%). Viperidae have here 3 species on 7 of the family: *Cerastes cerastes*, *Daboia deserti* and *Echis leucogaster*. The other 7 species occurring in the snake community are represented by two families: Elapidae with *Naja haje* and Colubridae with *Hemorrhhois algirus*, *Hemorrhhois hippocrepis*, *Malpolon insignitus*, *Macroprotodon cucullatus*, *Psammodphis schokari*, and *Malpolon moilensis*. Interesting to note is the record of *Malpolon insignitus* for the first time in the park. Among the vipers only *C. cerastes* is classified as Low concern by IUCN but both *D. deserti* and *E. leucogaster* are Near Threatened. *C. cerastes* is the most common species in this area, inhabiting the plain savannah as well as the mountain shrub land and the arid neighbouring of the desert, but also all the steppic areas around.

*D. deserti* was found in very few individuals only in the upper parts of Mont Bou Hedma which covers the southern part of the park and overhangs the surrounding plains. *E. leucogaster* was found only once in the mountainous part of the park. It is one of the most rare Viperid species in Tunisia. Viperids are the most sensitive part of the snake community in the park to human persecution as all snakes are killed by people once found, while in the park. A general consideration on protection and ecology of the snake species are presented.