

Ecological differentiation of dry grassland vegetation communities within the Steppe zone of Central Russian Upland (Ukrainian part)



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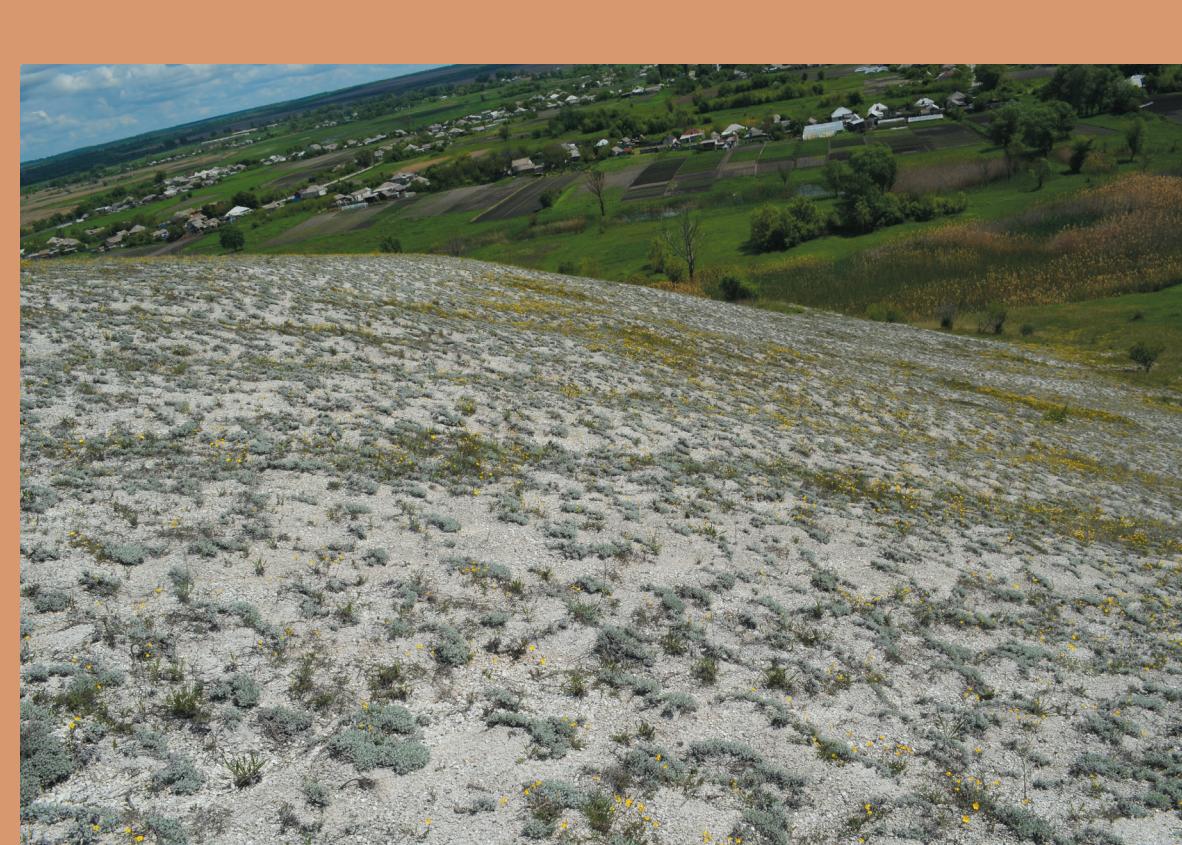
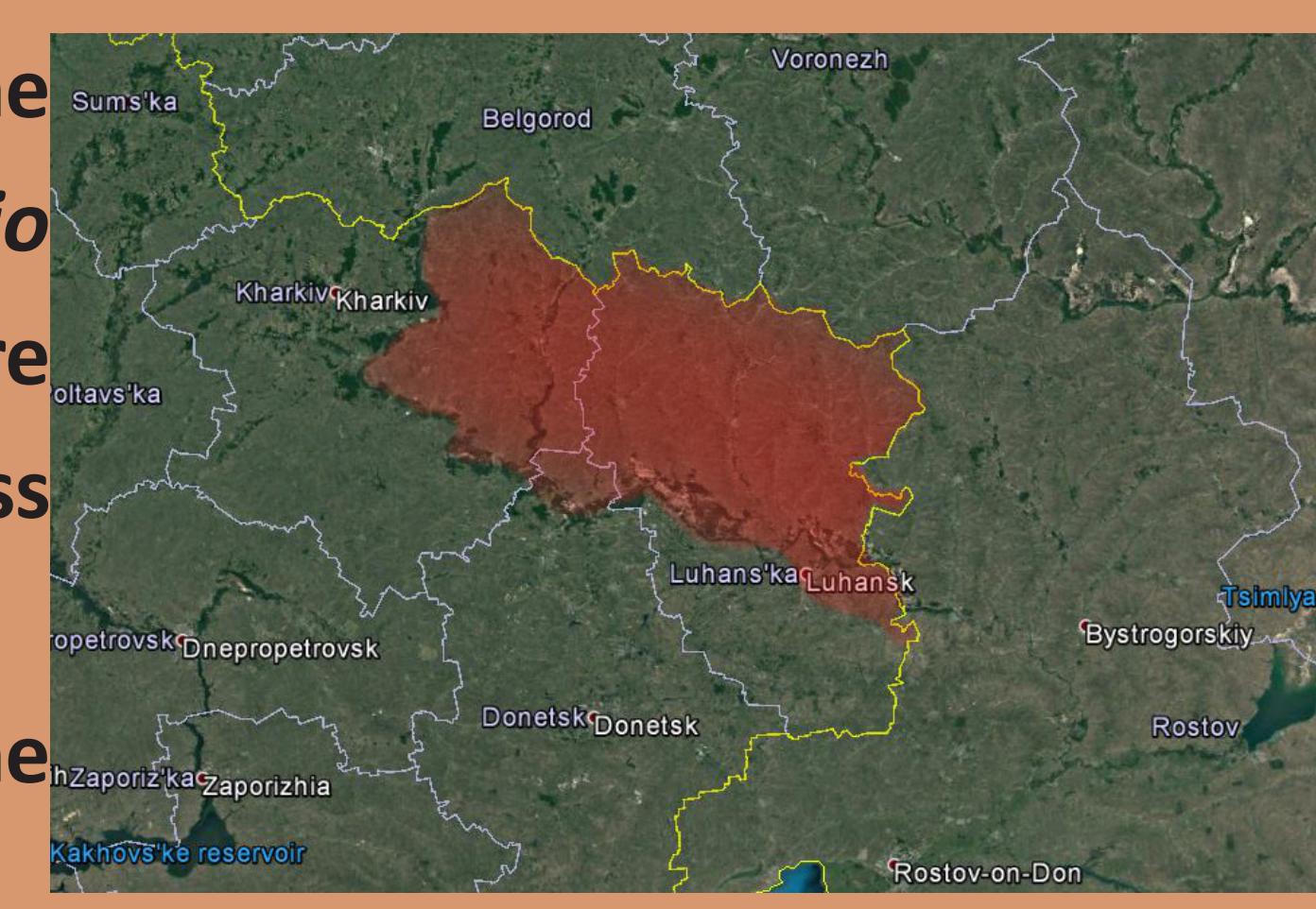
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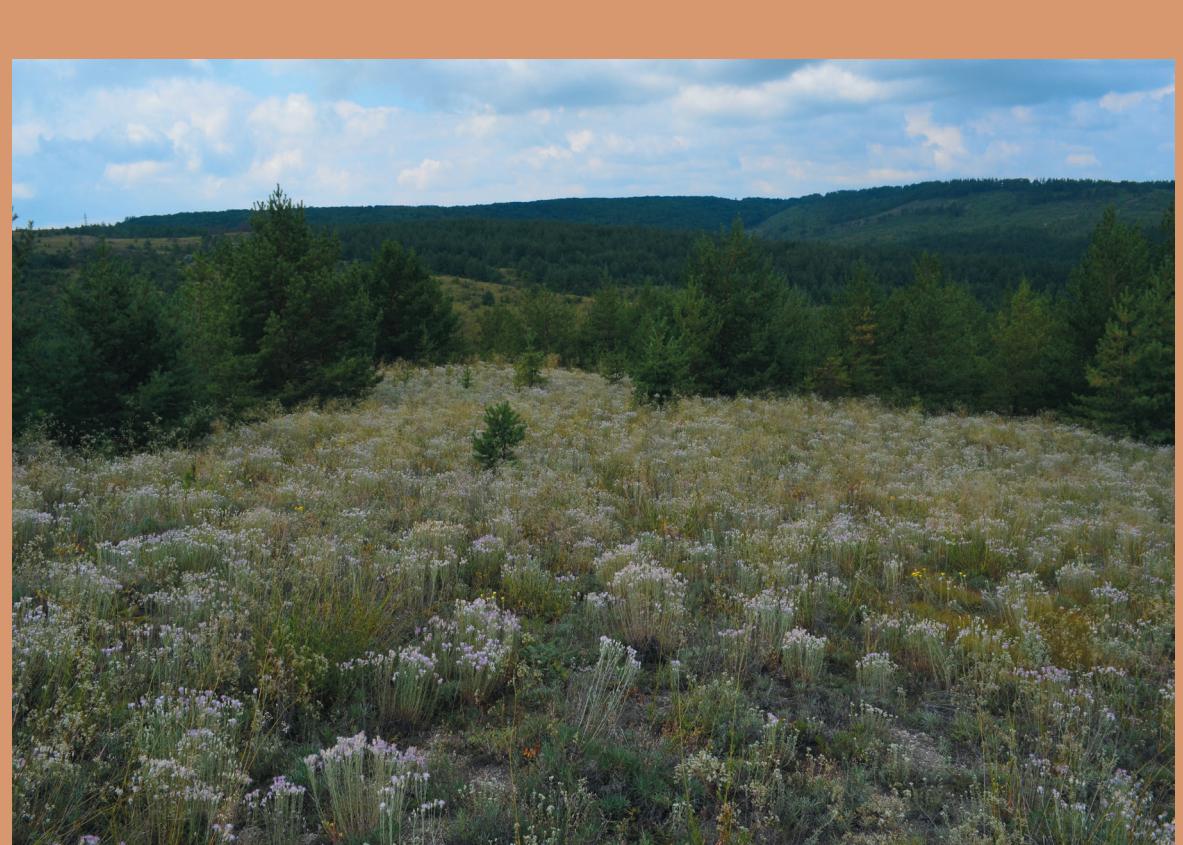
Presence of chalk outcrops within the Central Russian Upland determine development of tomillares and «lowered alpine plants», unique types of vegetation. Its correspond to the three alliances (*Artemisio hololeucae-Hyssopiion cretacei*, *Euphorbio cretophilae-Thymion cretacei* and *Centaureo carbonatae-Koelerion talievii*). The first and second alliances communities are referred to the order *Hyssopetalia cretacei* and the associations of third one are transition to the typical herb bunchgrass steppe and include a quantity of steppe species, wherefore its sometimes refer to order *Festucetalia valesiacae*.

Our goal is to determine the ecological characteristics of the steppic and cretaceous dry grassland communities within the Steppe zone of Central Russian Upland (Ukrainian part) and to trace the boundary between them.

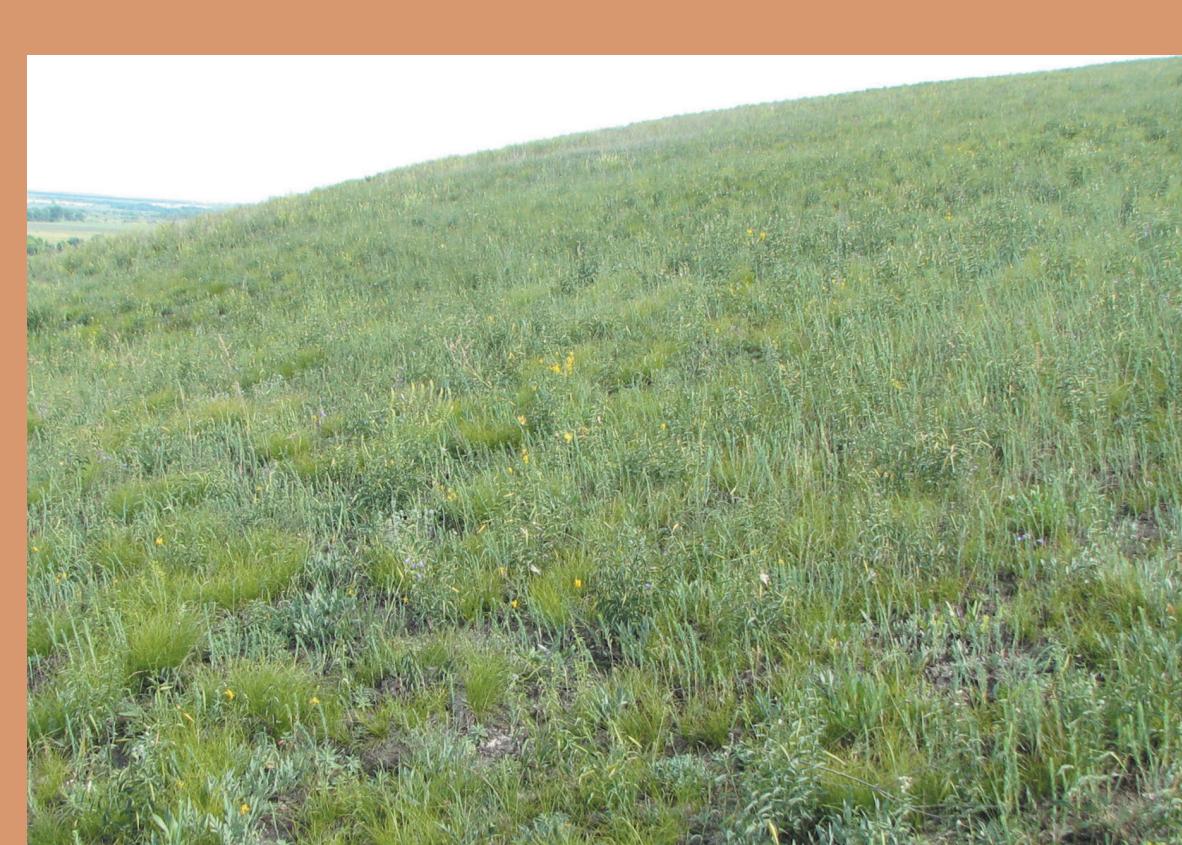
Based on the synphytoindication methodology by the ecological scales (Didukh, 2012) there were conducted syntaxa analyze by measure of 12 leading ecological factors.



Artemisio hololeucae-Hyssopiion cretacei



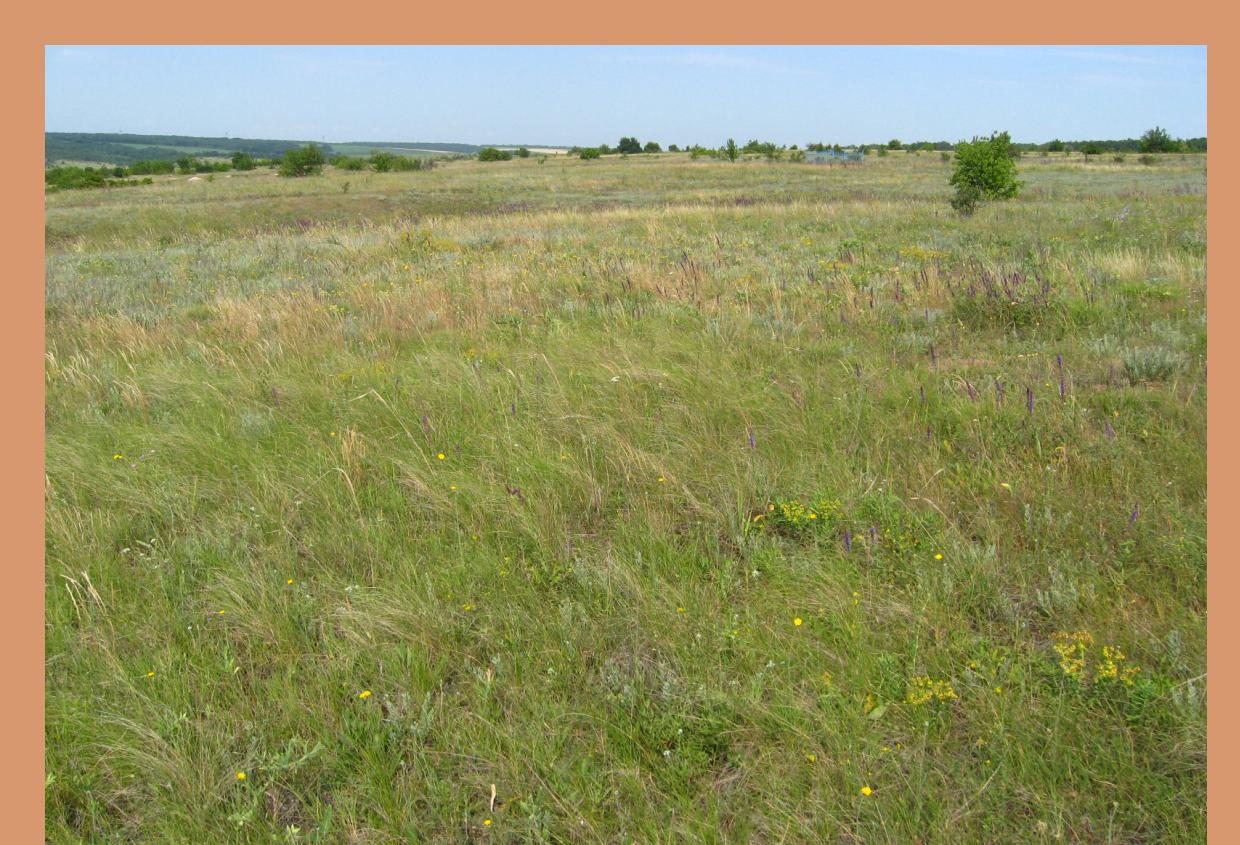
Euphorbio cretophilae-Thymion cretacei



Centaureo carbonatae-Koelerion talievii

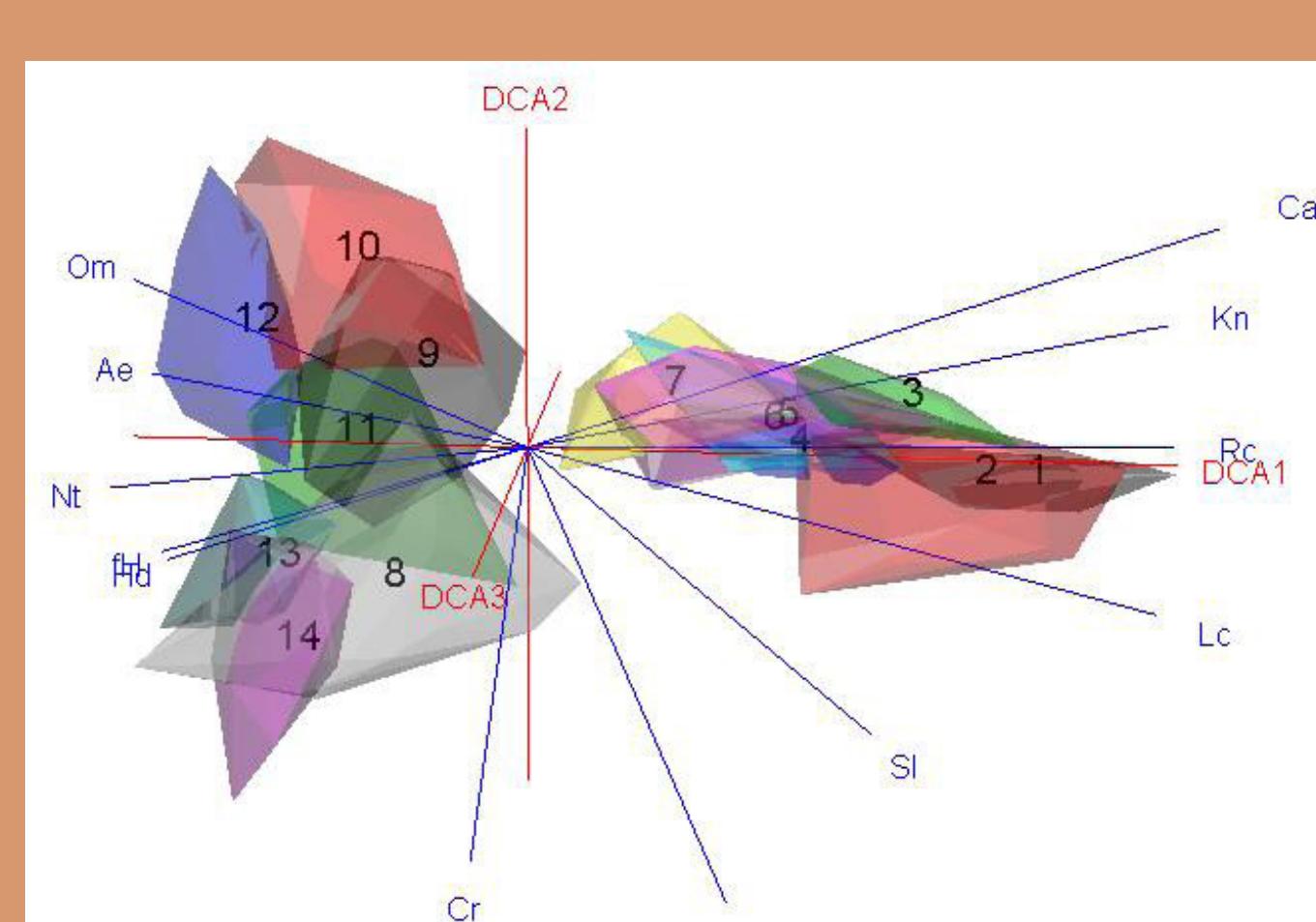


Marrubio praecocis-Stipion lessingiana



Festucion valesiacae

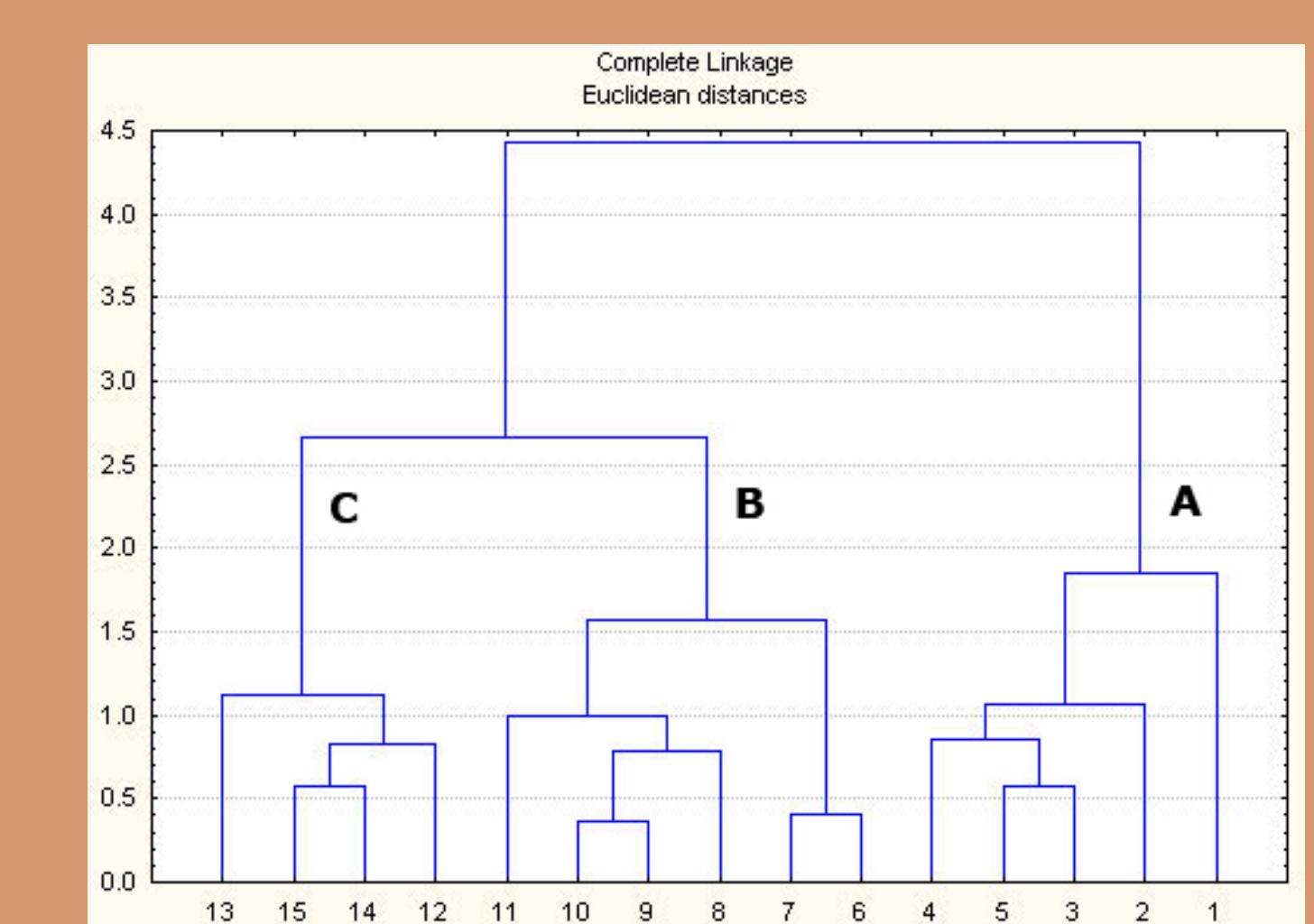
DCA-ordination of associations by ecological factors



The classification scheme of dry grassland vegetation

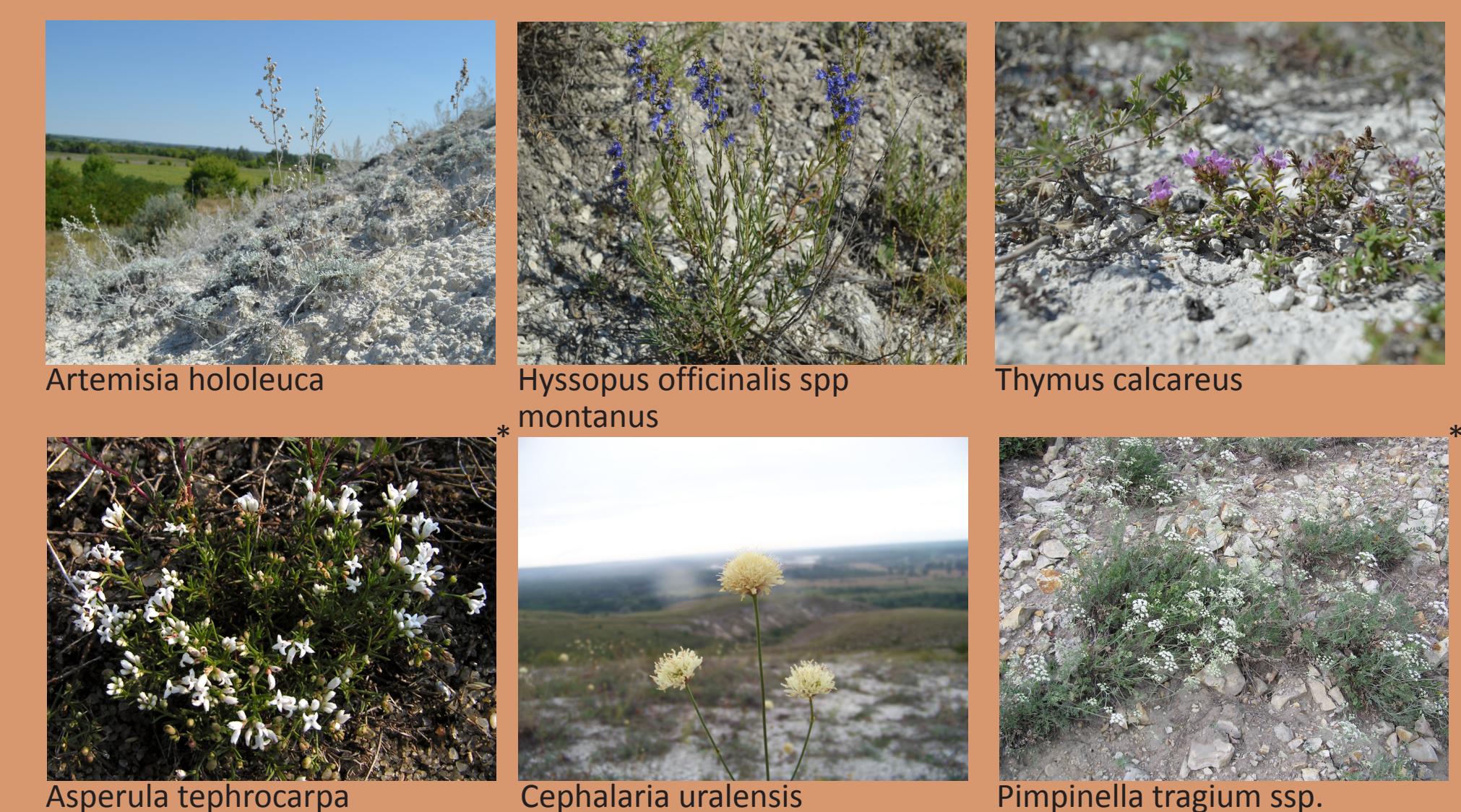
- Cl. *Helianthemo-Thymetea* Didukh et V. Solomakha 1996 (???)
- Ord. *Hyssopetalia cretacei* Didukh 1989
- All. *Artemisio hololeucae-Hyssopiion cretacei* Romashchenko, Didukh et V. Solomakha 1996
- 1. *Artemisio nutans* – *Plantaginetum salsae* Didukh 1989
- 2. *Artemisio hololeucae* – *Polygaletum cretaceae* Didukh 1989
- All. *Euphorbio cretophilae-Thymion cretacei* Didukh 1989
- 3. *Euphorbio cretophilae* – *Jurinetum brachycephalae* Didukh 1989
- 4. *Pimpinello titanophyllae* – *Artemisetum salsoloides* Didukh 1989
- All. *Centaureo carbonatae-Koelerion talievii* Romashchenko, Didukh et V. Solomakha 1996
- 5. *Androsacio koso-poljanskii* – *Caricetum humilis* Didukh, Korotchenko, 1998
- 6. *Bupleuro falcatae* – *Stipetum capillatae* Romashchenko, Didukh et V. Solomakha 1996
- 7. *Gypsophiloi oligospermae* – *Campanuletum sibiricae* Romashchenko, Didukh et V. Solomakha 1996
- Cl. *Festuco-Brometea* Br.-Bl. et R.Tx. in Br.-Bl. 1949
- Ord. *Festucetalia valesiacae* Br.-Bl. et R.Tx. in Br.-Bl. 1943
- All. *Marrubio praecocis-Stipion lessingiana* Vynokurov 2014
- 8. *Stipo lessingiana-Salviетum nutantis* Vynokurov 2014
- 9. *Astragalo austriaci-Salviętum nutantis* Korotchenko et Didukh 1997
- 10. *Vinco herbaceae-Caraganetum fruticis* Korotchenko et Didukh 1997
- All. *Festucion valesiacae* Klika 1931
- 11. *Medicago romanicae-Poetum angustifoliae* Tkachenko, Movchan et V. Sl., 1987
- 12. *Thymo marshaliani-Crinitarietum villosae* Korotchenko et Didukh 1997
- 13. *Melico transsilvanici-Stipetum capillatae* Korotchenko et Fitsailo 2003
- 14. *Salvio nemorosa-Festucetum valesiacae* Korotchenko et Didukh 1997

Differentiation of syntaxa by the complex of values of major ecological factors



A – Artemisio hololeucae-Hyssopiion cretacei + Euphorbio cretophilae-Thymion cretacei
B – Centaureo carbonatae-Koelerion talievii + Marrubio praecocis-Stipion lessingiana
C – Festucion valesiacae

Typical species of Ord. *Hyssopetalia cretacei*



Typical species of Ord. *Festucetalia valesiacae*



Differentiation of syntaxa by the certain ecological factors

