

**ЛАНДШАФТНО-ЭКОЛОГИЧЕСКИЕ
ПРЕДСТАВЛЕНИЯ ПАСТУХОВ О ФЛОРЕ
И РАСТИТЕЛЬНОСТИ ГАЛОФИТНЫХ
СТЕПЕЙ ХОРТОБАДИ**

**LANDSCAPE ETHNOECOLOGICAL
KNOWLEDGE OF HERDSMEN ON THE
FLORA AND VEGETATION OF THE
HORTOBÁGY SALT STEPPE**

**Мольнар Зольт
Molnár, Zsolt**

Центр экологических исследований, Венгерская академия наук
(Алкотмани 2-4, Н-2163, г.Вакратот, Венгрия)

Centre for Ecological Research, Hungarian Academy of Sciences
(MTA ÖK ÖBI, Alkotmány út 2-4. Vácrátót, Hungary, H-2163)
e-mail: molnar.zsolt@okologia.mta.hu

Hortobágy herders have a nuanced knowledge of the flora and vegetation of the salt steppe. Their knowledge is mostly independent of scientific knowledge. They recognize at least 162 wild folk plant taxa (including 29 taxa for grasses and sedges) and distinguish 47-66 habitats. Herders also have a deep understanding of vegetation dynamics and landscape history.

Пастухи Хортобади имеют хорошее представление о флоре и растительности галофитных степей. Их знания в большинстве случаев не основываются на научных суждениях. Они различают, по меньшей мере, 162 таксона растений (включая 29 таксонов злаков и осок) и 47-66 типов местообитаний. Кроме того, пастухи глубоко понимают особенности динамики и истории ландшафта.

Introduction

Vegetation-related knowledge of human societies has been accumulating for millennia. Vegetation and landscape knowledge that developed independently (or in Europe mostly independently) of science is studied by ethnobiology. Ethnobiologists seek to understand how different peoples perceive, classify, and mentally process the living world and how they then apply that knowledge (Berlin 1992, for the Hortobágy area: Tikos 1950-1951). In the last decades, vegetation-related knowledge of many peoples was studied. However, it was only Johnson and Hunn (2010) who introduced the term landscape ethnecology. Landscape ethnecology focuses on the ecological features of the landscape (e.g. habitats, vegetation types, and other

landscape elements), and on how the living landscape is perceived, imagined and managed by people who live in it. In this paper we briefly introduce herders' knowledge connected to steppe plants, and the main steppe habitat types they distinguish in the Hortobágy salt steppe.

Study area and methods

The Hortobágy steppe lies in the Carpathian Basin, in Hungary, Central Europe. The area belongs to the Eurasian forest-steppe belt. In the Pleistocene, the area was a floodplain that gradually dried out and became more and more saline (Sümegei et al. 2000). This is a wet steppe with dominantly saline vegetation (Molnár et al. 2012). Water from melting snow and summer rains covers ca. a third of the area for weeks and months. The average yearly precipitation of ca. 550 mm and the mean annual temperature is ca. 10 °C. Snow covers the steppe for ca. 35 days on average in winter. The main soil type of the steppe is meadow solonetz developed over loess. Groundwater is salty and rich in soda.

The most important dominant and characteristic species of the steppes are *Achillea collina* and *A. setacea*, *Agrostis stolonifera*, *Alopecurus pratensis*, *Artemisia santonicum*, *Aster tripolium* subsp. *pannonicus*, *Beckmannia eruciformis*, *Bolboschoenus maritimus*, *Camphorosma annua*, *Festuca pseudovina* (and *F. rupicola*), *Hordeum hystris*, *Limonium gmelini* subsp. *hungaricum*, *Matricaria recutita*, *Phlomis tuberosa*, *Puccinellia limosa*, *Salvia nemorosa*, *Schoenoplectus lacustris*, and *Trifolium angulatum*. Vegetation pattern of the steppe is fairly stable: salt steppes, marshes, and loess steppes have dominated the area since the late Pleistocene. However, river channelisations in the second half of the 19th century decreased regular floods, and drainage works during the 20th century dried out many marshy depressions (Molnár and Borhidi 2003). The area has been used for extensive grazing for millennia (mostly cattle, horse, later sheep, with some pig and poultry).

All settlements surrounding the Hortobágy steppe were investigated (Nádudvar, Balmazújváros, Tiszacsege, Nagyiván, Kunmadaras, Karcag, Püspökladány, and Hortobágy). We visited 156 herders, and collected data from 92 of them. 78 herders were interviewed for at least 1.5 hours, whereas the 27 most knowledgeable ones were interviewed at least 4 times. The age of herders was mostly between 55-75 years (min. 32, max. 86). 6 were women, 72 were men. Interviews were recorded by a dictaphone. Original quotations of herders and vernacular names are written in italic. During the 86 field days we applied free and semi-structured interviews, free listings, and question-

naires, and made field visits and participated in herdings as often as possible. In total we collected 5149 records of plant species names and features, 1543 records of habitat names and features, 1772 records on knowledge of habitat requirements and dynamics of wild plant species.

Results and discussion

Herders knowledge of the landscape

According to the herders, the Hortobágy landscape developed long ago, exists since the world exists, God created it. Herders know little about the landscape of the Hortobágy before the First World War. I do not know a lot, the steppe was like today, but there were more cattle, sheep and horses. People were backward, but loved the animals very much. There are also some stories of wolf attacks. The Hortobágy steppe changed a lot in the last decades. There are not enough animals to graze the grass short, the steppe became wild, litter accumulated. Trees and shrubs cover the Hortobágy. I am unfamiliar with this landscape. The vegetation of the short grass steppes also changed a lot: too few animals, it became wild for ever! It is dense, strong and tussocky, not as clean as it was before. The bare, highly salty places changed less: the salt is salt!, they remained as they were. Marshes changed the most: a marsh was grazed up totally in the past, now it is wild, full of reed and cattail. Herders noticed only a few species that disappeared or decreased in the last decades. There is not much new in the Hortobágy, it selects and than keeps what is traditional in it. But there are some species that are new to the landscape or spread. I do not remember this from my childhood, it came from somewhere (e.g. *Elaeagnus*, *Amorpha*, *Abutilon*, *Xanthium*). Reed, cattail, willows, rose bushes and elders spread.

Herders knowledge of the flora

Herdsman in the Hortobágy can differentiate a surprisingly large variety of wild plants. So far, we have found 162 sufficiently identified folk taxa (Molnár 2012). These taxa refer to at least 243 scientifically distinct plant species. As the number of wild plant species «visible» to herdsman in the Hortobágy area is about 440, this shows that herdsman can name at least 55 % of all species, or know them visually enough to describe them. Below we introduce some examples of knowledge of some of the typical plants of the saline steppe: *Limonium gmelinii* is growing on more or less salty places. All herders know and name it. It is named after its everlasting flowers (iron flower) or its wide leaves (salt lettuce). *Matricaria recutita* is a common plant of the sites where it is really salty, but also grows where the arable field is salty and waterlogged. Population

size depends on the weather, it does not grow in each year. It is called: salt flower, or kamilla (after *Chamomilla*). It is an important, frequently collected medicinal plant. *Artemisia santonicum* is one of the most characteristic plants of the Hortobágy. All herders name it: lamb vermouth. It likes semi-salty places, not the really salty, 'blind' ones. It grows among fescue. Lambs like it. *Camphorosma anua* is another mysterious plant. Almost everybody knows, but very few name it: salt catkin – reflecting on its spring shape and colour, or red pork grass (cf. *Polygonum aviculare*) – reflecting on its summer shape and colour. It grows in really salty places, he is the only one that really likes the hard salty places. Sheep like it, especially in late summer. *Festuca pseudovina* is one of the most common plants of the Hortobágy, the dominant species of *Achillea* and *Artemisia* short grass steppes. This is the soul of the Hortobágy! The true Hortobágy pasture, the first grass! It is called: tippan or red/blue tippan. Its most conspicuous feature is that when the sun 'burns' it, it turns (from blueish green) to red, takes on a red trouser, that is where its other name comes from: red trouser. The most useful grass, as a hay more valuable than alfalfa, but you had to get up early to cut it (with a scythe). *Puccinellia limosa* is a specialist of the most salty wet places. Many herders know it, only one named it: salt tippan, they say instead: the variant of the tippan. Sheep horribly like it, run here to eat it. *Alopecurus pratensis* is the other most common grass species of the Hortobágy, occurring mostly on meadows, in marshy depressions, in tussocky marshes. All herders name it: perje (meaning something like a fresh green leaf) or pipe cleaner (as it becomes very stiff, and thus can be used to clean the pipe). Some argue that in spring it is perje, in summer, if aged, it is pipe cleaner. Poor fodder, unsuccessful, just fills the rumen, low calory. *Bolboschoenus maritimus* is dominant in marshes and rice fields. Most herders know it, but it is often grouped together with other tall marsh monocotyledons. Its name is clapper/clatter or triangular sedge. The first name comes from the sound it produced when fruits ripen or if burnt in an oven. A famine fodder, worthless, animals do not eat. But its tubers are eaten by pigs and sheep. In the treeless landscape it was also used for fuel.

Herders knowledge of the vegetation

Herders distinguished ca. 47-66 habitat types using 181 names (Fig.). Many categories were more or less equivalent to the level of plant association in phytosociology, and some described mosaics of habitats. The steppe was divided into three large parts: wet habitats (lajos in Hungarian, 16-21 habitat categories), saline habitats (called szik,



Figure. Folk names of habitats in a segment of the Hortobágy steppe. For English equivalents see text, and Molnár 2012

szíkes, 11-16 categories), and habitats found on chernozem soils (called partos, telek, 8-13 categories), an additional 10-14 categories were used to name habitats in arable areas and settlements. Herders distinguished and described habitats based on their productivity, salinity, wetness, relative elevation on the steppe habitat gradient, surface geomorphology, land-use, density of vegetation, and passability.

The Hungarian word for soda is szík. Herders often use the word szíkes or szíkes talaj (sodic soil) for pastures and also for arable fields. Vegetation is scarce, surface is sodic, biomass is low. Pastures in drought years become kopár (barren). They often say: this area only exists not to have a hole on the surface on the Earth. The structure of the sodic soil is columnar. Thus erosion by water and wind creates a special geomorphological feature called padka (a certain seat), the area surrounded by this padka is also called padka or sometimes (szík)porong, juhászpatka (shepherds padka). The padka is the chair of the herders. We had our pálinka («brandy») or bacon there, smoked the pipe, and polished our hook. The most widespread vegetation

types of the steppe are the *Festuca pseudovina* dominated short grass steppes (*Artemisio-Festucetum* and *Achilleo-Festucetum*). Fescue is called tippan, the area is tippanos (with fescue). This is the best mező (grass) in the Hortobágy! *Artemisia* steppes have a rarely used separate name: ürmös (with vermouth). *Achillea* steppe doesn't have a separate name, it is most often regarded as: the pasture, the grassland, since this is the most widespread, relatively good quality pasture type. The most salty habitats (called szíkfolt – salty patch) have two types: drier ones are called vakszík (blind salty patch), wetter ones szíkfok (salty patch with slowly moving surface water). The latter is a more general phrase. A bare patch, where salt kills all the plants. In spring water flows, but sun warms it up, and hence dries up quickly. Longer patches are called: (szík)ér (streamlet). Sheep bites, cattle lick the salt.

Wetlands are called lapos (means probably an area flooded by water). They are waterlogged in spring or whole year round, difficult to cross, home of reed and ducks. Its nutritional value is low. Synonymous names are: mocsár

(marsh), rét (meadow, but here with the meaning of marsh), fertő (another type of marsh) and fenék (bottom). Marshes are often tussocky in the Hortobágy. These tussocks, however, are formed not of peat, but of mud by a special earthworm. The name of the habitat is: zombikos (an area with tussocks). Bad pasture, cattle use only if forced to eat it (in droughts). Marshes are often named after their dominant species: nádas (reed bed), csattogós (*Bolboschoenus*), gyíkinyes, gyékényes (*Typha* bed), kákás (*Schoenoplectus*), csetkákás (*Eleocharis*), sásos (sedge bed), komócsinos (*Phalaris*). Meadows dominated by *Alopecurus* are named after it: perjés, pipaszúrkálós, csetkákás means dominated by *Eleocharis*, fenyeres by *Agrostis stolonifera*. Meadows are often named after their position: laposszél (margins of marshes).

Habitats at the higher parts of the zonation in a salt steppe are not salty. Soil water table is deeper, hence salt can not reach the root zone of herbaceous plants. These are called partos (on the shore, i.e. above the water level). These places are never flooded, grass is mixed, soil is fat, tippan (fescue) is dense, animals stop and eat, do not move away. At the top of the gradient are places with chernozem soils. Sheep folds, shadoof wells were built on these places. The name of this habitat is: telek (supposed meaning is filled with something, namely nutrients). The best pasture, animals graze here a lot, and stay here at night or at noon, so the soil is enriched by nutrients. In the spring here is the first grass to graze. In late summer and autumn, every couple of days, or every other week animals were allowed to lay down for the night further and further from the fold. In this way, large areas were fertilized in a more or less natural way. Make your pasture by dunging – herders used to say.

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