

## Supplementary materials

Table SM1. Characteristics of the cartographic sources used in the study

No	Name	Source	The scale and format
1.	First Military Survey maps of the Habsburg Empire [Josephinische Landesaufnahme] (1763–1787)	The Historical Map Portal <a href="http://www.mapire.eu">www.mapire.eu</a> (accessed 2018.04.17)	Scale 1:28 800, georeferenced
2.	Map of Brześć District, around 1796	Central Archives of Historical Records, Cartographic collection 68-3.	Approximate scale: 1:200 000, scanned (TIF)
3.	Second Military Survey maps of the Habsburg Empire [Franzische Landesaufnahme] (1806–1869)	The Historical Map Portal <a href="http://www.mapire.eu">www.mapire.eu</a> (accessed 2018.04.17)	Scale 1:28 800, georeferenced
4.	Map of Białowieża Forest [Plan des Waldes von Bialowesha]	Eichwald 1830	Approximate scale: 1:150 000, scanned (TIF)
5.	Map of Military Geographical Institute [Wojskowy Instytut Geograficzny] 1919-1939, the sheets: P37 S37 Narew P37 S38 Hajnówka P38 S37 Dobrowola P38 S38 Białowieża P50 S35 Dobromil P53 S38 Dolina	Archiwum Map Wojskowego Instytutu Geograficznego 1919-1939, <a href="http://www.mapywig.org">www.mapywig.org</a> (accessed 2018.04.17)	Scale: 1:100 000, scanned (TIF)
6.	Military Survey of Hungary (1941)	The Historical Map Portal <a href="http://www.mapire.eu">www.mapire.eu</a> (accessed 2018.04.17)	Scale 1:100 000, georeferenced
7.	Ortho-photo images (2014–2017)	Google Earth Pro (Version 7.3.1.4507): Google Inc. (2018).	georeferenced

Table SM2. Land use structure of four communities according to the 1850's "Ausweis über die Benutzung des Bodens" (the acreage has been re-calculated from the original land register forms deposited in the National Archive in Przemyśl). In grey: such land use categories, which might have fostered oak woods development. Sopotnik - location of PL2,3; Kalwaria / Paćław - PL4,5,9; Sólca - PL8; Kopysno - PL6; grey rows refer to historical land use categories apparently beneficial for oak regeneration, almost absent in the contemporary landscape

Category	Land use Subcategory	Sopotnik		Kalwaria / Paćław		Sólca		Kopysno	
		ha	%	ha	%	ha	%	ha	%
Cultivated area	Crop-field	266.9	5	520.8	8	1514.4	20	984.9	16
	Crop/grass rotation	0	0	520.8	8	0	0	0	0
	Grassland	774.5	16	756.3	11	389.4	5	194	3
Grassland	Grassland with fruit trees	7.4	0	85.9	1	13	0	1378.9	22
	Grassland with timber trees	10.3	0	10.4	0	0	0	574.3	9
Gardens	Vege gardens	0.7	0	18.5	0	26	0	0	0
	Fruit orchards	866.5	18	202	3	11	0	284	5
	Ornamental gardens	0	0	339.8	5	0	0	0	0
Pastureland	(Wood) pasture	50.5	1	267.7	4	82.2	1	494	8
	Pasture with fruit trees	48.7	1	393.1	6	0	0	0	0
	Pasture with timber trees / pollards	268.3	5	0	0	896.2	12	55.1	1
Woodland	High deciduous forest	141.9	3	219.8	3	0	0	732	12
	High coniferous forest	709.3	14	0	0	0	0	0	0
	High mixed forest	362.7	7	825.7	12	1242.2	16	0	0
	Coppice wood	106.6	2	263.6	4	1270.4	17	615.6	10
Ponds and swamps with reed vegetation	Thicket, scrubland	9.4	0	0	0	0	0	0	0
		0	0	55.3	1	0	0	0	0
	Swamps without reed	94.7	2	0	0	0	0	9	0
Unproductive land	Gravel, sand and clay pits	0	0	51.4	1	0	0	372.7	6
	Fallows	245.4	5	455.8	7	186.5	2	0	0
	Bare rock	0	0	0	0	0	0	367.6	6
	Rivers and streams	343.8	7	907.6	14	0	0	0	0
Build-up area	Paths	378.4	8	51.3	1	1071.3	14	64.5	1
		234.2	5	676.1	10	919	12	20.4	0

First Military Survey maps of the Habsburg Empire (1763-1787)

Second Military Survey maps of the Habsburg Empire (1806-1869)

Map of Military Geographical Institute (1919-1939)

Ortho-photo images (2014-2017)

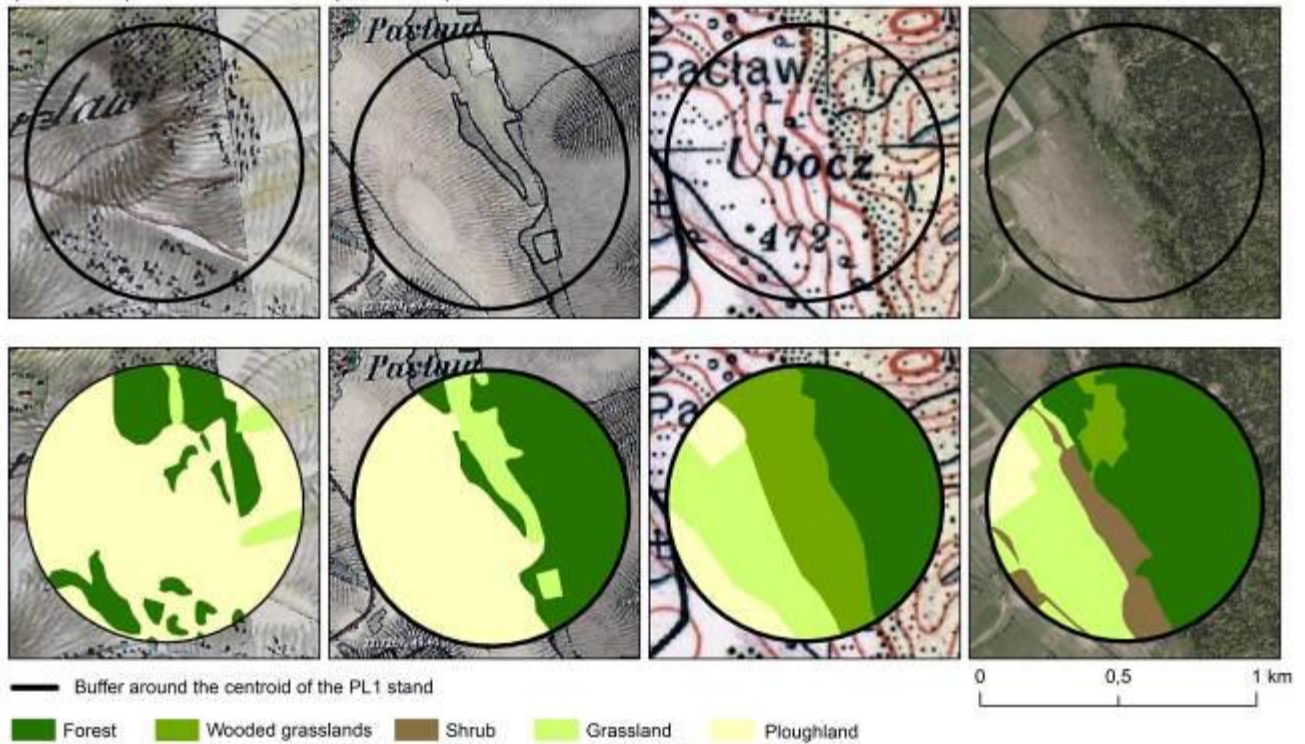


Fig. SM1. Exemplary digitization of the landscape R=500 m buffer around the centroid of PL5 stand, based on three historic maps and contemporary imagery

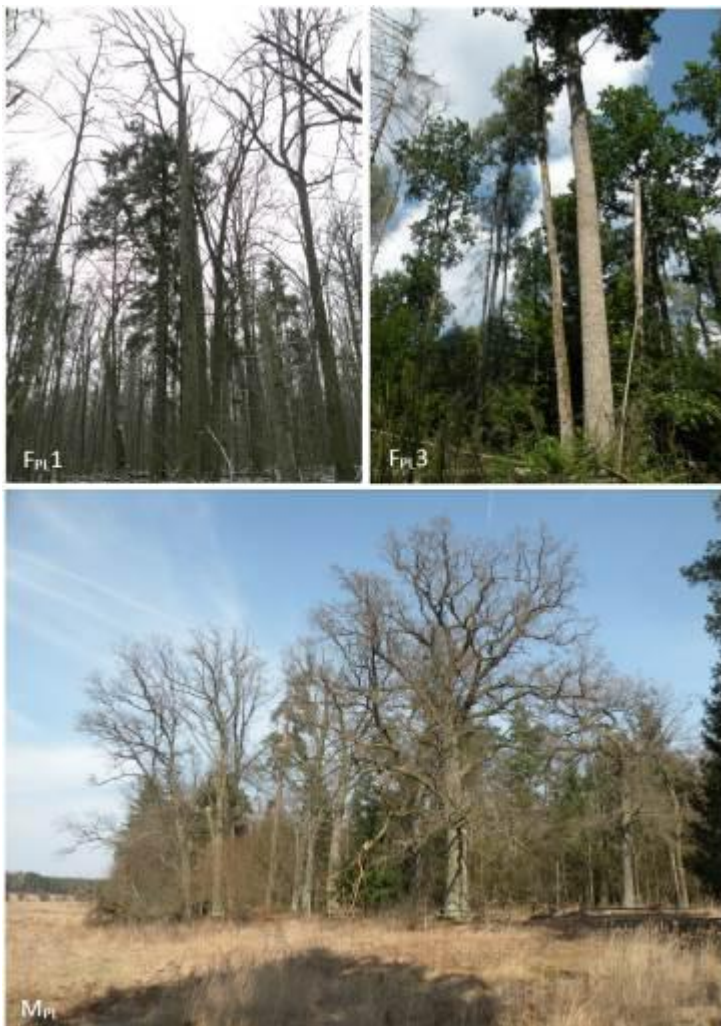


Fig. SM2. ‘High forest’ oaks, forced to allocate their biomass in the fast stem vertical build-up (such as those in the Białowieża National Park, BNP) vs. oaks grown on the verge of the Białowieża forest, where oaks are growing on the ecotone between the floodplain grassland and high forest develop wide crowns with much lower basis; see Tables 1, SM1 for stands sites characteristics





Fig. SM3. Regularly migrating cattle sustains canopy gaps and stimulates oak recruitment - RO6, Transylvania



Fig. SM4. Exemplary open-grown dead oak 'swallowed' by the young stand that encroached on the abandoned field - an alleged parent tree to part of PL2 oaks (see Tables 1, Table SM1 for PL2 description)



Fig. SM5. Regularly early spring grass burning in young UA5 oak stand (left) may eventually lead to a park-like grove, similar to UA1 (right)