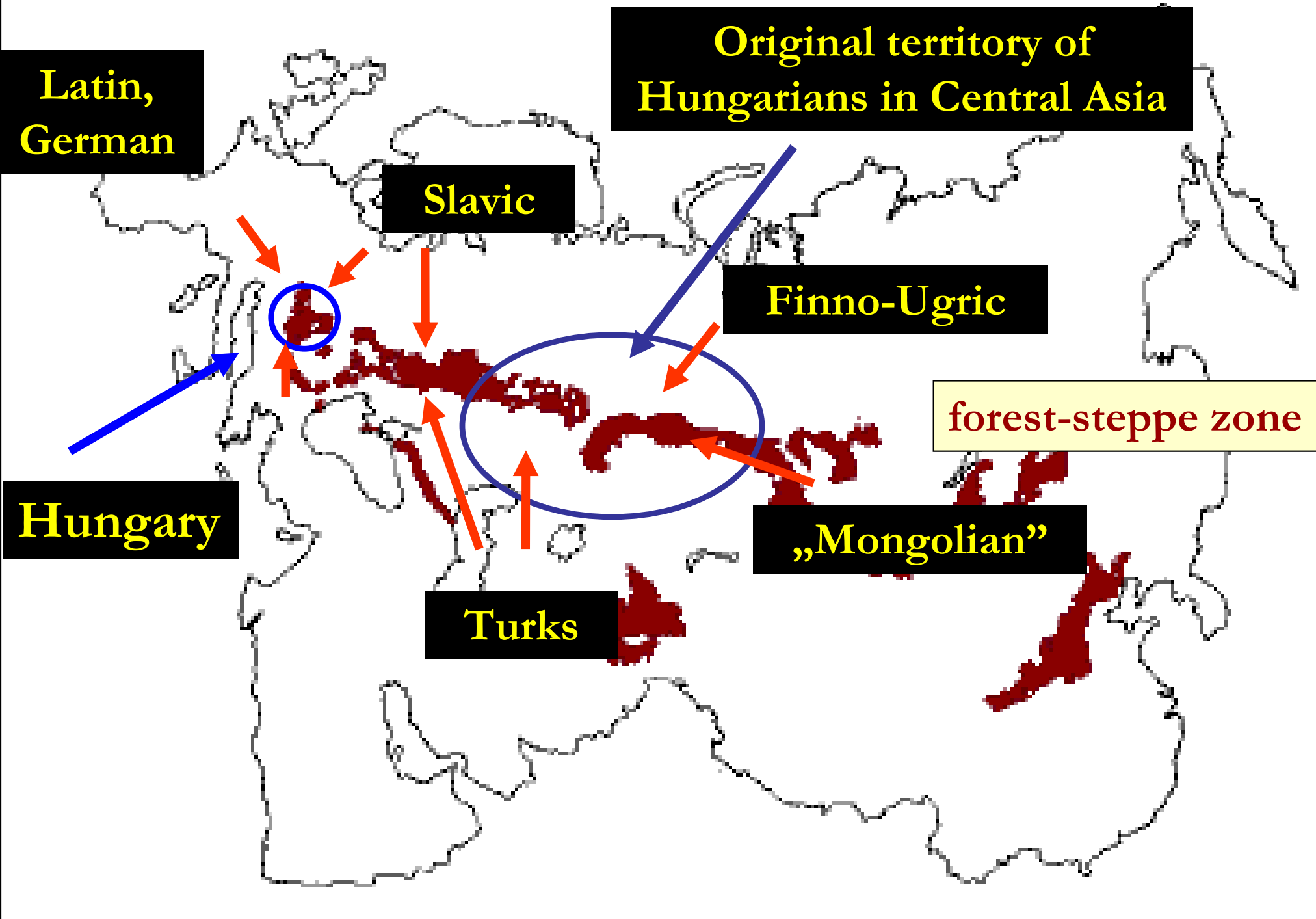


**„It does matter who leans on the stick!” –
herders’ habitat/vegetation knowledge
in a salt steppe (Hungary)**

Molnár, Zsolt





RESEARCH QUESTIONS

- Perception of and knowledge on wild plant species and habitats
- Knowledge of vegetation and landscape changes and history
- Techniques of traditional land-use – relations to vegetation

METHODS

- Flora and vegetation surveys, landscape history
- Free-listing, pile sorting
- Semi-structured interview
- Picture-based questionnaire
- Participatory observation and field work (joining herding, mowing)

telek, állás

nádas, gyíkiányes, zsombikos, fertő

bíbicbaszta főd

lapos, perjés, tocsogó

marikkal rakott főd

szikfok

ürmös

szikporong

sziksavas szűz főd

szikpadka

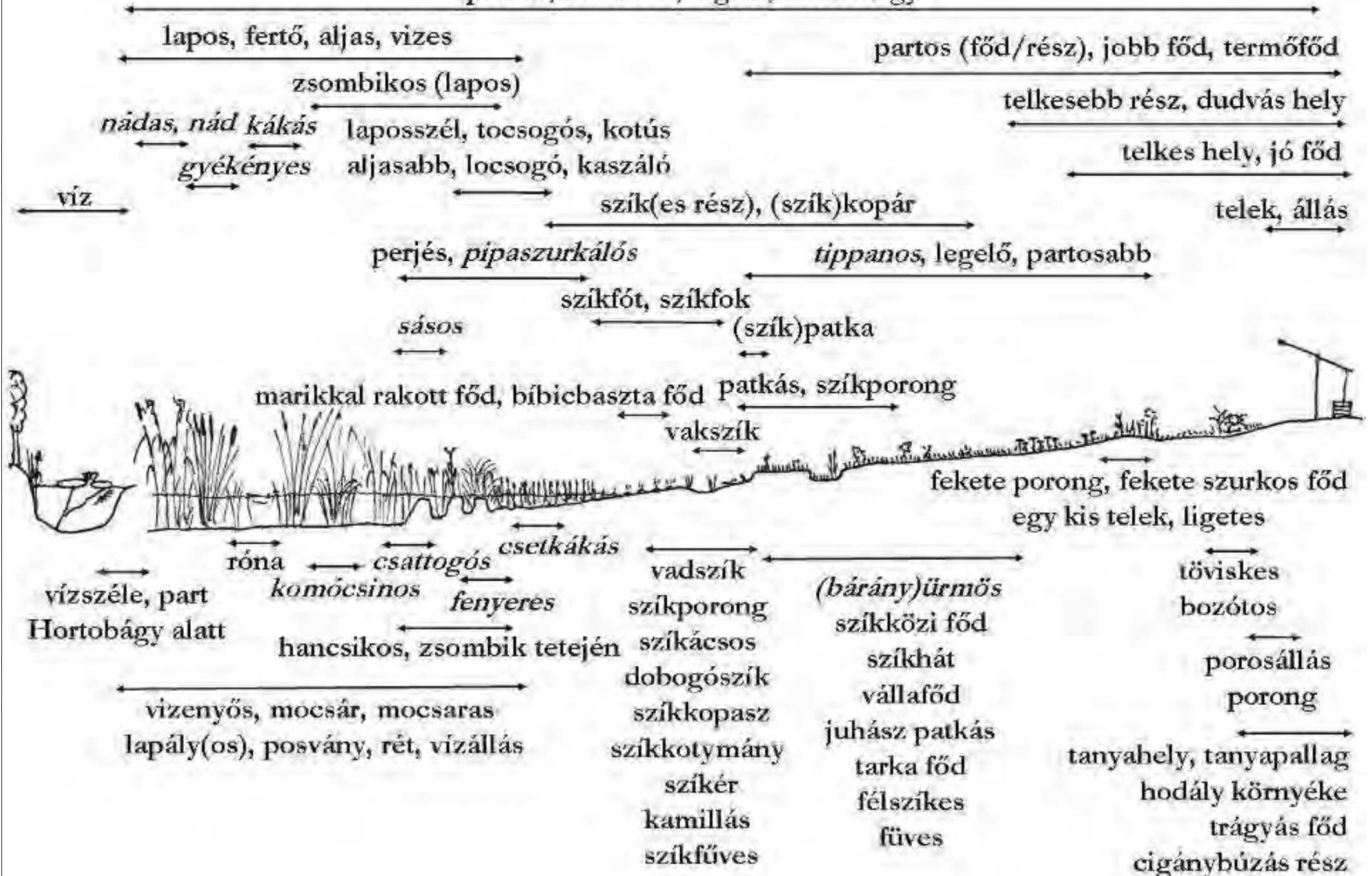
vakszik

juhászapadka

tippanos

**local habitat names
of the steppe**

puszta, fehér föld, legelő, Hortobágy



Card sorts

Card	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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telek2	22	-	23	10	9	6	7	10	4	1	0	0	2	0	2	0	1	1	1	0	0	0	0
nightpl	23	23	-	10	8	6	6	8	4	1	0	0	2	0	2	0	1	1	1	0	0	0	0
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loess2	8	9	8	20	-	10	8	6	10	5	5	5	7	5	2	3	2	2	3	0	0	0	0
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clover	8	10	8	6	6	9	13	-	6	2	1	1	5	1	6	2	3	5	3	2	4	4	2
wormwood	4	4	4	9	10	13	11	6	-	6	5	5	11	5	1	2	2	2	1	0	0	0	0
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Herders

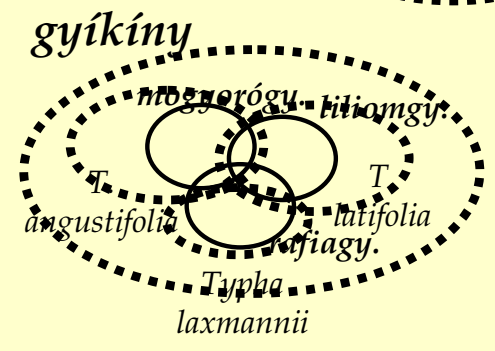
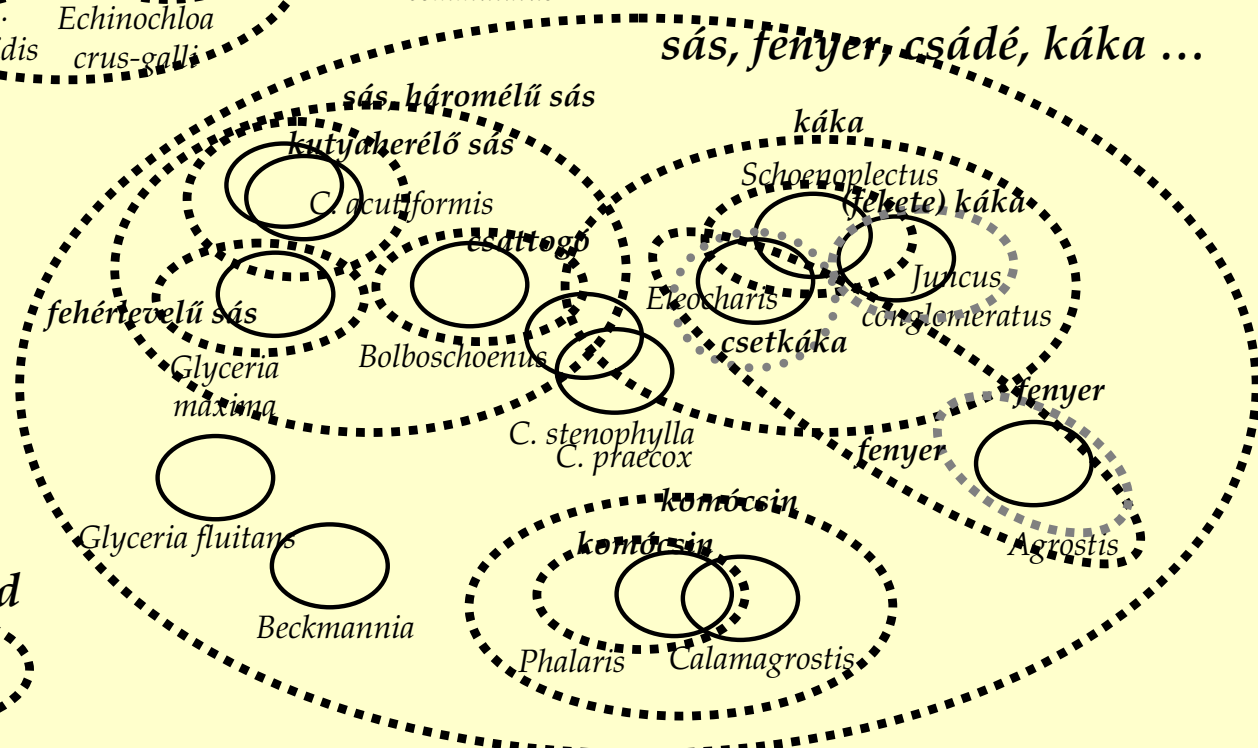
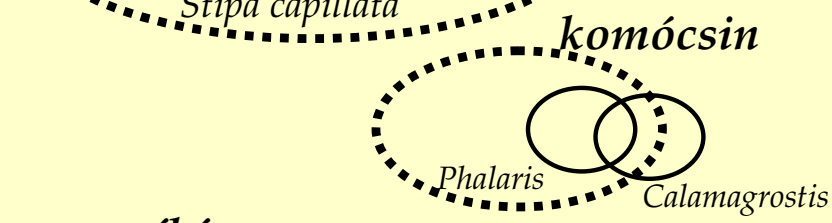
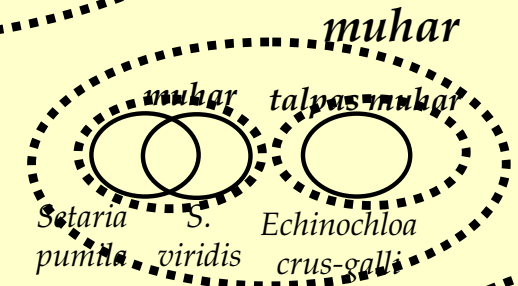
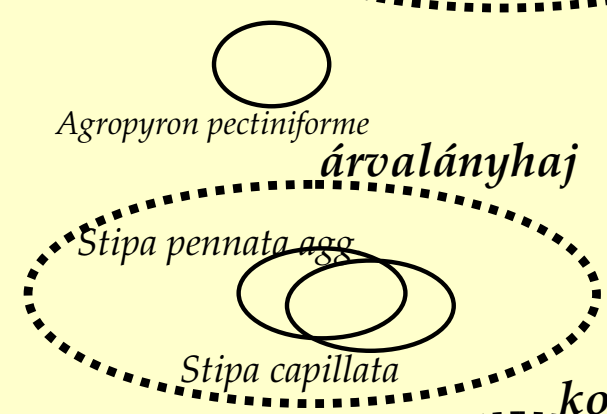
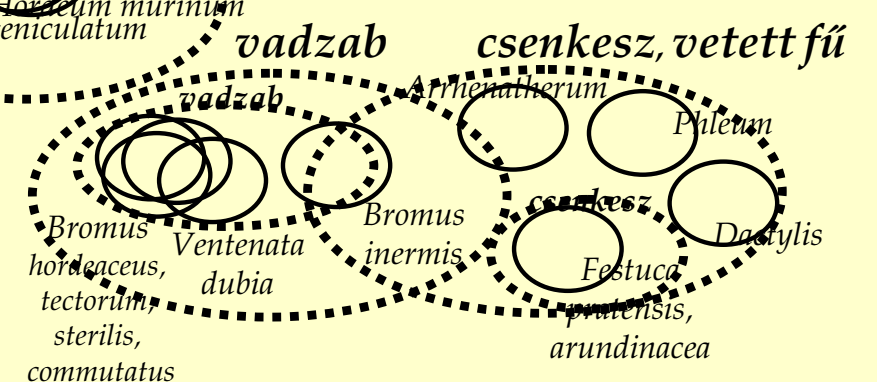
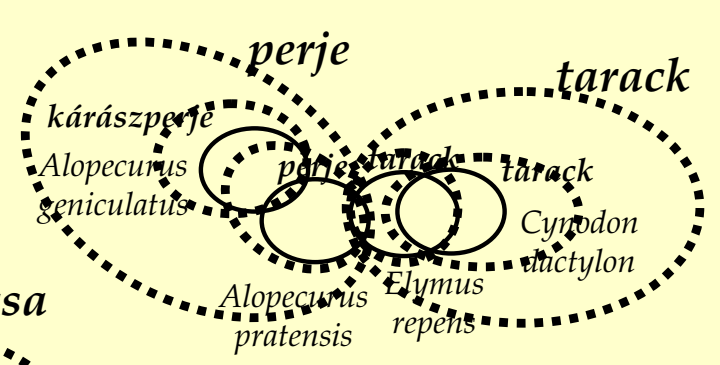
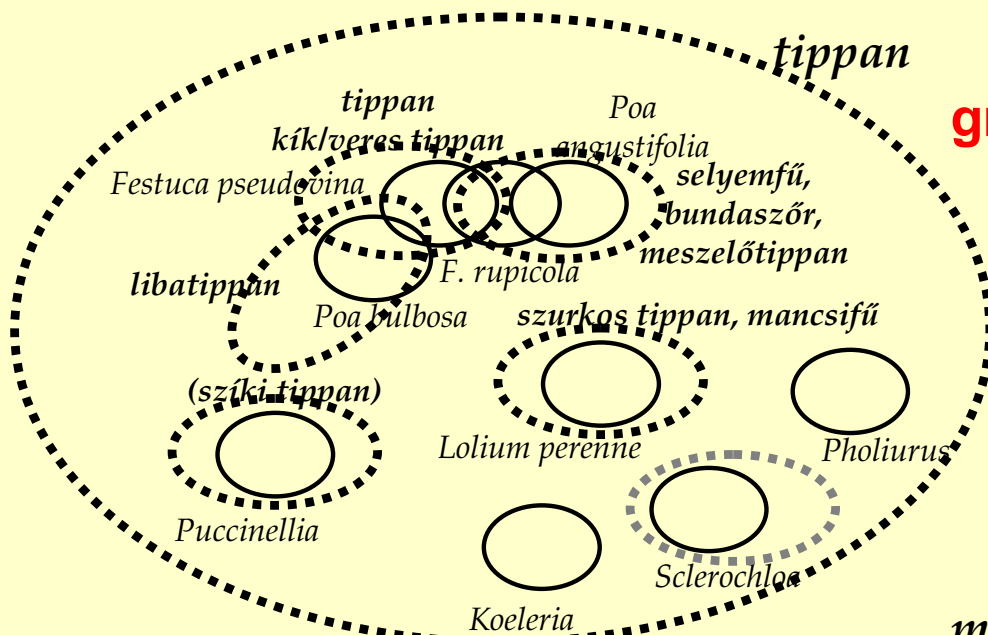
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stream	0	0	0	0	0	2	2	1	2	3	7	7	5	-	0	1	1	1	1	0	0	0	0
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wily	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	1	1	1	1	-

Botanists

Card	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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clover	5	5	0	1	1	1	2	-	3	0	0	0	1	0	2	0	0	1	0	2	1	0	0
wormwood	0	0	0	1	1	3	2	3	-	0	1	0	5	0	2	0	0	1	0	2	1	0	0
palmade	1	1	2	0	0	0	0	0	0	-	1	2	1	3	0	2	0	3	2	0	0	0	0
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reed	1	1	0	0	0	1	6	2	2	0	0	0	0	0	5	0	1	1	1	-	5	5	3
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sedge2	1	1	0	0	0	1	3	0	0	0	0	0	1	0	3	0	2	0	2	5	6	-	4
wily	0	0	0	0	0	0	1	0	0	0	1	0	1	1	1	3	0	2	3	3	4	-	-

Laymen

ca. 29
grass/sedge-like
taxa

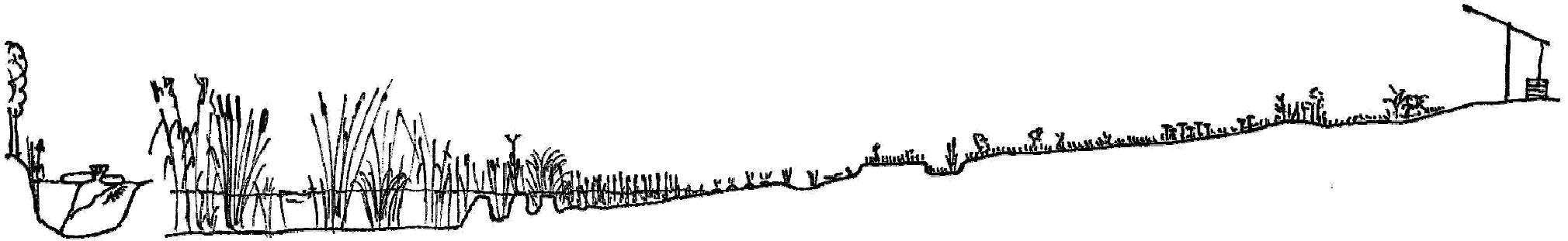


Marshes

Meadows

Short-grass salt steppes

Non-saline good soils



Land-use

Grazed
in drought

Grazed in summer
Mown in May/June

Grazed throughtout the year
but less in early srping

Grazed throughtout
the year but
key in spring

Management, improvements

Grazing
Trampling
(litter and reed)
Burning
Draining

Grazing
Mowing
Trampling litter

Grazing

Grazing

Manuring by resting
Manuring
Irradication of
thorny weeds
Irrad. of Hordeum

CONCLUSIONS

- nuanced and intimate knowledge on habitats
- many, partly overlapping, synonymous names
- lexicalized and non-lexicalized knowledge
- problems: transitional habitats, scaling, mosaics
- shallow hierarchy
- surprisingly deep knowledge on grasses, sedges
- the utilitarian traditional ecological knowledge is strongly connected to land-use
- herders apply very strong herding practices based on reciprocal learning

REFERENCES

- Molnár, Zs., and Borhidi, A. (2003). Continental Alkali Vegetation in Hungary: Syntaxonomy, Landscape History, Vegetation Dynamics, and Conservation. *Phytocoenologia* 21: 235-245.
- Molnár, Zs., Bartha, S., and Babai, D. (2008). Traditional Ecological Knowledge as a Concept and Data Source for Historical Ecology, Vegetation Science and Conservation Biology: A Hungarian Perspective. In Szabó, P., and Hedl, R. (eds.), *Human Nature. Studies in Historical Ecology and Environmental History*, Institute of Botany of the ASCR, Brno, pp. 14-27.
- Molnár, Zs. (2012). *Traditional Ecological Knowledge of Herders on the Flora and Vegetation of the Hortobágy*. Hortobágy Természetvédelmi Közalapítvány, Debrecen.
- Molnár, Zs., Biró, M., Bartha, S., and Fekete, G. (2012). Past Trends, Present State and Future Prospects of Hungarian Forest-Steppes. In Werger, M. J. A., and Staalduinen, M. A. van (eds.), *Eurasian Steppes. Ecological Problems and Livelihoods in a Changing World*, Springer. (in print)
- Molnár, Zs. Classification of Pasture Habitats by Hungarian Herders in a Steppe Landscape (Hungary). *J. of Ethnobiology and Ethnomedicine*. (under revision)
- Molnár, Zs. Perception and Management of Spatio-temporal Pasture Heterogeneity by Semi-transhumant and Sedentary Herders (Hortobágy steppe, Hungary): Implications for Evidence-based Conservation. (submitted to *Human Ecology*)
- Traditional vegetation knowledge of a salt steppe (Hortobágy, Hungary): a neglected source of information for vegetation science and conservation. (submitted to *Journal of Vegetation Science*)