

LARGE-SCALE ERADICATION OF NON-INDIGENOUS Asclepias syriaca L. in the frame of LIFE Nature projects in Kiskunság National Park

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Asclepias syriaca L. (Figure 1.) is abundant in the Kiskunság National Park, especially on sandy area (Figure 2.). The spreading of the species into steppic vegetation is also observable. Since sandy and steppic areas own valuable flora and fauna, the defence against the invasive A. syriaca is essencial. Our former researches enduring for years showed, that mechanical defence against the invasive A. syriaca (pulling up the stocks) does not lead to a significant result (Vajda, 2015) because of the strong underground risoma system of the plant. Having regard for the fact that A. syriaca has only a very few natural enemies, and because it is poisonous the grazing animals do not eat it, the only way to force it back is the use of chemicals.



Figure 1.: Inflorescence of A. syriaca



Figure 2.: Dense stand of A. syriaca occupy sandy areas competing natural vegetation of valuable flora

Methods of chemical handling were elaborated and used as protocol as following:



- In stands where A. syriaca occurred scattered and the grass structure was untouched, and/or protected plants occurs, the leaves of the young plants were coated one by one (Figure 3.);
- In stands where the relative cover varied between 40%-75% the handling method was spraying from pressurised container (2 liters). This equipment allowed more precise handling than the man power machines; (Figure 4.)

•In case where the grass structure was suppressed already by weed vegetation, or where the A. syriaca covering was more than 75 %, the chemical treatment was spraying from man power spray machines.

The yearly handling contains the three repetitions on the same infected patch during the vegetation period of A. syriaca.

When using chemicals we considered to use only chemical which has delayed effect, for the reason to destroy not only the sur-, but the subground parts of the plant.

The observations about collateral effect of the chemical handling were made on the whole treated area by visual assessment. The monitoring result of vegetation changes in case of Asclepias eradication show that in case of sporadic damage the regeneration of the native vegetation starts quickly and efficiently due to the surrounding propagulum sources.



The first systematic, large-scale eradication of A. syriaca in Kiskunság National Park was completed in the frame of the "Conservation of the Pannon endemic Dianthus diutinus" LIFE Nature project (LIFEo6 NAT/H/000104) with success during 2006-2011 in order to restore the most important habitats of the strictly protected endemic species.

The effectiveness of the A. syriaca eradication during the five-year handling is presented in case of the largest project site, Bodoglár (160ha), where the infected area reduced by 84%, from 36 ha to 5,8 ha.

Table 1.: Reduction of the infected area in Bodoglár projet site during the 5 years handling

Year	2007	2008	2009	2010	2011
Infected area (Ha)	36,0	30,0	13,3	11,7	5,8

The other important indicator of the effectiveness is, that beside the significant reduce of the infection area the relative cover of the A. syriaca stands is also significantly decreased (Figure 5).



Figure 5.: Changes of the relative cover of A. syriaca due to the chemical handling in Bodoglár project area



The experiences are presently applied in the Böddi-LIFE project (LIFE12 NAT/HU/001188) as well, as part of the action "Elimination of the stands of nonindigenous and invasive species from the catchment area of the Pannonic sodic wetland" (2013-2019).

In the Böddi-szék project area 3,7 ha stands of Asclepias syriaca were handled in 2014 and 2015 consequently with the same method. Density of the stands was reduced after the first year handling averagely by 40%. Some sporadic new occurrences have been observed in spring 2015, hence their

handling started in May 2015 as well.

Conclusions

A. syriaca is extremly widespread in Hungary, especially on the Danube-Tisza interfluve area (Figure 6; Source: Bartha et al, 2015: Distribution atlas of vascular plants of Hungary).



Because of the highly infected areas, the long-term defence against this invasive plant is dubious. Therefore treatments should concentrate: on the most important areas with valuable flora and fauna

on the less infected areas with valuable flora and fauna.

Scientific experiments about effectiveness of the chemical treatment on individuals occuring on habitats with different abiotic conditions (like different soil, exposure, light conditions would be welcomed.