

Distribution of animal-powered logging for timber harvesting in Hungarian state-owned forests

Introduction

Despite the fact that the management of forests in nature conservation areas represents a key interest in Europe, animal-powered logging is only rarely covered by scientific papers. Although animal-powered logging could be in part considered less harmful to topsoil, wood stands, saplings, and natural values than heavy machines, this method is rarely covered by scientific studies. The main aim of this study was to explore the occurrences of this practice in Hungarian nature conservation areas (i.e. that belong to IUCN Categories Ia, II or V as well as Natura 2000 SPA or SAC sites) that are owned by the state (i.e. about 75% of all the forested nature conservation areas), and compile the characteristics, advantages and disadvantages of animal-powered logging.

Material and Methods

We contacted every Forest District in Hungary (n=116) by phone in 2013 and 2021 and prepared semi-structured interviews based on open ended questions. The interviews were done on-site with individual responses given in person with a dialogues structure that gave opportunity for discussions. Participants were asked about why they log with animals, where they work with them, what equipment they use, what is the average quantity logged by a horse for 1 turn and the daily capacity of a single horse, the size of the area that is logged by horses, the number of horses and workers, and the nature conservation values of the area that justify the use of animal power. After this, we asked them to present their opinion on the advantages and disadvantages of using animal power for skidding, horse breeds and types used for skidding, and the characteristics that make them beneficial for this purpose. Loggers were interviewed in the field while logging.

Results

Number of forestries that apply horse logging in Hungary in 2013 and 2021 (n=116)

Extent	Number of forestries in 2013	Number of forestries in 2021	Rate of forestries in 2013 (%)	Rate of forestries in 2021 (%)
Constant	30	14	28,04	12,07
Temporary	9	10	8,41	8,62
Sum	39	24	36,45	20,69

While 39 out of the total 116 Hungarian state forestries hired teams that apply animal logging (draft horse in every case) in 2013, their number fell to 24 for 2021. Within this data, the number of constantly hired horse-logging contractors fell by 53.3% (from 30 to 14). Only 3 Forest Districts owned a horse stock in 2013 (the others employed contractors), while 5 in 2021, however, none of them used horses for logging (but only for touristic and hunting activities).

All teams operated at least partially on nature conservation areas in both studied years. Despite the negative tendency, 34 out of the 44 forestries that operate on hilly and mountainous areas still claim for horse logging in 2021, but they cannot find suitable people and horses. It is important to conserve animal logging and promote it among potential loggers with training and financial incentives.

Among the mentioned advantages, the horses can manoeuvre easier in the dense tree stands, without causing serious injuries in the trees and saplings. The area is usually distant, heavily reachable, steep, with cliffs. The average slope angle where horses are used is 13,86°, i.e., 24,67%, which is close to the adat found in relevant international literature (20%)^{1,2,3,4}.

Cited literature

¹Badraghii, Erler, Hosseini, Lang 2018 J For Sci 64

²Ghaffariyan, Durstone, Sobhani, Mohajer 2009 Croat J For Eng 30

³Naghdi, Lotfalian, Bagheri, Jalali 2009 Croat J For Eng 30

⁴Wang 1997 J For Eng 8(2)



One horse in work with a chain, led from the front (area of the Tállya Forestry, 2021)



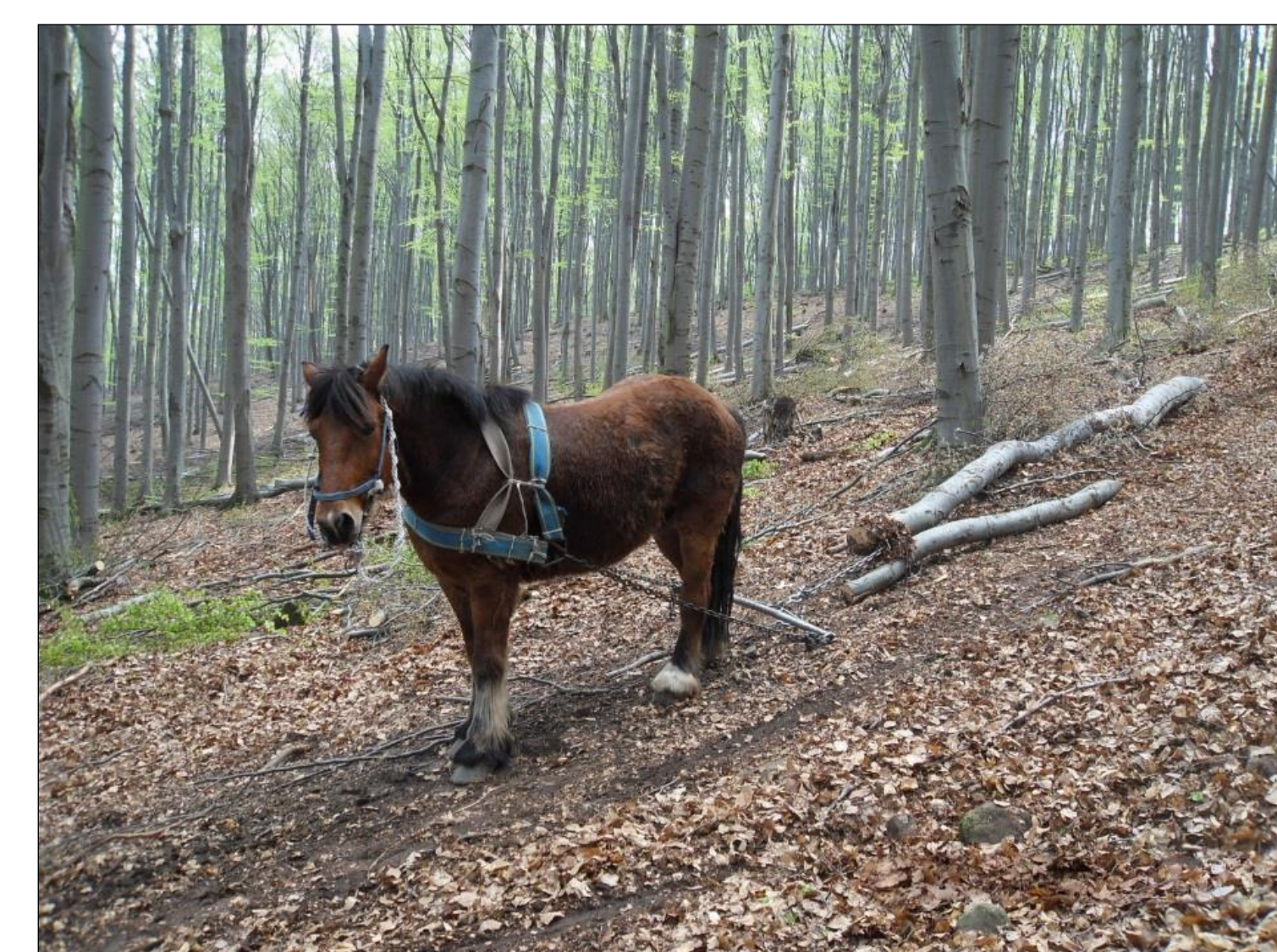
Horses working in pair with a chain, led from the back (area of the Királyrét Forestry, 2021)



The young worker was taught by his father to lead the horses from the back (Bélapátfalva, 2013)



Using a cross-breed horse (Tormás, 2013)



The horses can be trained to move the wood on their own, without leading (Kemence, 2013)