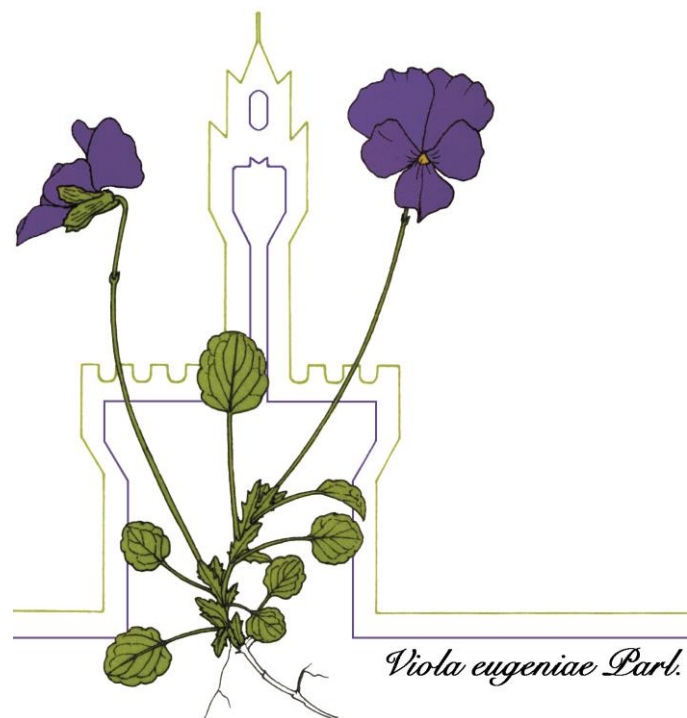


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ABSTRACTS

KEYNOTE LECTURES, COMMUNICATIONS, POSTERS

6 = Evaluation of the invasiveness of non-native plant species in the "Bosco Siro Negri" Natural Reserve (Pavia, Lombardy, Italy)

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The "Bosco Siro Negri" Integral natural Reserve covers 11 ha and is situated along the Ticino river in the Po Plain, in the municipality of Zerbolò, Pavia. It is an alluvial forest inserted in a rural ecosystem characterized by rice, corn and poplar cultivation. The Reserve is managed by the Department of Earth and Environmental Sciences of the University of Pavia, which organizes scientific research, educational and dissemination. Being a wild area close to human activities, mostly related to agriculture, it is subject to anthropic disturbance that affects the spread of invasive alien species (IAS).

The aim of this study was to evaluate the invasiveness of IAS within and along the perimeter of the Reserve. Five different habitats have been identified within and around the Reserve: wood, wood clearings, wood perimeter, poplar cultivation and uncultivated meadows. In these habitats, ten IAS have been identified and detected: *Ambrosia artemisifolia* L., *Amorpha fruticosa* L., *Artemisia verlotiorum* Lamotte, *Erigeron annuus* (L.) Pers., *Oenothera biennis* L., *Phytolacca americana* L., *Robinia pseudoacacia* L., *Solidago gigantea* Aiton, *Sorghum halepense* (L.) Pers. and *Sycios angulatus* L.

The coverage percentage value according to Braun-Blanquet method (1964) and the invasiveness index, as proposed by Tyler (2015), have been calculated for each IAS. Tyler Index (TI) ranges from 0 to 40,1 (1).

The abundance values and the Tyler Indices obtained for each plant in the different surveys have then been compared and studied using ANOVA. The analysis has been performed with R-software (2).

The results of ANOVA show that the most distributed IAS within the entire reserve are *A. artemisifolia* (TI = 16,1), *A. fruticosa* (TI = 20), *A. verlotiorum* (TI = 18), *R. pseudoacacia* (TI = 15,5) and *S. gigantea* (TI = 23), that are also the species with the highest mean values of invasiveness index.

A. artemisifolia has been detected in wood clearings, wood perimeter, poplar cultivation and uncultivated meadows: the highest mean coverage percentage values have been registered in the wood perimeter (10,5%) and in the poplar cultivation (20,5%). *A. fruticosa* has been found only in the habitat of wood clearings, with a high mean coverage percentage value (75,38%). *A. verlotiorum* has been recorded in the habitats of wood perimeter, poplar cultivation and uncultivated meadows: the highest mean coverage percentage values have been registered in the wood perimeter (15,22%) and in the poplar cultivation (51,6%). *R. pseudoacacia* has been detected in wood clearings (40%) and wood perimeter (37%). Finally, *S. gigantea*, the species with the highest value of invasiveness index, has been observed in wood clearings, wood perimeter, poplar cultivation and uncultivated meadows: the highest mean coverage percentage values have been registered in uncultivated meadows (67%).

Our results show that *S. gigantea* and *A. fruticosa* represent the most spread and dangerous IAS within and around the Reserve "Bosco Siro Negri" and control measures are needed. Moreover, the obtained results highlight that a thick autochthonous vegetation represents an obstacle to the spread of IAS into the Reserve: in fact, *S. gigantea* and *A. fruticosa* are present only where the vegetation is sparse and discontinuous.

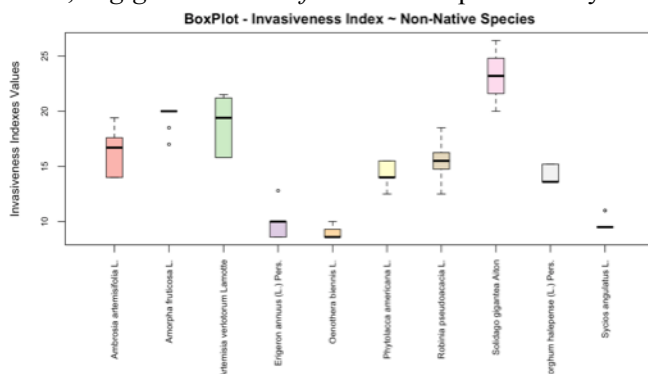


Fig. 1. Values of Invasiveness Indexes for each species



Fig. 2. *S. gigantea*



Fig. 3. *A. fruticosa*

1) Tyler T, Karlsson T, Milberg P, Sahlin U, Sundberg S (2015) Invasive plant species in the Swedish flora: developing criteria and definitions, and assessing the invasiveness of individual taxa. *Nordic Journal of Botany* 33: 300–317, 2015

2) R Core Team (2013) R: A language And Environment For Statistical Computing. R Foundation For Statistical Computing, Vienna, Austria. Isbn3-900051-07-0, Url [Http://zww.r-project.org/](http://zww.r-project.org/)

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