

Supplementary Material

Tab. S1 - List of metadata of layers provided by the DSS. RAFVG = Autonomous Region Friuli Venezia Giulia, UNIUD = University of Udine.

Name	Description	Source	Edition
True orthophoto RAFVG	Orthophoto RAFVG 2017-2018 with 20 cm resolution.	RAFGV	2017-2018
OpenTopoMap	OpenStreetMap data and SRTM elevation data ideal for relief representation, via WMS. License CC-BY-SA.	OpenTopoMap	Continuous update
Cadastrale	Cadastral parcels of the Revenue Agency via WMS service. License CC-BY 4.0	Italian Revenue Agency	Continuous update
Friuli Venezia Giulia Municipalities	Municipal administrative limits year 2020 for the study area.	RAFGV	2020
Forest categories	Layer derived from IRDAT 1:5000 "Forest types 2013" but with data only at forest category level. For the Municipality of Sappada, the data from the Map of forest categories of the Veneto Region 1:10,000 have been integrated and standardized.	RAFGV, Veneto Region	2023
Forestry inspectorates and stations	Territories of competence of forestry inspectorates and stations.	RAFGV	2020
Lithology	Lithologies of the regional geological map 1:150,000, ed. 2006. An integration was made for the Municipality of Sappada using the lithostratigraphic map of the Veneto Region scale 1:250,000, ed. 1990.	UNIUD, University of Trieste, RAFVG, Veneto Region	2006
Forest management plans	Perimeters of forest management plans of public bodies. The plan for the state forest of Tarvisio has also been integrated.	RAFGV, Carabinieri Biodiversity Department of Tarvisio – Fund for Religious Buildings	2023
Storm Vaia crashes	Perimetering of the areas of forest destroyed by storm Vaia in October 2018 carried out in the context of a study coordinated by MIPAF. Data for FVG derived from helicopter overflights and field surveys.	RAFGV	2021
Forest uses	Perimeters of forest uses in the FVG Region.	RAFGV	2023
Layer of standing volume and increment	Estimate of wood standing volume ($m^3 ha^{-1}$) and increment ($m^3 ha^{-1} y^{-1}$) based on the spatialization of data from the National forestry inventory 2015 edition (ground data collected between 2018-2019), using Machine learning techniques and with the integration of geomorphological, spectral data from Sentinel-2 and canopy height model (CHM). Resolution 23 m. Information on wood volume and increment processed from the original data of Carabinieri, Council for agricultural research and analysis of the agricultural economy - National Inventory of Forests and forest carbon reservoirs – INFC www.inventoryforest.org released under the Creative Commons Attribution 4.0 license.	UNIUD	2023
Forest fire perimeter	Perimeter of the burned areas obtained from digitized cartographies attached to the forest fire news sheets drawn up by the Forest Stations with GPS surveys.	RAFGV	2023
Forest viability	Level that provides essential information for accessibility to the woods. It arises from the integration between the information level of forest roads (Viab_FOR_FVG) and the level of local public roads (generally paved) of forest interest (Viab_PU_FVG) i.e. crossing wooded areas.	RAFGV	2023
Accessibility of the forest	It represents the theoretical accessibility starting from forest roads and public roads of forest interest with a tractor and cable crane 500 meters long. In the calculation, the real distance is considered taking into account the slope, the mountain ridges and also considering the maximum operating slope of the vehicles: tractor slope. max 40%, dist. max 100m. Cable crane slope max 80%, dist. max 500m.	UNIUD	2023

Name	Description	Source	Edition
Vegetation protective service	The mountain area is classified on the basis of the Vegetation Protection Service (SPV) drawn up by the University of Udine and which considers the role of vegetation in terms of stabilizing action (contrast against erosion, slope stabilization...) and regulation of waters. The values are expressed as a percentage and vary from 0 to 100. The higher it is, the greater the importance of preserving the soils.	UNIUD	2022
Hydrogeological constraint	Areas subject to hydrogeological constraints, whose purpose is the protection of the physical environment pursuant to Regional Law 9/2007 art. 47; in land subject to hydrogeological constraints, any activity involving the transformation of land into another intended use.	RAFVG	2022
Landslides	Landslide perimeter obtained from the Inventory of Landslide Phenomena in Italy (IFFI).	ISPRA	2023
Avalanche danger zones	Level representing localized or area avalanche risks derived from surveys or photo-interpretation.	RAFVG	2023
Localized avalanche danger	Level representing localized or area avalanche risks derived from surveys or photo-interpretation.	RAFVG	2023
Natura 2000 sites	They are a type of European-level protected area established pursuant to Directives 92/43/EEC and 2009/147/EC and cover relevant parts of the mountain area but generally do not envisage direct constraints but rather management plans or specific site conservation measures (MCS) which must be consulted.	RAFVG	2023
Regional nature reserves	Regional nature reserves pursuant to art. 43 Regional Law 42/1996.	RAFVG	2018
Regional natural parks	Definitive perimeter of the Regional Natural Parks established pursuant to Chapter III of Regional Law 42/1996.	RAFVG	2018
State nature reserves	State nature reserves pursuant to art. 17 Law 394/1991.	RAFVG	2019
Natural biotopes	Natural biotopes are protected areas established pursuant to art. 4, LR 42/1996 and specific regulations apply within them.	RAFVG	2020
Municipal and inter-municipal parks	Identify the municipal and inter-municipal park areas pursuant to art. 6, LR 42/1996 at the territorial level in force under the jurisdiction of the individual Municipalities.	RAFVG	2019
AIR PRGC	Areas of significant environmental interest (ARIA) established pursuant to LR 30 September 1996, n. 42, art. 5.	RAFVG	2008
Mountains over 1600 m	Mountains for the part exceeding 1600 meters above sea level pursuant to art. 25 of the NTA of the Regional Landscape Plan. Data for the Municipality of Sappada not available.	RAFVG	2018
Buffer strips for watercourses	Buffer zones for watercourses pursuant to art. 23 of the NTA of the Regional Landscape Plan. Data for the Municipality of Sappada not available.	RAFVG	2018
Buffer zones lakes	Buffer zones of the lakes pursuant to art. 22 of the NTA of the Regional Landscape Plan. Data for the Municipality of Sappada not available.	RAFVG	2018
Territories covered by woods and forests	Territories covered by forests and woods pursuant to art. 28 of the NTA of the Regional Landscape Plan. Data for the Municipality of Sappada not available.	RAFVG	2018
Monumental and remarkable trees	Monumental and remarkable trees pursuant to art. 81 LR 9/2007 and included among the landscape assets of the "further contexts" of art. 42 c.1 lett. d of the NTA of the Regional Landscape Plan. Data for the Municipality of Sappada not available.	RAFVG	2018

Fig. S1 - The FDSS infrastructure.

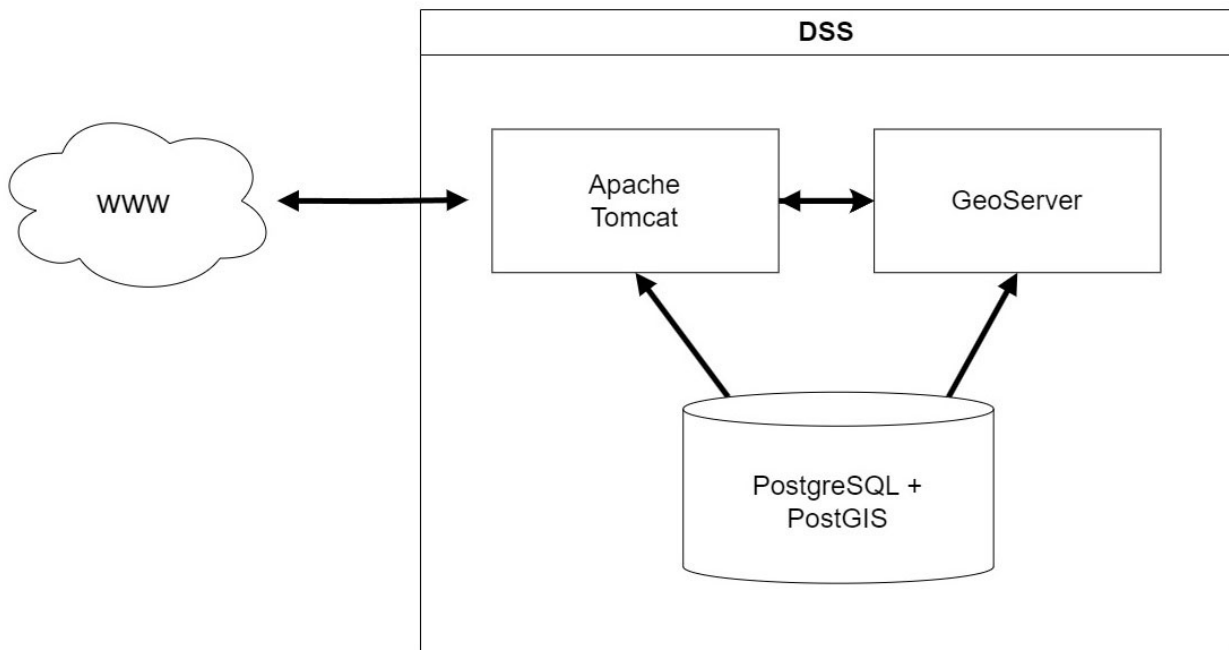


Fig. S2 - Flowchart showing the main steps followed to obtain forest accessibility.

