CREATING NATURAL FORESTS IN FLOODPLAINS

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The forests in floodplains have a big problem, that in these areas turn up lot invasive tree and shrub species. In our research we wanted to know, that when we want to create forests, what are made up of native tree species, then on these areas what composition of tree species is logic to plant, that we can prevent the invasive species to take too many area. We made our mensurations on the regions of the Körös-Maros National Park, which located on the South-Trans-tisza. We measured 15 forest details, three made from Populus nigra with Populus alba, five made from Fraxinus angustifolia spp. danubialis with Populus alba and seven made only from Populus alba. In the mixed forests are the different species in different ratio. The ratio of the Fraxinus angustifolia spp. danubialis is between 20 and 85 % (20, 70, 80, 80, 85 %) and the ratio of the Populus nigra is between 20 and 80 % (20, 30, 80 %). The youngest forest is 11 years old, the oldest is 24 years old and the average field is 3,5 ha.

We thought that in the forests with Fraxinus angustifolia spp. danubialis contain less invasive species, because the Fraxinus angustifolia spp. danubialis has an allopathic action and the canopy closer of this species close higher than the other’s.

This was so, we found in these forests the invasive tree species (Acer negundo, Fraxinus pennsylvanica) and the invasive shrub species (Amorpha fruticosa, Vitis riparia) in the slightest degree. When we enlarge the area covered by Fraxinus angustifolia spp. danubialis in the forest then the regrowth of the invasive species number will fall, but the area covered by invasive shrub species doesn’t depend on the area covered by F. angustifolia spp. danubialis, we experienced, that one of the F. angustifolia spp. danubialis forest there are 15 % invasive shrub species (except in one part of the forest, where a thin out had been made, so the shrubs get more light, that’s why there are 70 % A. fruticosa).

In the forests with P. nigra, except one part, the black poplars decay, so here the areas covered by invasive species are high. In that one part of the forest, where the black poplars do not decay, the area covered by invasive tree species is the lowest.
species are low, however from one part of the forest we can’t deduce.

In the forests with P. albathe covered areas by invasive species almost twice higher (14.28%) as in the forest with F. angustifolia spp. danubialis (8%), and are the covered areas by invasive shrubs almost twice and a half higher (P. alba – 61%; P. alba-F. angustifolia spp. danubialis – 26%).

We examined in these forests the density of the native shrub species (Rubus caesius, Viburnum opulus, Cornus sanguinea) too. The dispersion of the datas are similar to the invasive species. In the clear P. alba forest are the most native shrub species (40%), in the forest with P. alba and P. nigra is the density 18% and in the less native shrubs are in the P. alba-F. angustifolia spp. danubialis forests (4%). We found Viburnum opulus only twice and Cornus sanguinea only once, so we can say that these datas based on the density of the Rubus caesius.

The next viewpoint by the examine of the datas is that we see the density of the individual species in the different forests. We experienced that the biggest differences are by the A. fruticosa and by the R. caesius. The density of A. fruticosa is in P. alba forests 61%, if there are P. nigra in the forest too, then this data is 43%. In P. alba-F. angustifolia spp. danubialis forests is the density of A. fruticosa 25%.

The density of R. caesius is similar to A. fruticosa just it in average lower. In P. alba forests is the density 39%, in P. alba-P. nigra forests 18% and if there is F. angustifolia spp. danubialis with P. albain the forest than only 4%. 
By F. pennsylvanica are the differences in the datas not great but we can good follow it (P. alba – 10%, P. alba-P. nigra – 7%, P. alba-F. angustifolia spp. danubialis – 6%).

We examined the density of A. negundo too and we experienced that it’s in the P. alba-P. nigra forests is the highest (10%), in the P. alba forest is 4% and in the P. alba-F. angustifolia spp. danubialis forests only 2%.

We found even V. riparia and regrowth of P. alba, but we saw that it not depends on the type of the forest.

The density of the multiannual viable regrowth is a very important data because theoodles regrowth are useless if they die in one or two years. So we examine this factor too. We get the result that in the P. alba forests and in the forest with P. alba and P. nigra the density of the multiannual viable regrowth is the same, in both 2%. We didn’t find multiannual viable regrowth in the P. alba-F. angustifolia spp. danubialis forests so we can say, that these forests drive back the regrowth of the invasive trees (and the native too).

Based on these data, we can say that from the examined forests, the Populus alba - Fraxinus angustifolia spp. danubialis forests prevent most of all the invasive plant species on the floodplains. Against the regrowth of the invasive tree species is good if we enlarge the ratio of the F. angustifolia spp. danubialis, but the density of the invasive shrub species not depend on this ratio.