Supplementary material

Loss of potential bat habitat following a severe wildfire: a model-based rapid assessment

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Table S1. List of bat species found in the Vesuvius National Park (Southern Italy) and their foraging and roosting preferences (e.g. Dietz *et al*. 2009)

Species	Foraging habitat	Roosting habitat
Hypsugo savii	Generalist	Generalist
Miniopterus schreibersii	Open / Forest edge / Riparian vegetation	Caves
Myotis emarginatus	Forest / Forest edge	Trees; Buildings
Myotis nattereri	Forest	Trees
Nyctalus leisleri	Open space	Trees; Buildings
Pipistrellus kuhlii	Generalist	Generalist
Pipistrellus pipistrellus	Generalist	Generalist
Pipistrellus pygmaeus	Forest edge / Riparian vegetation	Generalist
Plecotus austriacus	Forest edge	Trees; Buildings
Rhinolophus ferrumequinum	Forest edge / Forest	Caves; Buildings
Rhinolophus hipposideros	Forest	Caves; Buildings
Tadarida teniotis	Open space	Rocks; Buildings

Table S2. Number of bat presence records available for analysis and sample sizes of the subset used for the development of Species Distribution Models (SDMs) after spatial autocorrelation analyses

Species	Total	Used to generate SDMs
Hypsugo savii	394	43
Miniopterus schreibersii	47	37
Myotis emarginatus	66	32
Myotis nattereri	97	30
Nyctalus leisleri	244	44
Pipistrellus kuhlii	480	50
Pipistrellus pipistrellus	178	42
Pipistrellus pygmaeus	89	21
Plecotus austriacus	25	19
Rhinolophus ferrumequinum	94	37
Rhinolophus hipposideros	312	34
Tadarida teniotis	131	28

Table S3. List of eco-geographical variables used for each bat species in this study, along with variable type and measurement unit

Species	Type	Ecogeographical Variable	Unit
Hypsugo savii	Habitat	CLC	-
	Climatic	Precipitation of Driest Month	mm
		Precipitation of Warmest Quarter	mm
		Precipitation of Coldest Quarter	mm
Miniopterus schreibersii	Habitat	CLC	-
	Climatic	Max Temperature of Warmest Month	°C
		Mean Temperature of Wettest Quarter	°C
		Precipitation of Driest Quarter	mm
		Precipitation of Warmest Quarter	mm
		Precipitation of Coldest Quarter	mm
Myotis emarginatus	Habitat	CLC	-
	Climatic	Isothermality	%
		Mean Temperature of Driest Quarter	°C
		Precipitation of Warmest Quarter	mm
		Precipitation of Driest Quarter	mm
Myotis nattereri	Habitat	CLC	-
	Climatic	Mean Temperature of Wettest Quarter	°C
		Mean Temperature of Driest Quarter	°C
		Annual Precipitation	mm
		Precipitation of Warmest Quarter	mm
		Precipitation of Coldest Quarter	mm
Nyctalus leisleri	Habitat	CLC	-
	Topographical	Altitude	m
	Climatic	Mean Diurnal Range	°C
		Mean Temperature of Driest Quarter	°C
		Precipitation of Warmest Quarter	mm
		Precipitation of Driest Quarter	mm
Pipistrellus kuhlii	Habitat	CLC	-
	Climatic	Isothermality	%
		Precipitation of Driest Month	mm
		Precipitation of Warmest Quarter	mm
		Precipitation of Coldest Quarter	mm
Pipistrellus pipistrellus	Habitat	CLC	-
	Climatic	Mean Temperature of Driest Quarter	°C
		Precipitation of Wettest Month	mm
		Precipitation of Driest Month	mm
		Precipitation of Warmest Quarter	mm
		Precipitation of Coldest Quarter	mm
Pipistrellus pygmaeus	Habitat	CLC	-
	Climatic	Precipitation of Driest Month	mm
		Precipitation of Coldest Quarter	mm

Plecotus austriacus	Habitat	CLC	-
	Climatic	Mean Diurnal Range	°C
		Isothermality	%
		Temperature Annual Range	°C
		Mean Temperature of Driest Quarter	°C
		Precipitation of Warmest Quarter	mm
		Precipitation Seasonality	%
Rhinolophus ferrumequinum	Habitat	CLC	-
	Climatic	Temperature Seasonality	%
		Mean Temperature of Driest Quarter	°C
		Mean Temperature of Wettest Quarter	°C
		Precipitation of Warmest Quarter	mm
		Precipitation of Coldest Quarter	mm
Rhinolophus hipposideros	Habitat	CLC	-
	Climatic	Isothermality	%
		Temperature Seasonality	%
		Precipitation of Warmest Quarter	mm
		Precipitation of Wettest Month	mm
Tadarida teniotis	Habitat	CLC	-
	Topographical	Altitude	m
	Climatic	Precipitation of Driest Quarter	mm
		Precipitation of Warmest Quarter	mm
		Precipitation of Coldest Quarter	mm
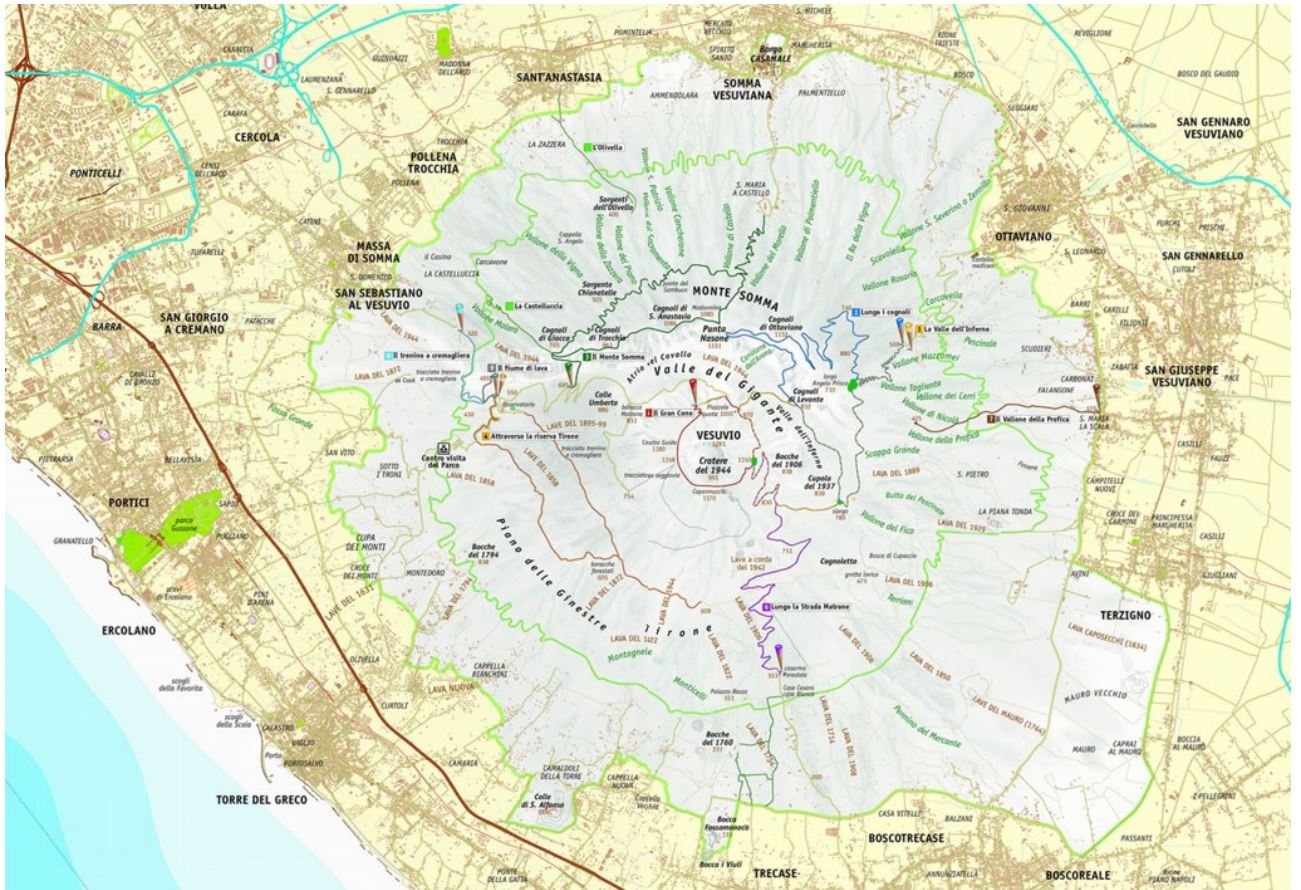
Fig. S1. Map of the Vesuvius National Park. Grey represents the study area, yellow represents agricultural areas; light brown represents urban areas, light green represent roads, red or light blue represents highways (source: http://www.vesuviopark.it).
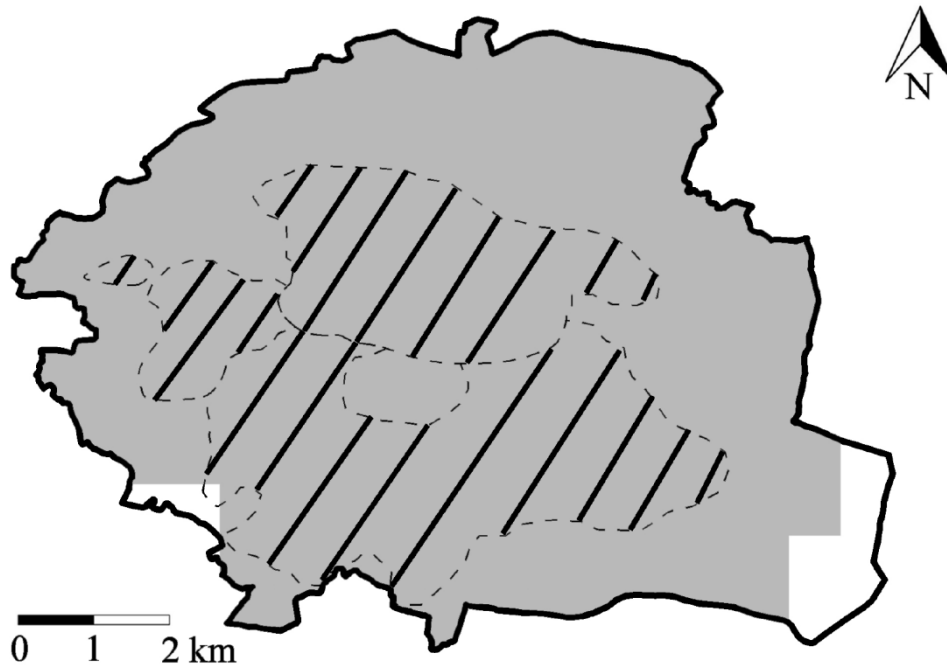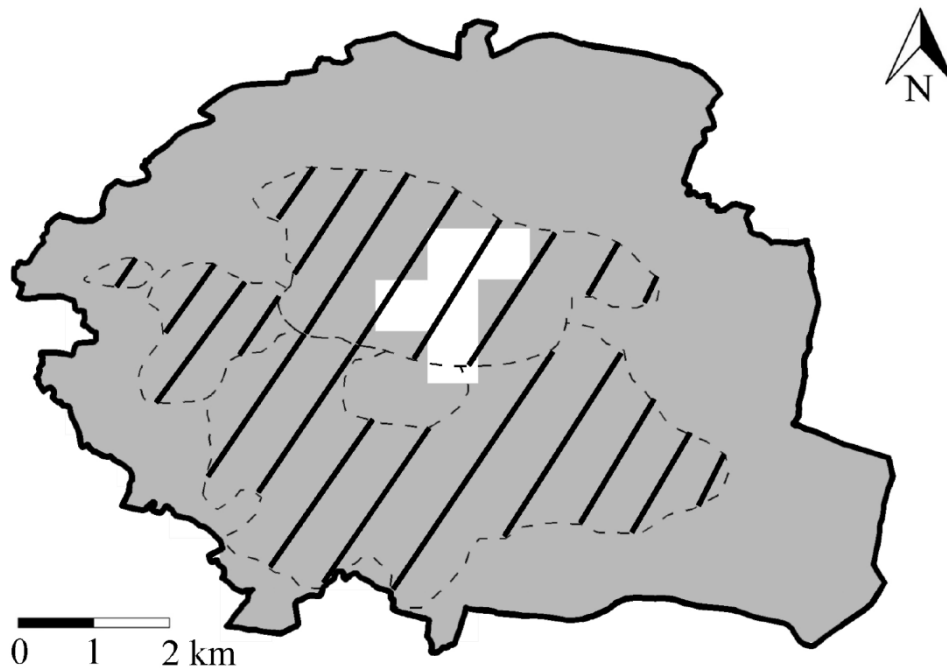
Fig. S2. Species Distribution Model (SDM) of *M. schreibersii* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.
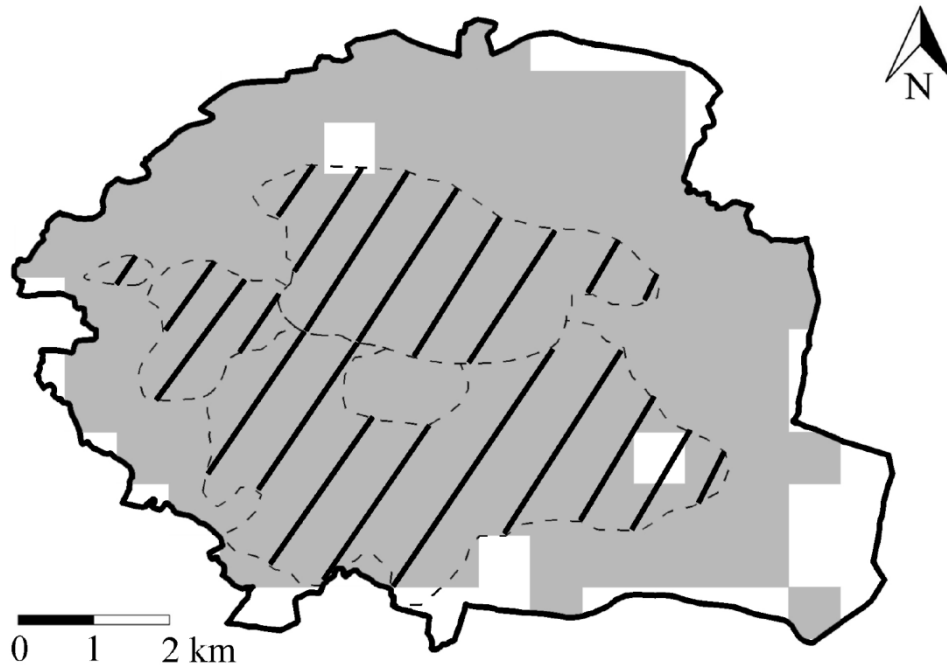

Fig. S3. Species Distribution Model (SDM) of *P. kuhlii* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.
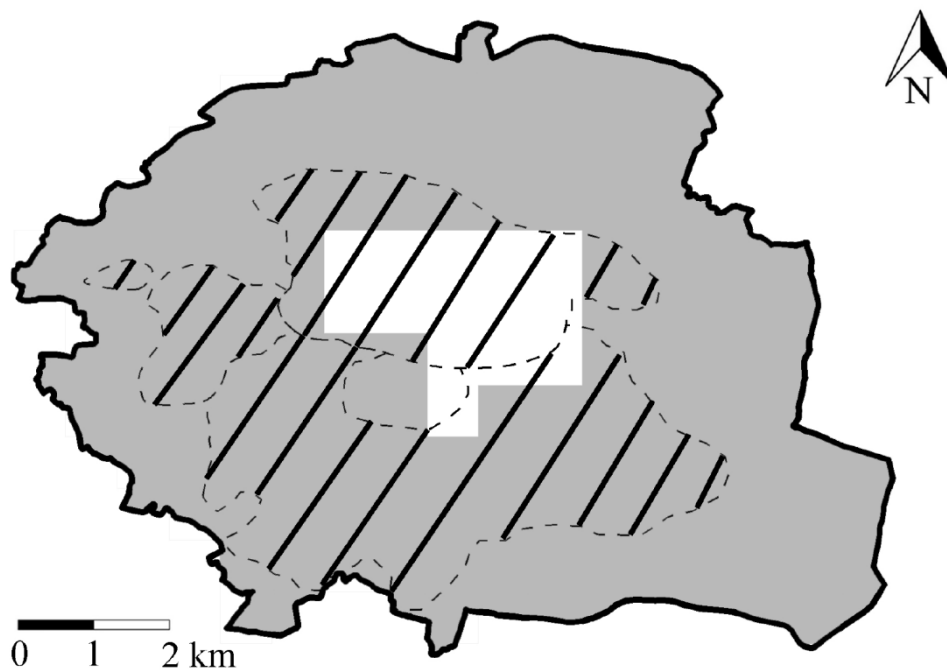
Fig. S4. Species Distribution Model (SDM) of *P. pipistrellus* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.
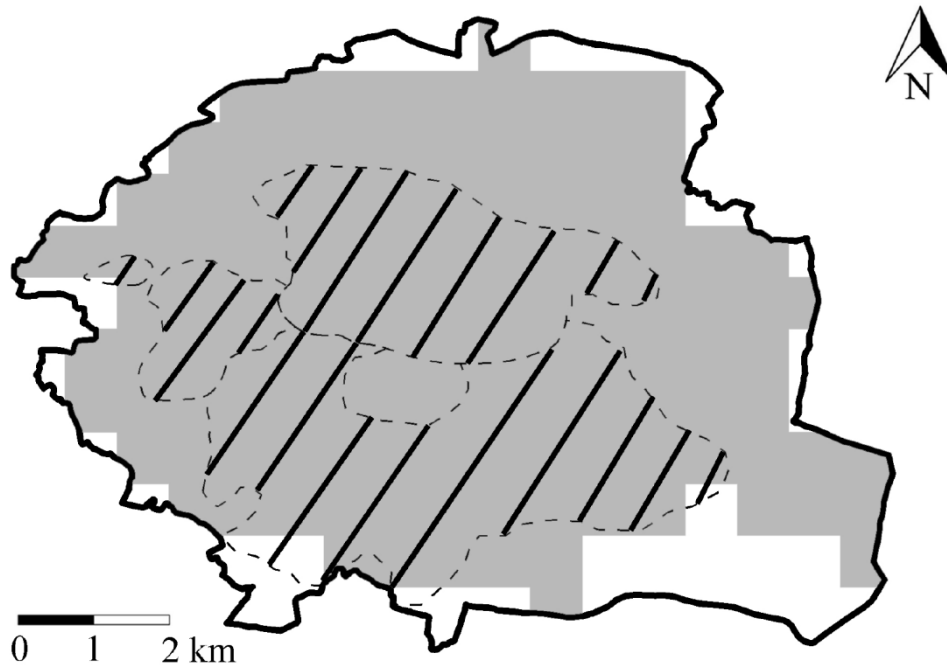

Fig. S5. Species Distribution Model (SDM) of *P. pygmaeus* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.
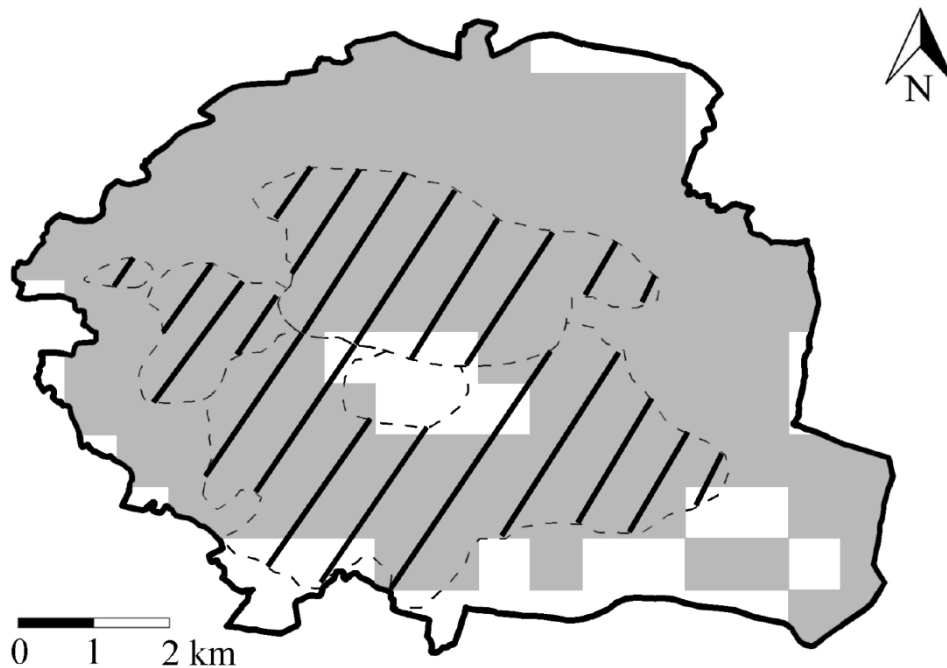
Fig. S6. Species Distribution Model (SDM) of *T. teniotis* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.

Fig. S7. Species Distribution Model (SDM) of *R. hipposideros* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.
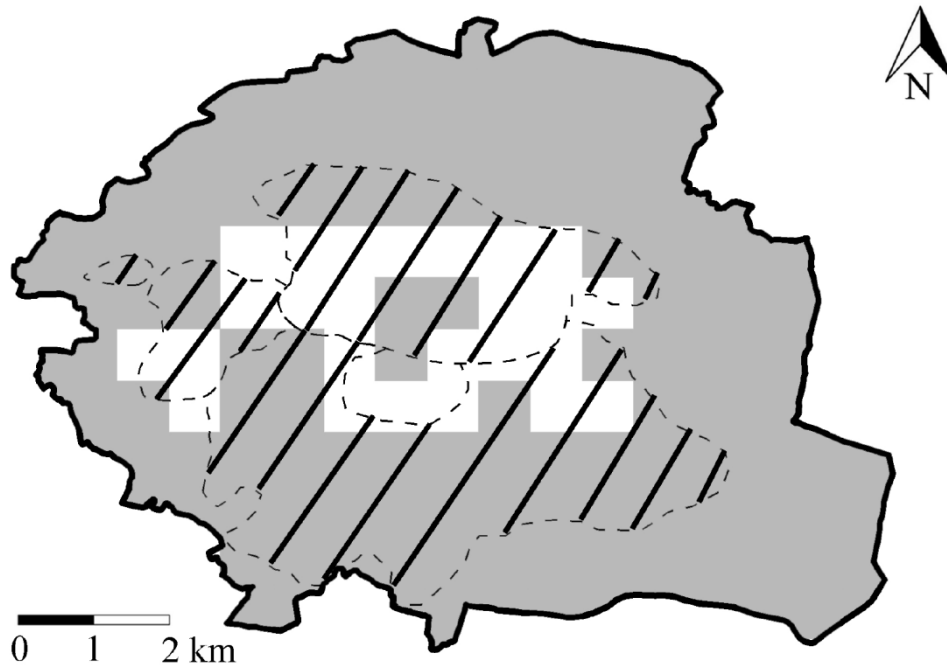
Fig. S8. Species Distribution Model (SDM) of *R. ferrumequinum* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.
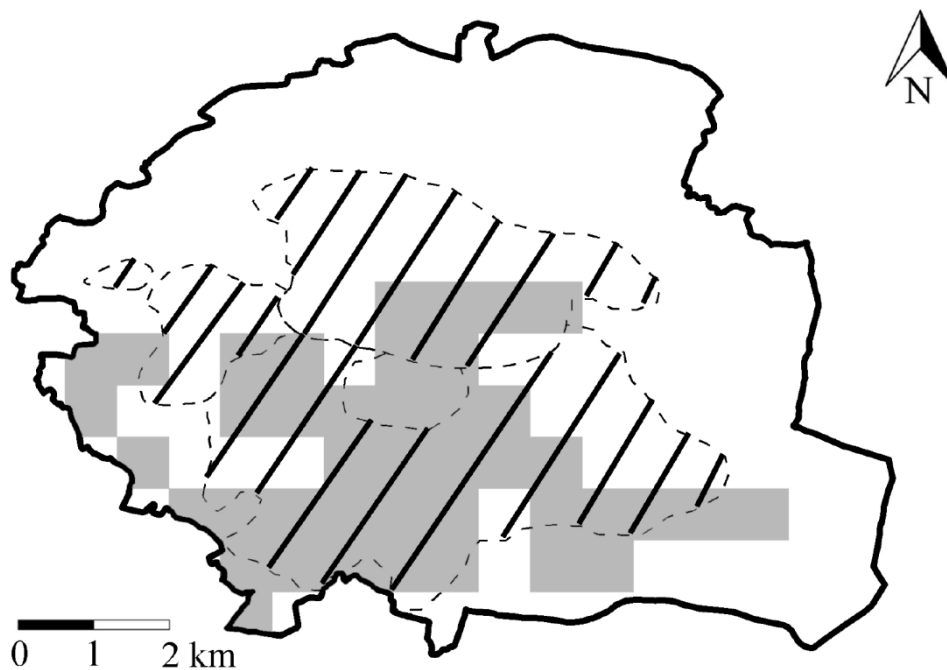

Fig. S9. Species Distribution Model (SDM) of *M. emarginatus* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.
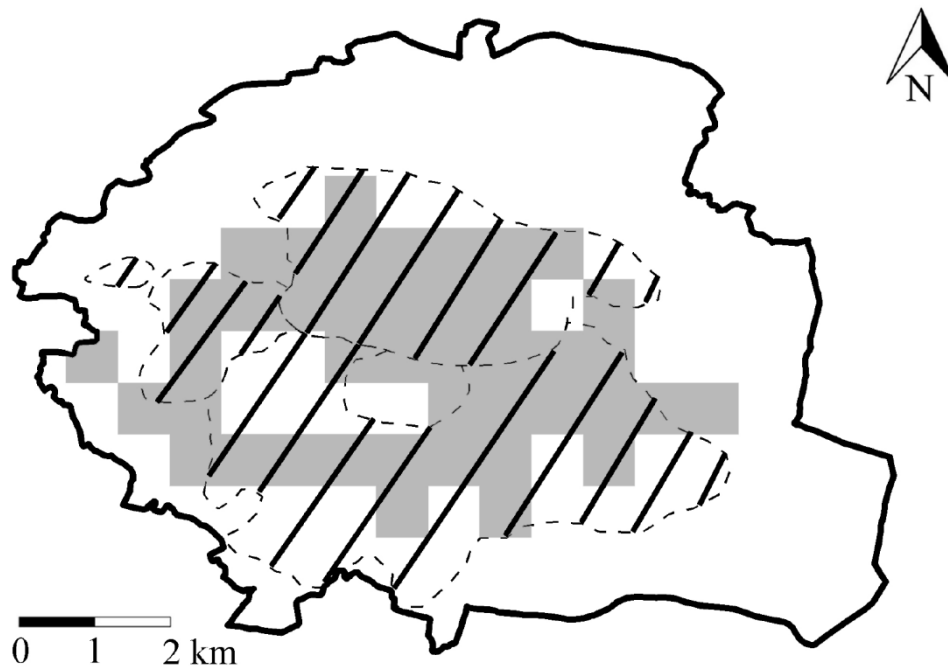
Fig. S10. Species Distribution Model (SDM) of *M. nattereri* in the Vesuvius National Park. Binary map scale shows the probability of presence: 0 (white); 1 (grey). Boundaries of the Vesuvius National Park are denoted by the black continuous line; boundaries of the burnt areas are denoted by the black dotted line; and burnt areas are denoted by the black simple hatching.