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SURVEY OF RARE AND ENDANGERED PLANTS ON ARABLE LAND IN THE CZECH REPUBLIC

Michaela Kolářová, Luděk Tyšer, Josef Soukup
Dept. of Agroecology and Biometeorology
Faculty of Agrobiology, Food and Natural Resources, Czech University of Life Sciences,
Kamýcká 957, 165 21 Praha 6 - Suchdol, Czech Republic, e-mail: mkolarova@af.czu.cz

INTRODUCTION

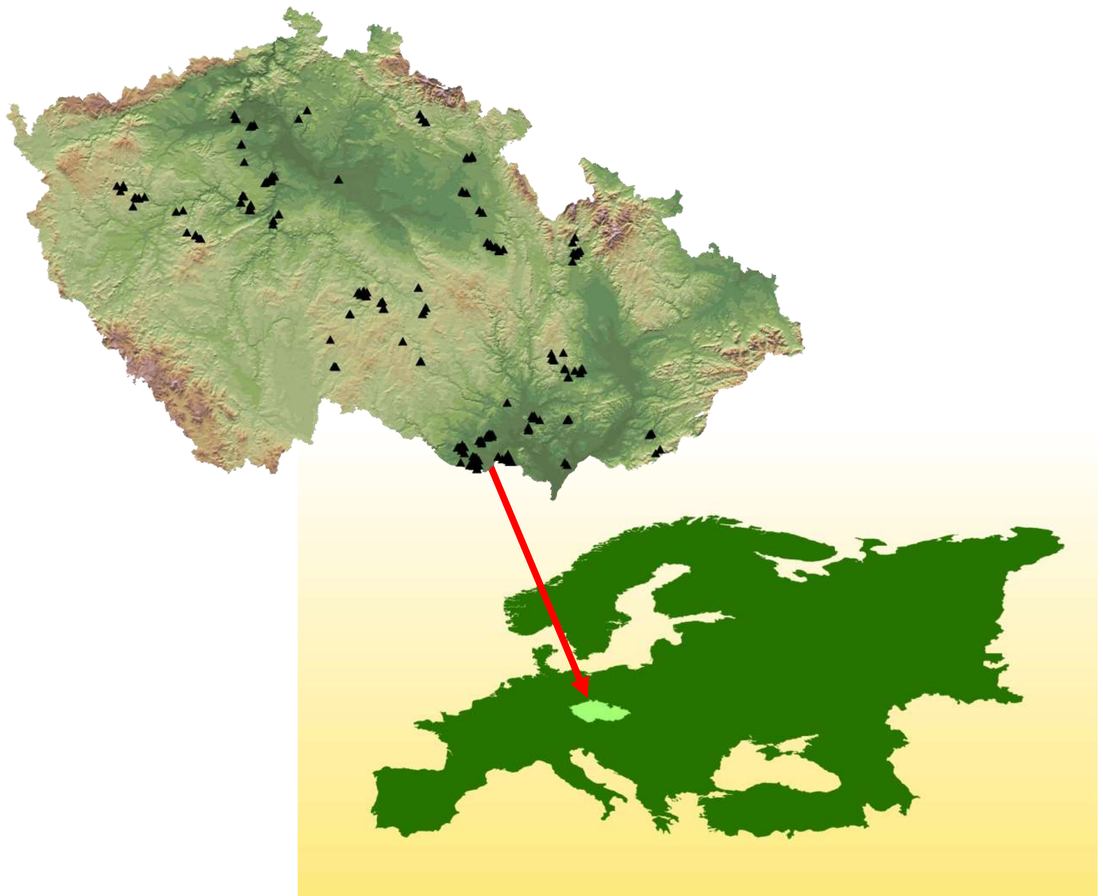
Diversity of weed communities has been changing during the history of agriculture due to introduction of non-native species and different adaptation ability of individual species on new developments in farming practices.

OBJECTIVES

The aim of study was to explore current situation in occurrence of rare and endangered weedy plants associated historically with crops under influence of soil management systems, and environmental site conditions.

METHODOLOGY

Our survey was conducted in 2006-2008 on conventional and organic farms in winter cereals, spring cereals and root crops. At each site, one phytocoenological relevé (100 m^2) was recorded in the field centre in the period of full vegetation growth. The coverage of species was estimated using Braun-Blanquet cover-abundance scale. Totally, 290 relevés have been recorded.



Phytocoenological relevés recorded

RESULTS

From totally 172 plant species found, 19 are listed on Black and Red List of Vascular Plants of the Czech Republic. Five species are there classified as strongly threatened, 7 as threatened, and 7 as less endangered requiring further monitoring. Regarding the origin, only 3 of them were native (apophytes), and other 16 were non-native (naturalized archaeophytes). Based on constancies, occurrence of endangered species was 4.5 times higher in organic than in conventional agriculture, and approximately 2 to 3 times higher in cereals than in root crops. The highest number of endangered and rare species is associated with *Caucalidion lappulae* alliance in cereals on slightly alkaline soils.

Although the weed diversity decreased in last decades, rare species still occurred in approximately one third of fields visited in our study. Majority of species classified as endangered were mainly non-native archaeophytes which are not capable of adaptation to current agricultural practices.

Occurrence of rare and endangered weed species (sorted by constancies)

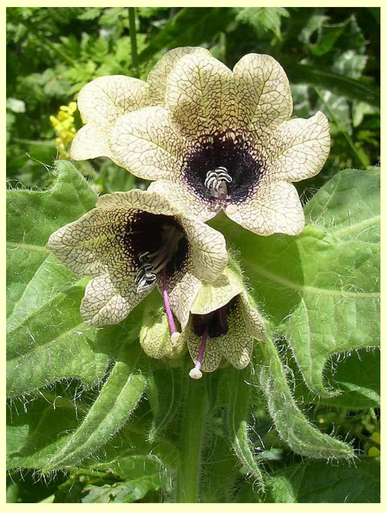
Taxon	CE	Constancies
Silene noctiflora	LR	17.59
Centaurea cyanus	LR	8.28
Lycopsis arvensis	LR	8.28
Galium spurium	LR	7.93
Aphanes arvensis	VU	3.10
Papaver dubium	LR	3.10
Veronica agrestis	EN	2.41
Hyoscyamus niger	VU	2.07
Odontites vernus	EN	2.07
Stachys annua	EN	2.07
Adonis aestivalis	EN	0.69
Anagallis foemina	VU	0.69
Anthemis austriaca	VU	0.69
Papaver argemone	LR	0.69
Ranunculus arvensis	VU	0.69
Valerianella dentata subsp. *dentata*	LR	0.69
Coronopus squamatus	EN	0.34
Euphorbia falcata	VU	0.34
Rhinanthus alectorolophus	VU	0.34

CE - category of endangerment; EN - endangered; VU - vulnerable; LR - lower risk

Papaver dubium

Odontites vernus

Centaurea cyanus



Hyoscyamus niger

Adonis aestivalis

Rhinanthus alectorolophus

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