

HOW TO FIGHT THEM?

“Resource-rich habitats—those abundant in water, nutrients, and sunlight—are highly vulnerable to overgrowth by invasive species, leading to a significant loss of biodiversity. This highlights the critical importance of their active management and conservation!”



The New York aster can quickly overgrow large areas of disturbed, flood-prone, or unmanaged sites. (Photo: Helena Chytrá)”

PLANT INVASIONS IN LOWLAND MEADOW WETLANDS



The invasive giant goldenrod forms tall stands in abandoned habitats, outcompeting native plant species. (Photo: Tamara Těšitelová)



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LOWLAND WETLANDS UNDER THREAT

Meadow wetlands in today's agricultural landscape are areas of land that are permanently or seasonally waterlogged. They provide critical refuges for endangered plant and animal species, contribute to improving the local microclimate by retaining water, and help purify water by removing unwanted inorganic and organic substances. Rich in nutrients, these habitats, combined with sufficient water and sunlight, are highly favorable for plant growth. Historically, when fodder for livestock was scarce, farmers took advantage of these conditions—mowing and grazing were common practices. However, the low soil bearing capacity for heavy machinery and the challenges of managing such areas later led to their abandonment or replacement of mowing with mulching. Overgrowth, nutrient accumulation from plant biomass, nutrient runoff from fields, and sometimes wastewater, as well as drying out, are the main causes of the degradation of lowland wetlands.

When wetlands lack proper management, they are quickly overgrown by competitively strong, tall plants such as reeds, nettles, and later shrubs and trees. This results in dense vegetation, shading out lower-growing plants, reducing species diversity among both plants and animals, and limiting the landscape's accessibility. In recent years, a significant issue has been the spread of competitive, non-native invasive plants. These species experience no natural regulation in the local environment, spread independently and efficiently, and thrive in unmanaged habitats. Examples include goldenrods (*Solidago* spp.), New York asters (*Symphotrichum novi-belgii*), and box elder (*Acer negundo*)—all originating from North America. Goldenrods and asters form dense, monospecific stands with old biomass (litter), leaving little to no space for other species to thrive.



Purple loosestrife (*Lythrum salicaria*)
(Photo: Jakub Těšitel)



Large copper butterfly (*Lycaena dispar*)
(Photo: Jakub Těšitel)



The Semi-Parasitic Field Cow-Wheat
Suppresses Goldenrods and New York
Asters (Photo: J. Těšitel)



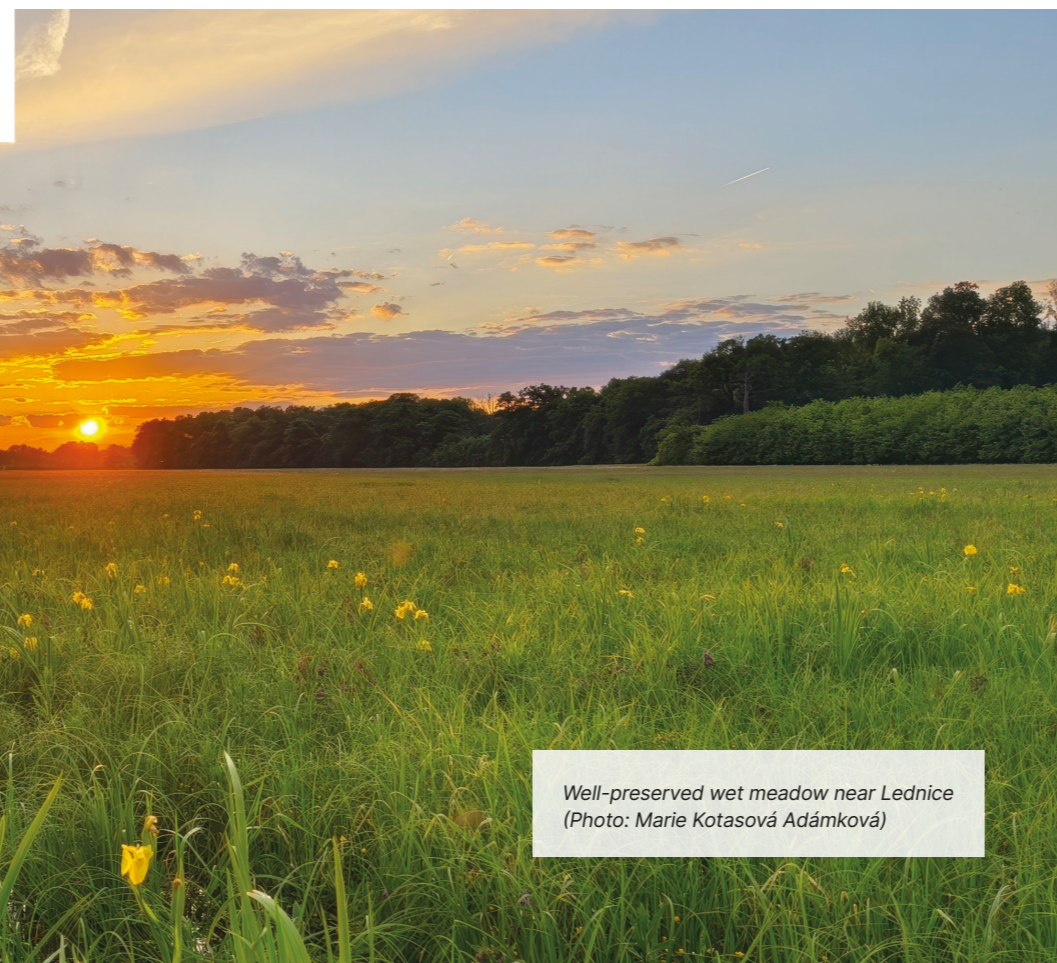
Yellow Rattle Parasites on Various Plant
Species (Photo: Tamara Těšitelová)

HOW TO MANAGE WETLAND OVERGROWTH?

To restore the proper functioning of wetlands and their biodiversity, it is crucial to reintroduce water to these sites, as water levels have often been reduced over decades through drainage systems. The next step is implementing regular management practices, which may include mowing with biomass removal performed twice a year, at the end of May and in August or September, or season-long extensive grazing by cattle or horses. A combination of mowing and grazing—such as mowing in May followed by grazing in the autumn—can also be effective.

In some areas, the use of native semi-parasitic plants, combined with mowing or grazing, may offer additional benefits. Semi-parasitic plants, such as field cow-wheat (*Melampyrum arvense*), yellow rattle (*Rhinanthus minor*), or red false bartsia (*Odontites vernus*), attach their roots to the roots of host plants, drawing water and nutrients from them. This weakens the growth of aggressive dominant species, and when combined with mowing or grazing, can be more effective than biomass removal alone.

Semi-parasitic plants are also a rich source of nectar for pollinators. They have already been successfully used to suppress the spread of expansive grasses, as well as non-native invasive species like goldenrods (*Solidago* spp.) and New York asters (*Symphotrichum novi-belgii*).



Well-preserved wet meadow near Lednice
(Photo: Marie Kotasová Adámková)