

Sewage pollution promotes the invasion-related traits of *Impatiens glandulifera* in an oligotrophic habitat of the Sharr mountain (Western Balkans)

Table S1: List of species with the estimated cover abundance > 1% spontaneously occurring in the resident vegetation invaded by *Impatiens glandulifera* (Štrpce/Shtërpçë municipality, mountainous area in the Southeast Kosovo). Sites/habitats are coded as in Table 1. Nomenclature follows the W3 TROPICOS database of the Missouri Botanical Garden.

Species in resident vegetation	Invaded habitats		
	A	B	C
<i>Agrimonia eupatoria</i> L.		+	
<i>Agrostis alba</i> L.	+	+	
<i>Ajuga reptans</i> L.			+
<i>Alnus glutinosa</i> (L.) Geartn.	+	+	
<i>Amaranthus retroflexus</i> L.	+		+
<i>Anchusa officinalis</i> (L.) Gouan			+
<i>Anthriscus sylvestris</i> (L.) Hoffm.	+	+	
<i>Arctium lappa</i> L.	+		+
<i>Aruncus dioicus</i> (Walter) Fernald		+	
<i>Astrantia minor</i> L.		+	
<i>Barbarea vulgaris</i> W.T. Alton	+	+	+
<i>Bidens tripartita</i> L.	+	+	
<i>Bromus sterilis</i> L.			+
<i>Calystegia sepium</i> (L.) R. Br.	+	+	
<i>Cardamine bulbifera</i> (L.) Crantz			
<i>Carex sylvatica</i> Huds.	+	+	
<i>Carum carvi</i> L.		+	
<i>Cephalanthera rubra</i> (L.) Rich.		+	
<i>Chaerophyllum aureum</i> L.	+	+	
<i>Chamaenerion angustifolium</i> (L.) Scop.		+	
<i>Chelidonium majus</i> L.	+	+	
<i>Chenopodium album</i> L.	+		+
<i>Cichorium intybus</i> L.			+
<i>Cirsium arvense</i> (L.) Scop.	+		+
<i>Clematis vitalba</i> L.	+	+	
<i>Cornus sanguinea</i> L.	+	+	
<i>Crepis biennis</i> L.	+	+	+
<i>Cruciata laevipes</i> Opiz		+	+
<i>Dactylis glomerata</i> L.	+		+
<i>Daucus carota</i> L.			+
<i>Elymus repens</i> (L.) Gould			+
<i>Erigeron canadensis</i> L.			+
<i>Euphorbia helioscopia</i> L.		+	+
<i>Fallopia convolvulus</i> (L.) Á. Löve			+
<i>Filipendula ulmaria</i> (L.) Maxim.		+	
<i>Fraxinus ornus</i> L.	+	+	

<i>Galium aparine</i> L.		+	+
<i>Geranium mole</i> L.			+
<i>Geranium phaeum</i> L.		+	
<i>Geum urbanum</i> L.		+	+
<i>Glechoma hederacea</i> L.		+	
<i>Heracleum sphondylium</i> L.		+	
<i>Hordeum murinum</i> L.			+
<i>Impatiens komarovii</i> Pobed.		+	
<i>Lamium maculatum</i> L.	+	+	+
<i>Lythrum salicaria</i> L.		+	
<i>Malva sylvestris</i> L.			+
<i>Medicago arabica</i> (L.) Huds.			+
<i>Melilotus officinalis</i> (L.) Lam.			+
<i>Melittis melissophyllum</i> L.		+	
<i>Mentha longifolia</i> (L.) Huds.	+	+	+
<i>Myosotis sparsiflora</i> J.C. Mikan		+	
<i>Myosotis sylvatica</i> Ehrh. ex Hoffm.	+	+	
<i>Persicaria lapathifolia</i> (L.) Delarbre	+		+
<i>Petasites hybridus</i> (L.) G. Gaertn., B. May & Scherb.	+	+	
<i>Plantago lanceolata</i> L.			+
<i>Polygonum aviculare</i> L.			+
<i>Populus nigra</i> L.	+	+	
<i>Potentilla reptans</i> L.			+
<i>Prunus cerasifera</i> Ehrh.	+		
<i>Ranunculus repens</i> L.	+	+	
<i>Ranunculus sceleratus</i> L.	+		
<i>Rorippa sylvestris</i> (L.) Besser			
<i>Rosa canina</i> L.		+	+
<i>Rubus caesius</i> L.	+	+	+
<i>Rumex crispus</i> L.	+		+
<i>Salix caprea</i> L.	+	+	
<i>Salix elaeagnos</i> Scop.	+	+	
<i>Salix viminalis</i> L.		+	
<i>Salvia verticillata</i> L.			+
<i>Sambucus ebulus</i> L.	+	+	+
<i>Sambucus nigra</i> L.	+	+	
<i>Saponaria officinalis</i> L.	+	+	+
<i>Scutellaria columnae</i> All.		+	
<i>Setaria italica</i> (L.) P. Beauv.			+
<i>Sherardia arvensis</i> L.		+	
<i>Silene latifolia</i> Poir.	+		+
<i>Sisymbrium officinale</i> (L.) Scop.			+
<i>Sonchus arvensis</i> L.	+		+
<i>Stellaria holostea</i> L.		+	
<i>Stenactis annua</i> (L.) Cass. ex Less.			+
<i>Telekia speciosa</i> (Schreb.) Baumg.	+	+	
<i>Thalictrum aquilegiifolium</i> L.		+	

<i>Trifolium pratense</i> L.			+
<i>Urtica dioica</i> L.	+	+	+
<i>Verbascum phlomoides</i> L.			+
<i>Veronica chamaedrys</i> L.	+	+	+
<i>Vicia cracca</i> L.		+	+

Table S2: Selected soil parameters of non-invaded soils of (semi)natural meadows outside of the flooding zone of the Lepenac river.

Soil parameter	Median	Range
pH	6.9	6.6 – 7.3
Available P (mg kg ⁻¹)	10.3	7.3 – 18.2
Available K (mg kg ⁻¹)	196.1	123.5 – 250.3
Total N (%)	0.38	0.24 – 0.51

Meadows were chiefly dominated by *Danthonia alpina*, *Koeleria pyramidata*, *Dactylis glomerata* or *Arrhenatherum elatius*. Results of 15 samples are presented.

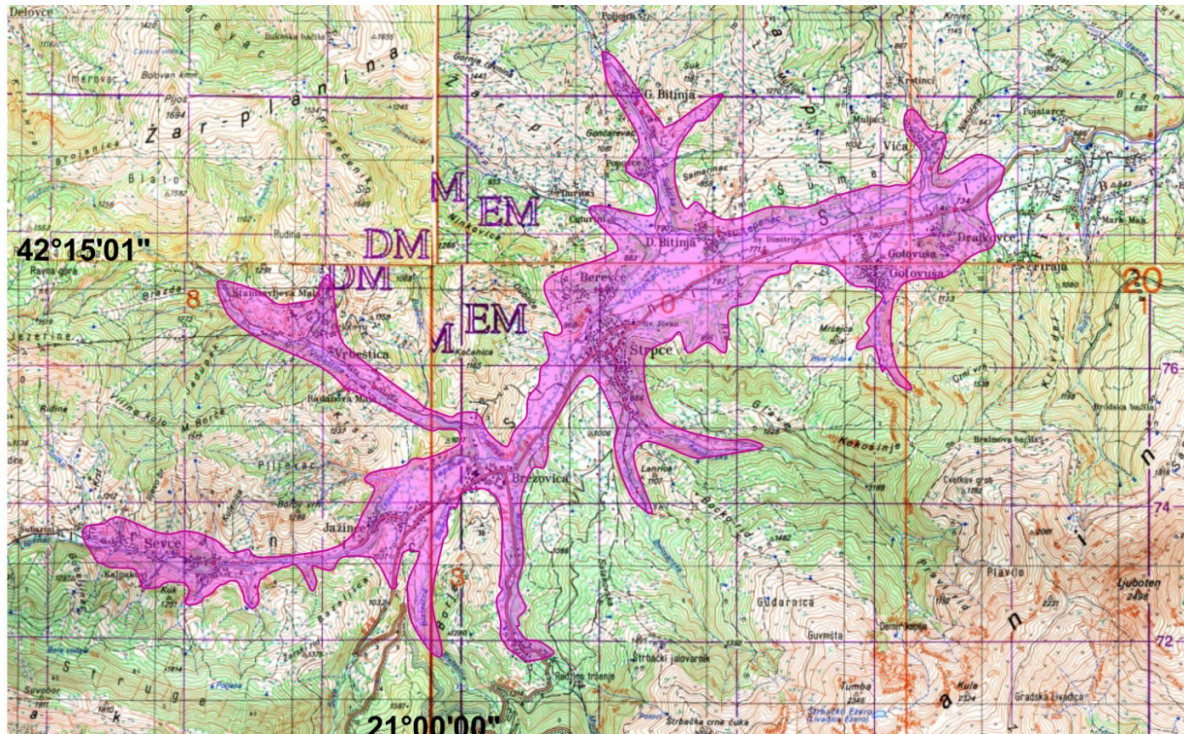


Figure S1: Distribution of the well-established *Impatiens glandulifera* stands (purple shade) in the source area of the Lepenac river, in a valley of the Sharr mountain range, southeast Kosovo. The delineated area encompasses individual observations of “significant” (>10 m², or more than 50 individuals) stands of Himalayan balsam separated by <100 m physical distance. Basal topographic map 1:50000 (Vojnogeografski Institut, Belgrade, 1985).