

# UNFAVOURABLE CONSERVATION STATUS OF *RHINOLOPHUS FERRUMEQUINUM* IN SLOVENIA

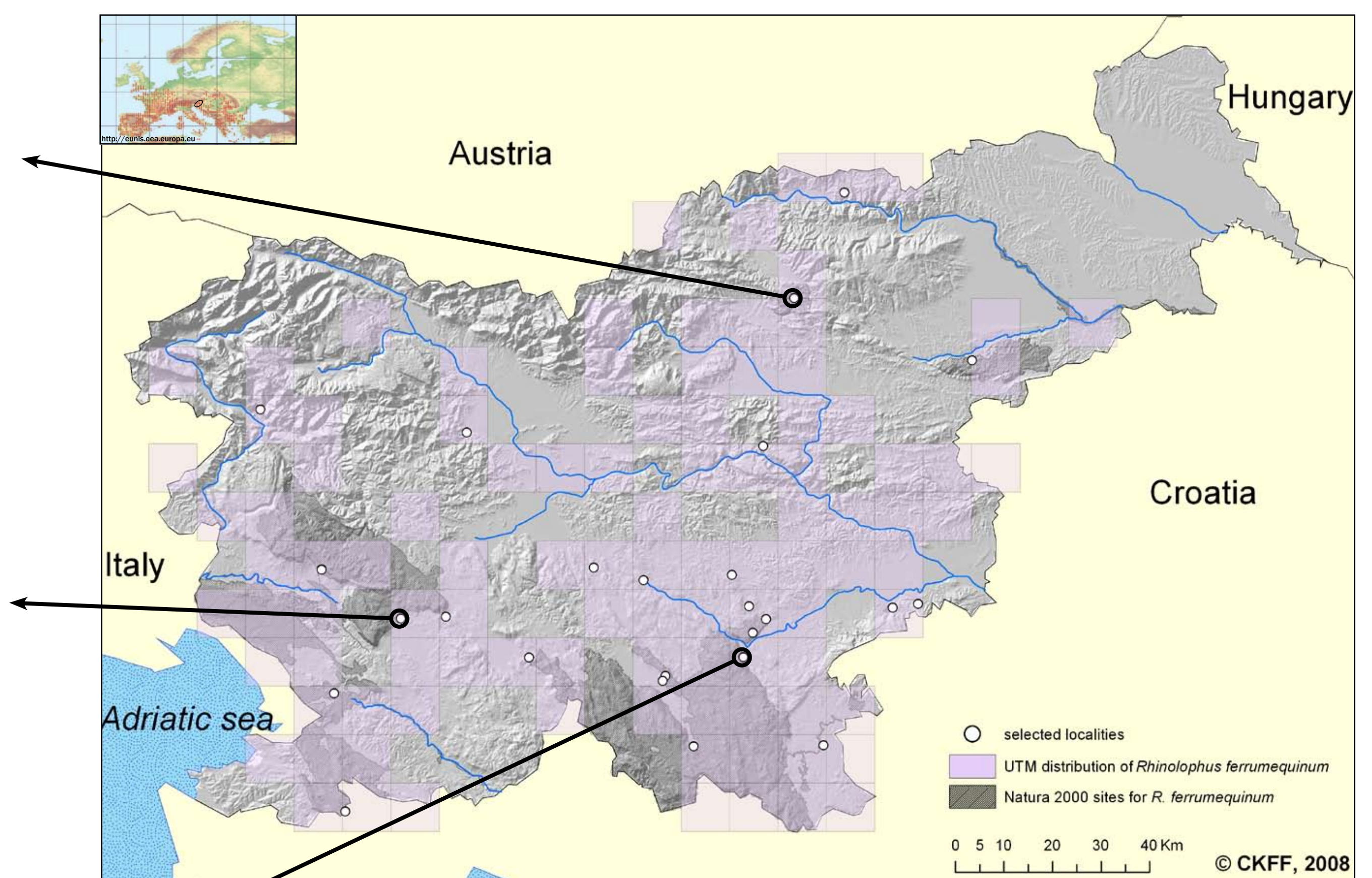
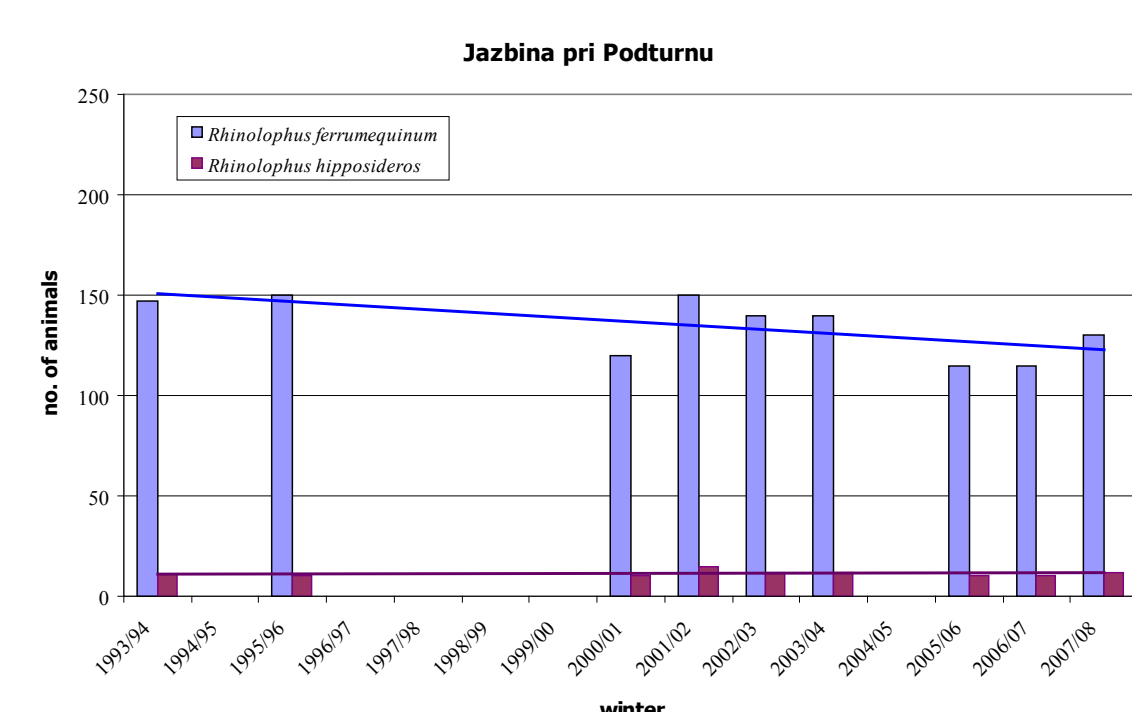
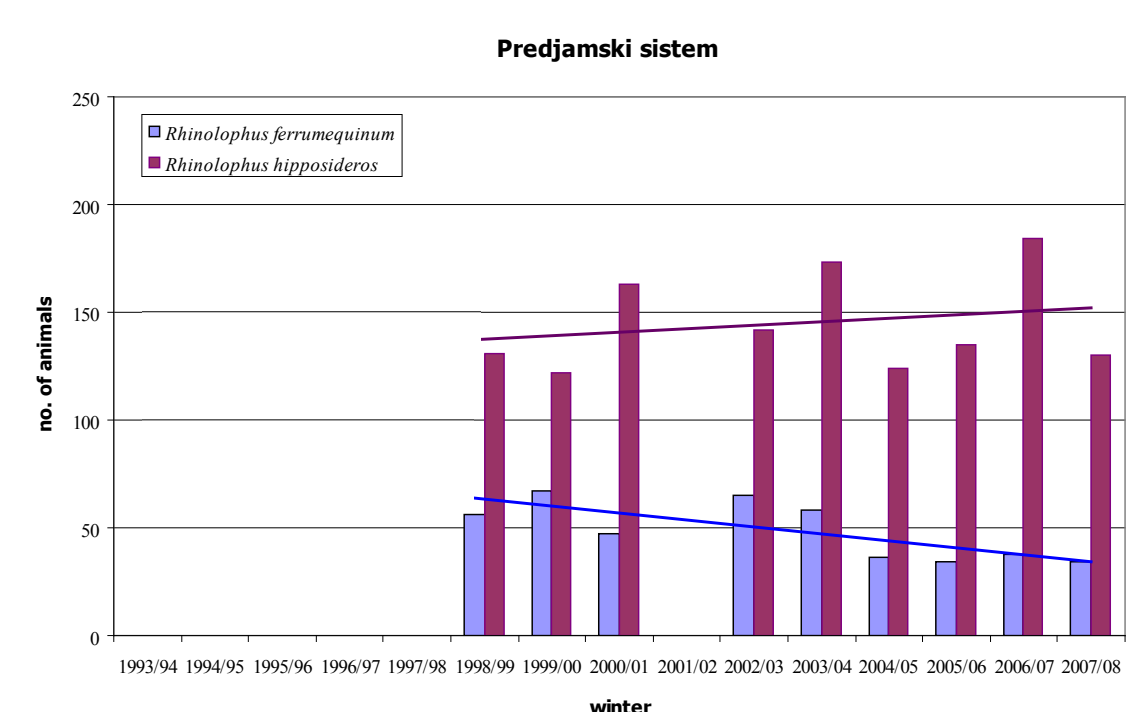
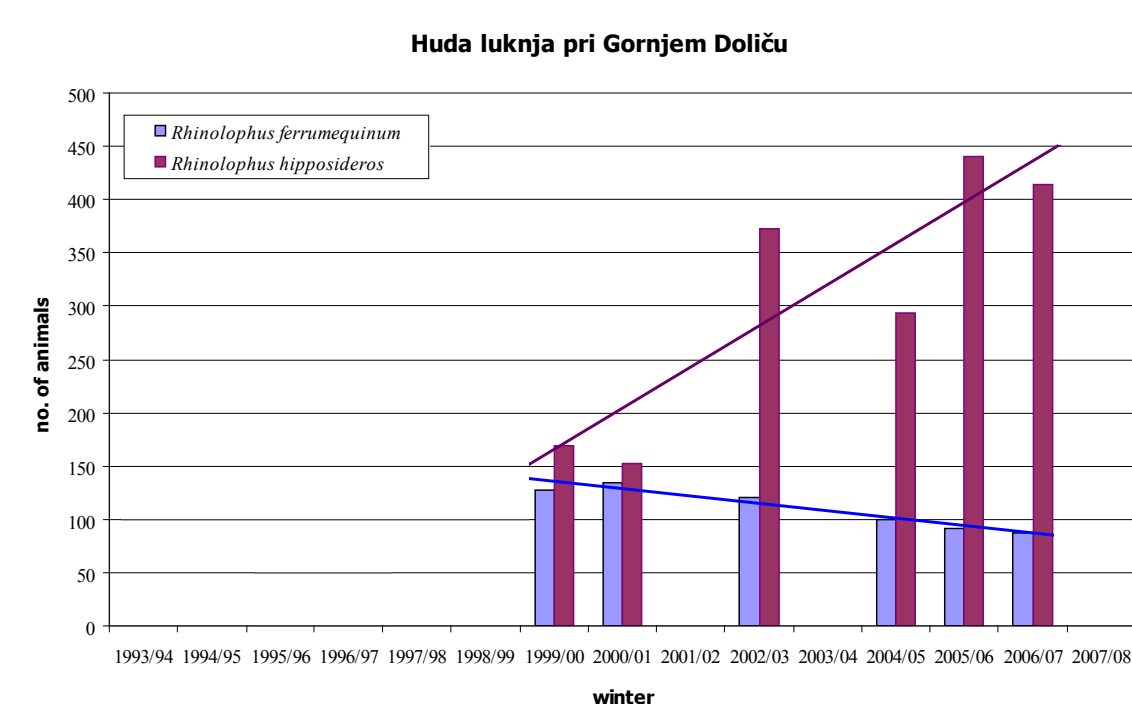
PRIMOŽ PRESETNIK<sup>1</sup>, ANDREJ HUDOKLIN<sup>2</sup> and MONIKA PODGORELEC<sup>1</sup>

<sup>1</sup>Centre for Cartography of Fauna and Flora, Ljubljana office, Klunova 3, SI-1000 Ljubljana, Slovenia; E-mail: primoz.presetnik@ckff.si, monika.podgorelec@ckff.si  
<sup>2</sup>Ob Sušici 15, 8350 Dolenjske Toplice, Slovenia, E-mail: andrej.hudoklin@zrsvn.si

## STATUS

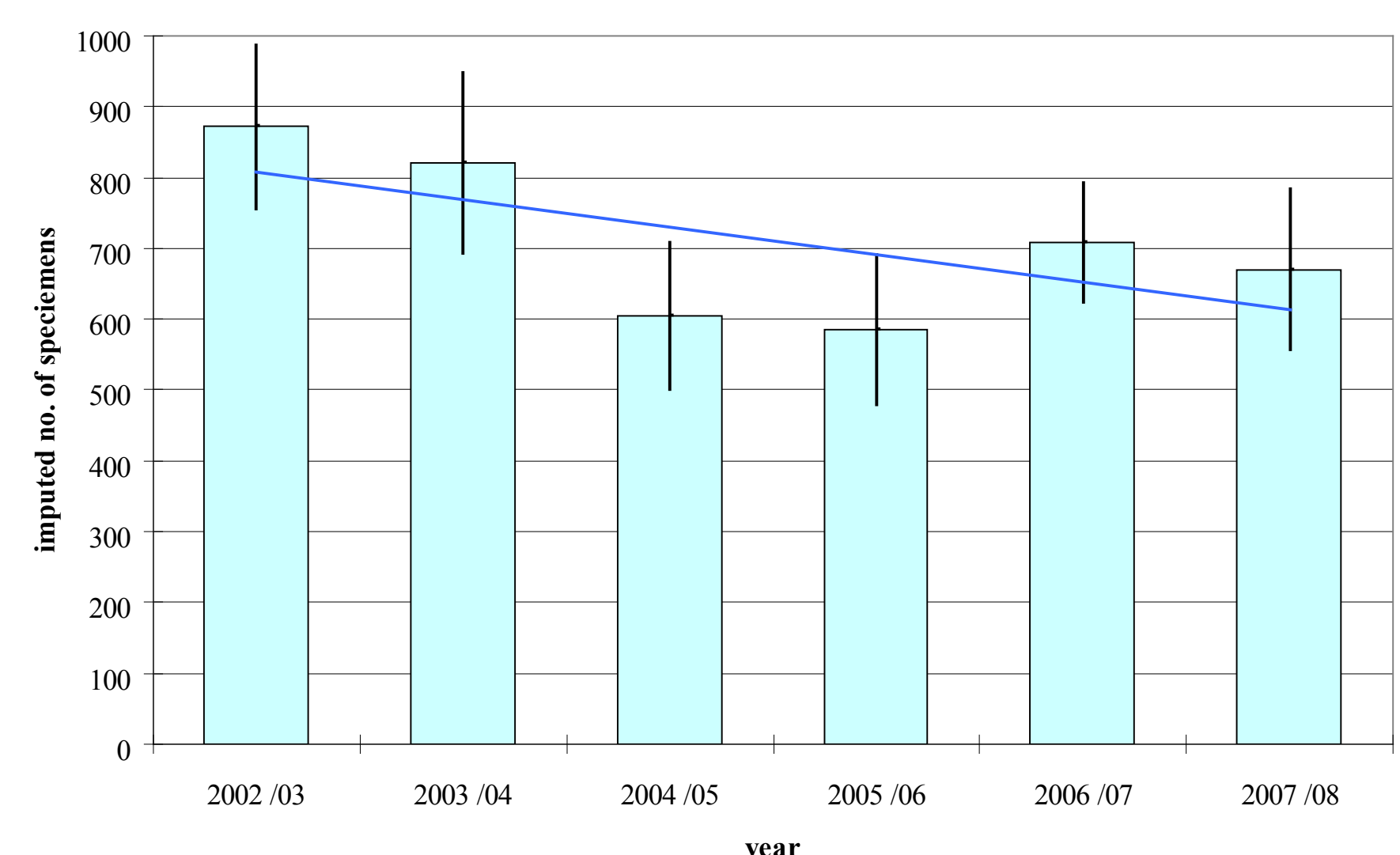
*Rhinolophus ferrumequinum* reaches the northern edge of its European distribution in Slovenia and it is found approximately in 40% of the country (figure below right). It is common in southern regions, but rare in the Alps and missing in the NE. Maternity roosts are located both in caves (3) and in attics (5). The estimated population size is roughly 2000 to 3000 specimens.

Its hibernacula have been monitored for the longest period of time in Slovenia, although regular surveys of a few sites only started in the early 90s of the last century. A large number of hibernacula geographically covering the whole species area have been monitored from 2002 when surveys on maternity roosts also began (figure below right).



## PROBLEM

Numbers of *R. ferrumequinum* has noticeably decreased in some of hibernacula with longest monitoring datasets (figures left). Therefore we have tested if that negative trend is noticeable also for the whole Slovenia.



## RESULTS

Data analysis (program TRIM) of 27 hibernacula covering distributional range of the species in Slovenia (figure above right), has shown more than a 20% decline ( $p < 0.05$ ) in the numbers over the past 6 years (figure right); a decline especially evident in hibernacula at the northern distribution edge (e.g. in the Huda luknja pri Gornjem Doliču cave and the Predjamski cave system).

The causes of the decline are not clear and are, apparently, specific for *R. ferrumequinum* as *R. euyale* (estimated 500-1000 specimens in Eastern Slovenia) shows stable numbers in hibernacula, and the population of *R. hipposideros* (27.000-33.000 specimens in Slovenia) is even increasing ( $p < 0.05$ ).

## CONCLUSIONS

*R. ferrumequinum* in Slovenia therefore meets two of the conditions for unfavourable conservation status. In the worst case scenario if the negative population trend continues (figure right):

- 1) the species cannot maintain itself on a long term basis – in the next 25 years a decline of more than 50 % is expected (red alert!),
- 2) the natural range of the species will be reduced within a decade or two.

## RECOMENDED RESEARCH

To gain a better insight into the ecological requirements of *R. ferrumequinum*, endangering factors and possible mitigation measures for specific colonies, research should focus on:

- foraging habitats,
- migration routes,
- a search for undiscovered maternity or hibernation roosts of the known colonies and continuation of monitoring.

## Acknowledgements:

In last decade many persons have participated in the surveys of bat hibernacula and each help was valuable. Thank you: Ana Celestina, Brane Čuk, Andrej Drevenšek, Matej Dular, Cene Fišer, Franci Janžekovič, Katerina Jazbec, Andrej Kapla, Klemen Koselj, Jure Košutnik, Simona Kralj, Irena Kranjec, Irena Krašna, Boris Kryštufek, Matej Kržič, Zvezdana Kržič, Nace Labernik, Manca Markelj, Blanka Markovič, Jure Marolt, Tomaž Miklavčič, Jana Mlakar, Matija Perne, Alenka Petrinjak, Slavko Polak, Mitja Prelovšek, Aleksandra Privšek, Lucija Ramšak, Silvo Ramšak, Zdeněk Řehák, David Stankovič, Miha Staut, Uroš Stepišnik, Marjetka Šemrl, Branka Tavzes, Aleš Tomažič, Dušan Tominc, Tomi Trilar, Alojz Troha, Rafko Urankar, Boštjan Vrviščar, Mojca Vrviščar Zazula, Maja Zagmajster, Valerija Zakšek, Jan Zukan, Nataša Zupancič, Uroš Žibrat, Jože Žumer.