

Invasive woody species and their potential environmental impact on natural riparian and lowland forests of Eastern Georgia (case study of the Gardabani managed reserve)

Giorgi Kavtaradze¹, Lado Basilidze¹, Jan Pergl², Elizaveta Avoiani¹, Besarioni Aptsiauri¹, Nato Kobakhidze¹

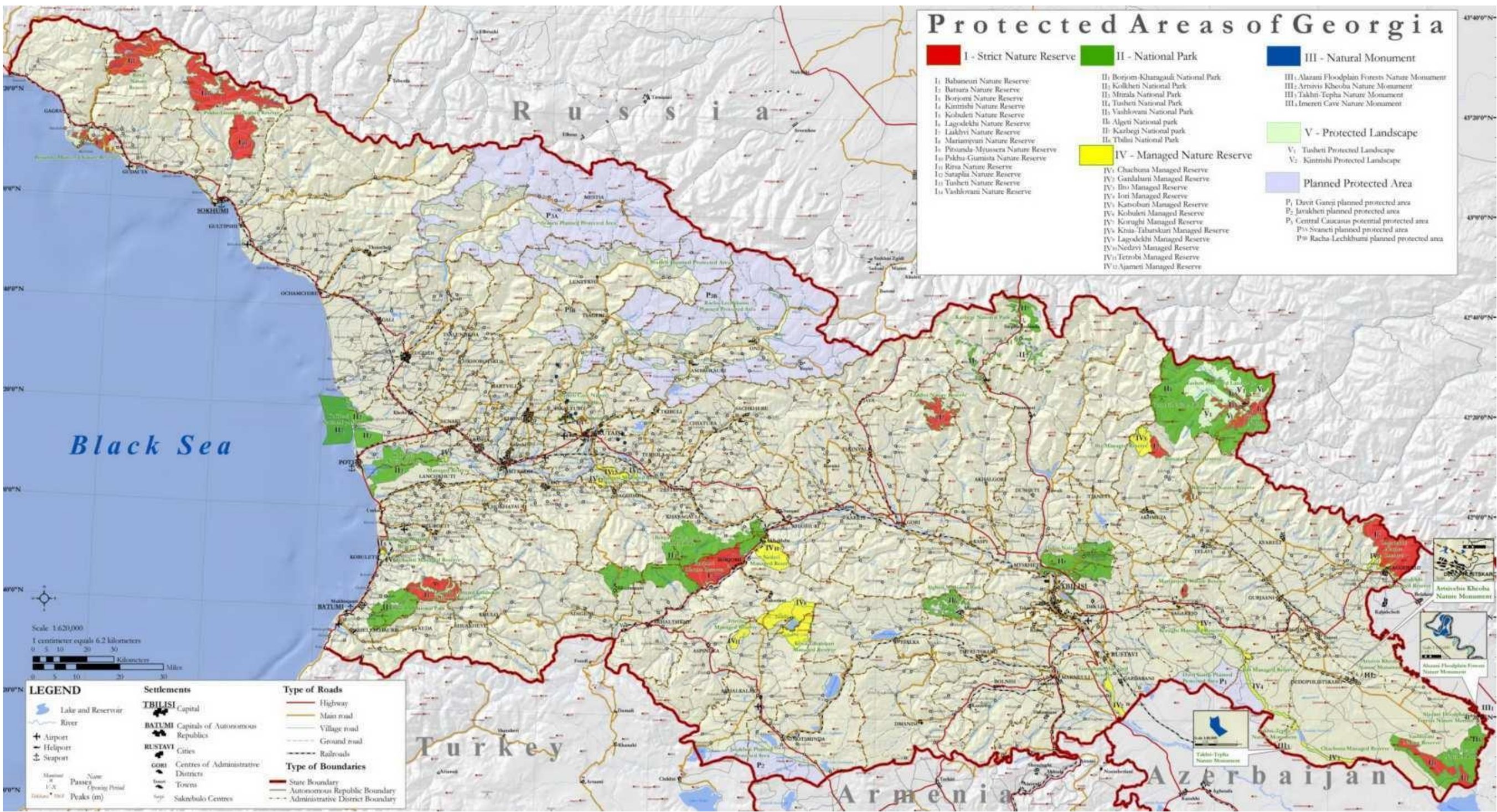
1. Agricultural University of Georgia, V. Gulisashvili Forest Institute, Georgia
2. The Czech Academy of Sciences, Institute of Botany, Zámek 1, 252 43 Průhonice, Czech Republic

INTRODUCTION

Georgia is located on the southern slopes of the Great Caucasus Mountain Range, as part of the Caucasus Eco-region, is considered one the 35 worldwide significant `biodiversity hotspots` based on the species richness and the significant level of species endemism (Conservation International, <https://www.cepf.net/our-work/biodiversity-hotspots>).

One of the threats that may be considered in respect to forest habitat types of high conservation value, is a spreading of alien and invasive woody species (IAWS). According to experts opinion woody plants account for 50 % of invasive species in Georgia, which can develop threats of undesirable processes in forest habitat type such as: substitution of local species, reduction of diversity of plants, hybridization/transformation of local plants and other.

Here we present the primary results of impact assessment of potentially invasive alien woody species (PIAWS) in the protected areas of Eastern Georgia. This work is a part of a large project "Survey of Potential Invasive Alien Woody Species (PIAWS) in the Protected Areas of Georgia (South Caucasus)".



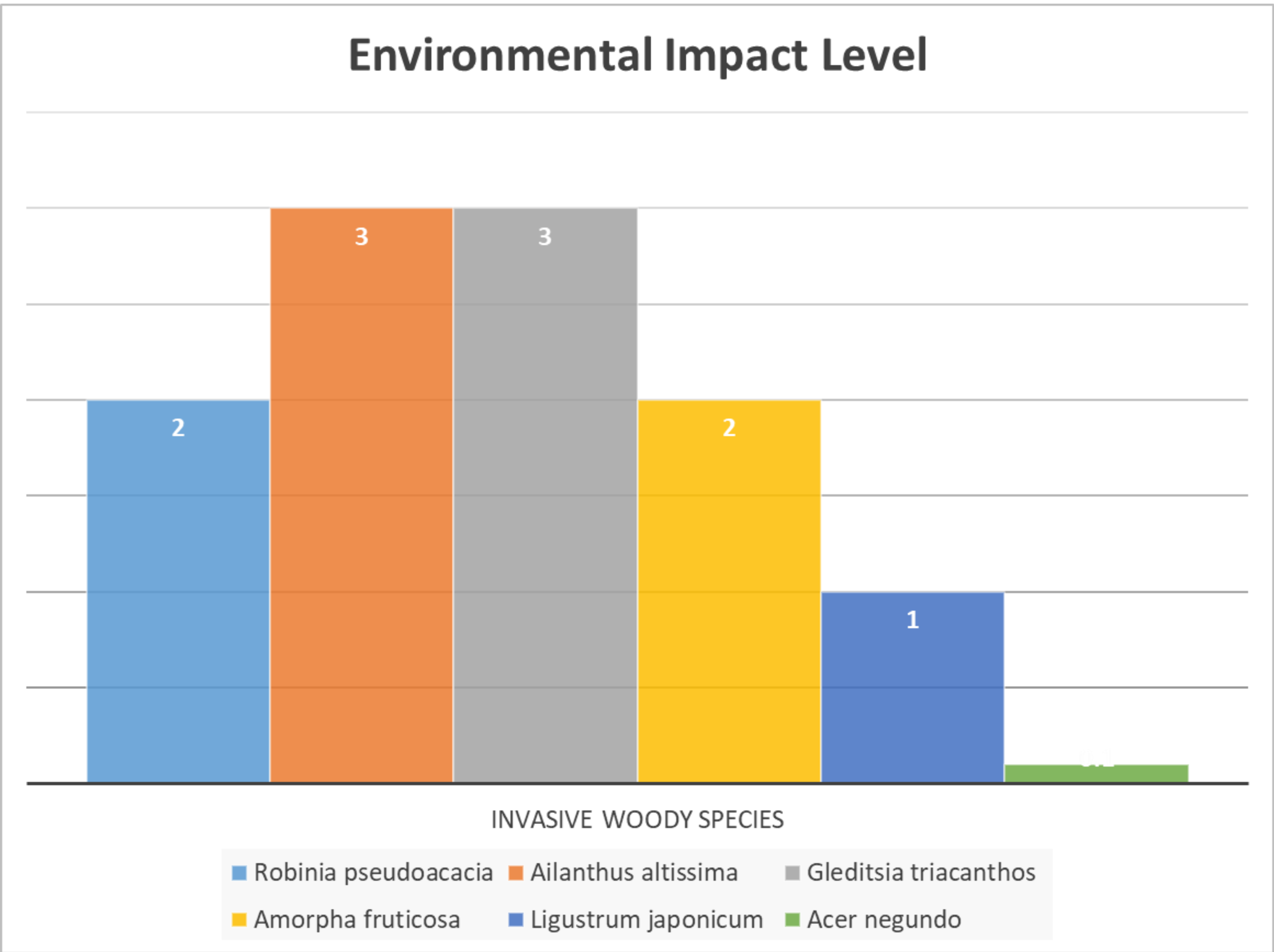
OBJECTIVES and METHODS

Our study focused on alien species such as Robinia pseudoacacia, Ailanthus altissima, Gleditsia triacanthos, Amorpha fruticosa, Ligustrum japonicum and Acer negundo in the context of the Gardabani managed reserve, which is located in south-eastern part of Georgia. Managed reserve covers natural riparian forests species, which are under potential threat caused by alien species: Populus × canescens (Aiton) Sm.; Populus alba L.; Populus nigra L.; Populus tremula L.; Salix alba L.; Quercus longipes Steven is a synonym of Quercus robur subsp. pedunculiflora (K.Koch) Menitsky; Ulmus elliptica K.Koch.

To assess the potential impact, we used the **generic impact scoring system** (GISS) and we combined the literature data with direct field observations. The impact is combined with the distributional and trait data in the reserve. Environmental impacts were studied in the field such as: direct impact on plant, impacts on animals, indirect impacts on other species, impact through transmission of diseases and parasites, impact through hybridization and impact on ecosystems.

RESULTS

As a result, it is clear that two invasive woody species, namely, *Ailanthus altissima* and *Gleditsia triacanthos* had impact level score – 3. They have medium impact on large scale, where several local species are concerned and they cause relevant decline and ecosystem modifications. *Robinia pseudoacacia* is widespread species with impact level score -2 and causes minor impacts on rare species of riparian and lowland forests of the reserve. For the river bed area the main threat is *Amorpha fruticosa*, which also scored impact level score - 2. *Ligustrum japonicum* with impact level score 1 - has minor impact only on common species in the reserve. *Acer negundo*, with the lowest impact level score - 0, has no detectable impact in the reserve, but they should be noteworthy.



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CONTACT

E-mail: g.kavtaradze@agruni.edu.ge
Cell: (+995) 599687976
0131, Kakha Bendukidze Campus, 240 David Aghmashenebeli Alley, Tbilisi, Georgia

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