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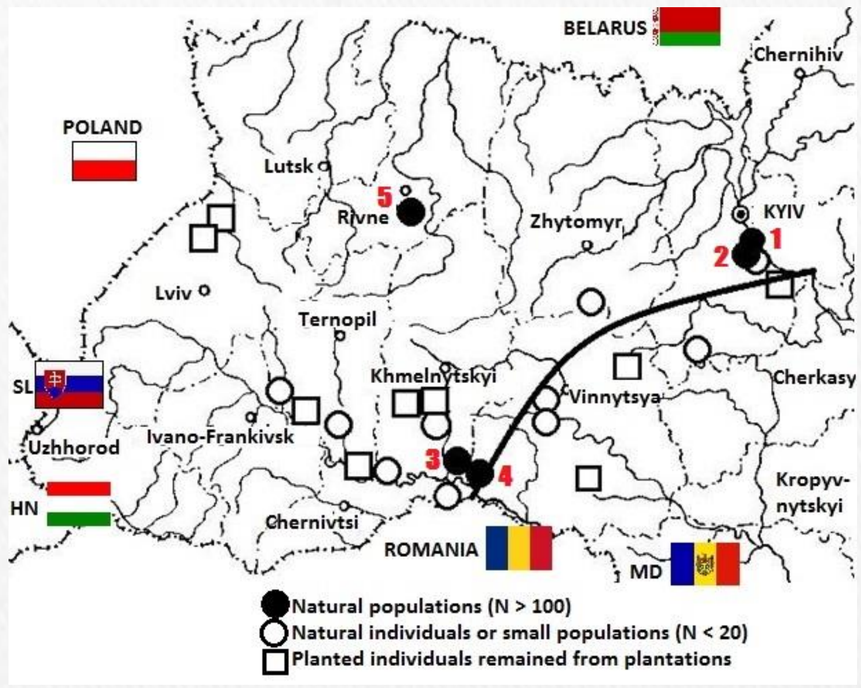
INVASIVE GRASSLAND SPECIES *ELAEAGNUS ANGUSTIFOLIA* L. ON THE NORTHERN AND WESTERN BOUNDARIES IN UKRAINE

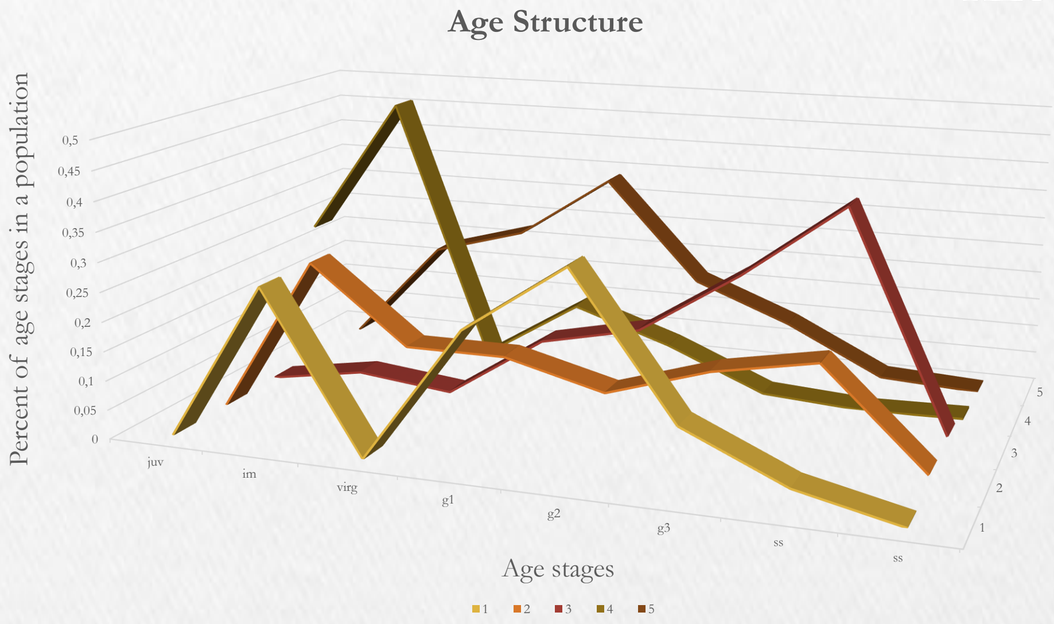
INTRO & GOAL

The expansion of *Elaeagnus angustifolia* L. (Russian olive) in Ukraine has countrywide nature.
Russian olive is one of the species-transformers with the great invasive ability. This is a deciduous tree or shrub. The root system reaches 12 m deep into soil, which allows this species to be extremely water tolerant. The oxygen isotope analysis showed that it could persist on soil water for up to 15 years before the roots reach the water table and utilize groundwater. Russian olive invasion is also not limited by light availability. Besides, *E. angustifolia* is tolerant to strong wind, flooding, soil salinization or alkalization. The roots of Russian olive exist in a symbiotic association with nitrogen-fixing actinomycetes, and in this way create favorable phytogenic field for the development and spread of ruderal flora, which is commonly known as nitrophilous.
Invasive *E. angustifolia* is widespread in the Steppe zone and actively expands its area and population size within the Forest-Steppe zone, penetrating as separate loci into the Forest zone.
There are two passages of endozoochoric seed dispersal: from plantations and from natural wild populations.
The aim of this research is to analyze age and morphological structure of the northern and western populations of *E. angustifolia* on the edge of its area in the Right-Bank Ukraine that defines potential abilities and scale of the threat of natural expansion. We chose five populations on the edge of species area and analyzed their age structure and main morphological parameters such as height, diameter, branchiness, and crown diameter.

AREA



RESULTS

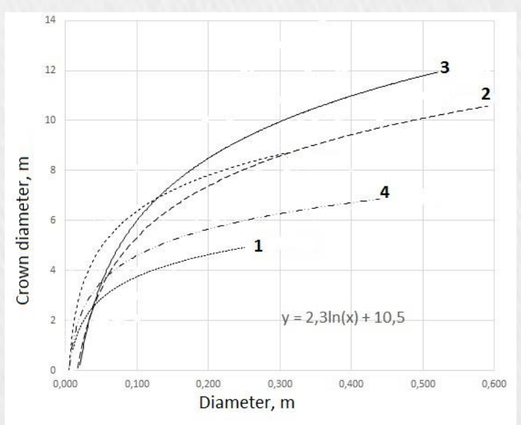


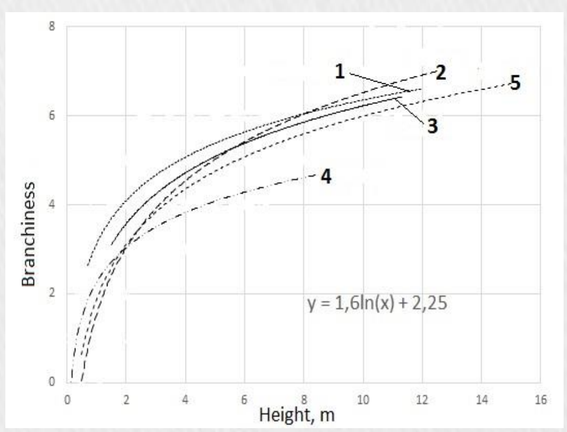
The analysis of age structure reflects their different potential. The 3rd population is the oldest and most regressive, as the biggest part of it is represented by post-generative stages. Young siblings individuals are almost absent. The 4th population is young and progressive, as more than 75 % of it consists of young trees. Such age structure reflects its invasive nature. The 1st and the 5th populations are very common and their distribution is close to normal. The 3rd population is also stable. Most of the populations do not have juvenile age stages.

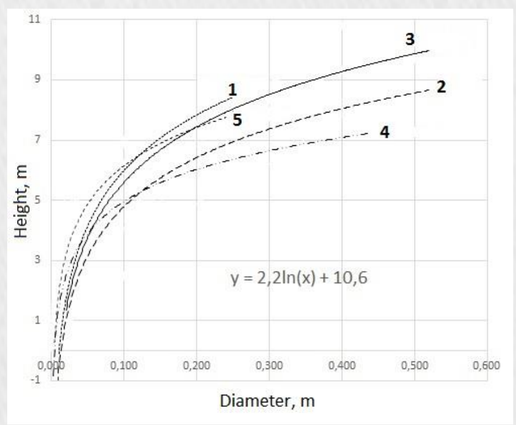
The max stem diameter is 55 cm. Basing on the annual gain data, we determined that the age of the *juv* stage is under 1 year, *im* is 1-3 years old, *virg* – 3-10, g_1 – 11-19, g_2 – 20-32, g_3 – 33-40, *ss* – 40-52, and *s* – older than 52.

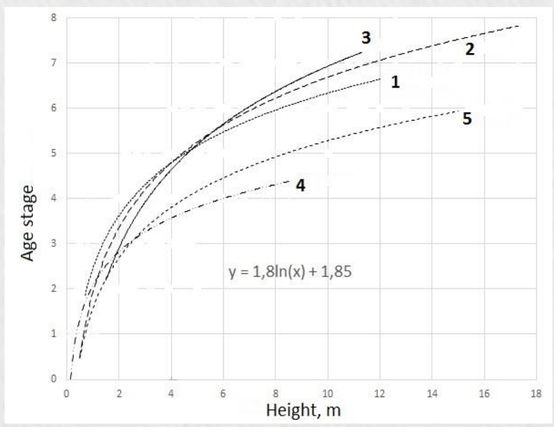
Tree height and crown diameter, age stage and branchiness have linear correlation. Max height is 15 m, and the average height of the generative stage is 6 m. Share of a crown changes with age. It is cone-shaped in pre-generative period and round-shaped in generative period; average diameter of a generative tree crown is 7 m. The mature trees have in average five-time branchiness.

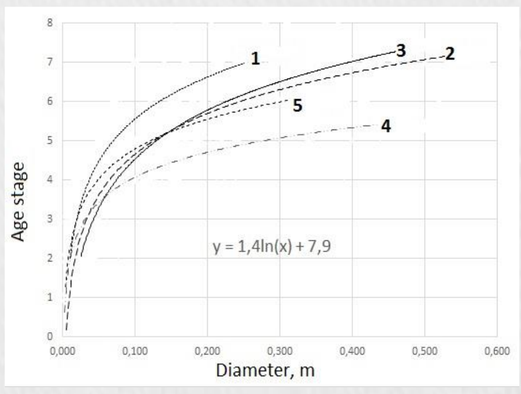
The other relations are logarithmic. Young *virg* trees under 5 m, have their stem diameter growing slower, than height. While transforming into generative stage the growth in height is getting less intensive, and the diameter growth is getting more intensive. These processes steady in *ss* stage.

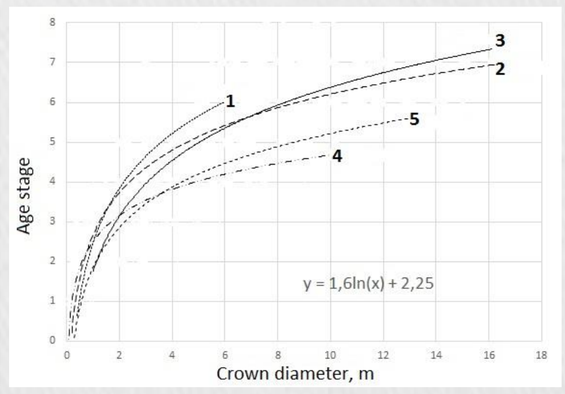


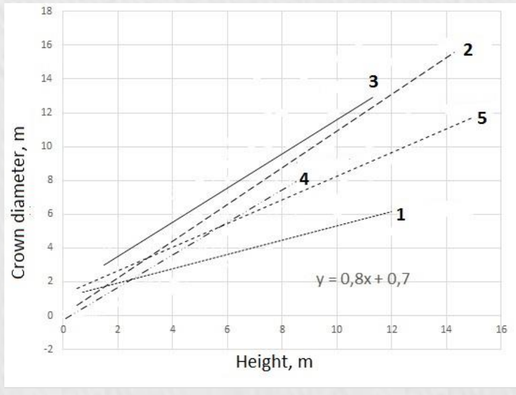


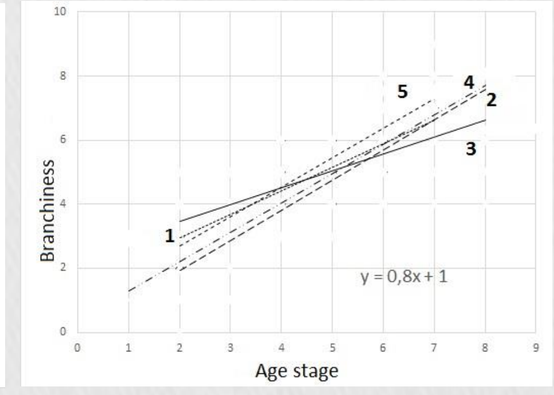












CONCLUSIONS

Received results of age and morphometric evaluation are significant for the prediction of further changes in the population structure of *E. angustifolia,* for modelling of the general population development of the species, and for the formation of coenoses with *E. angustifolia.*