1 SUPPLEMENTAL FIGURES

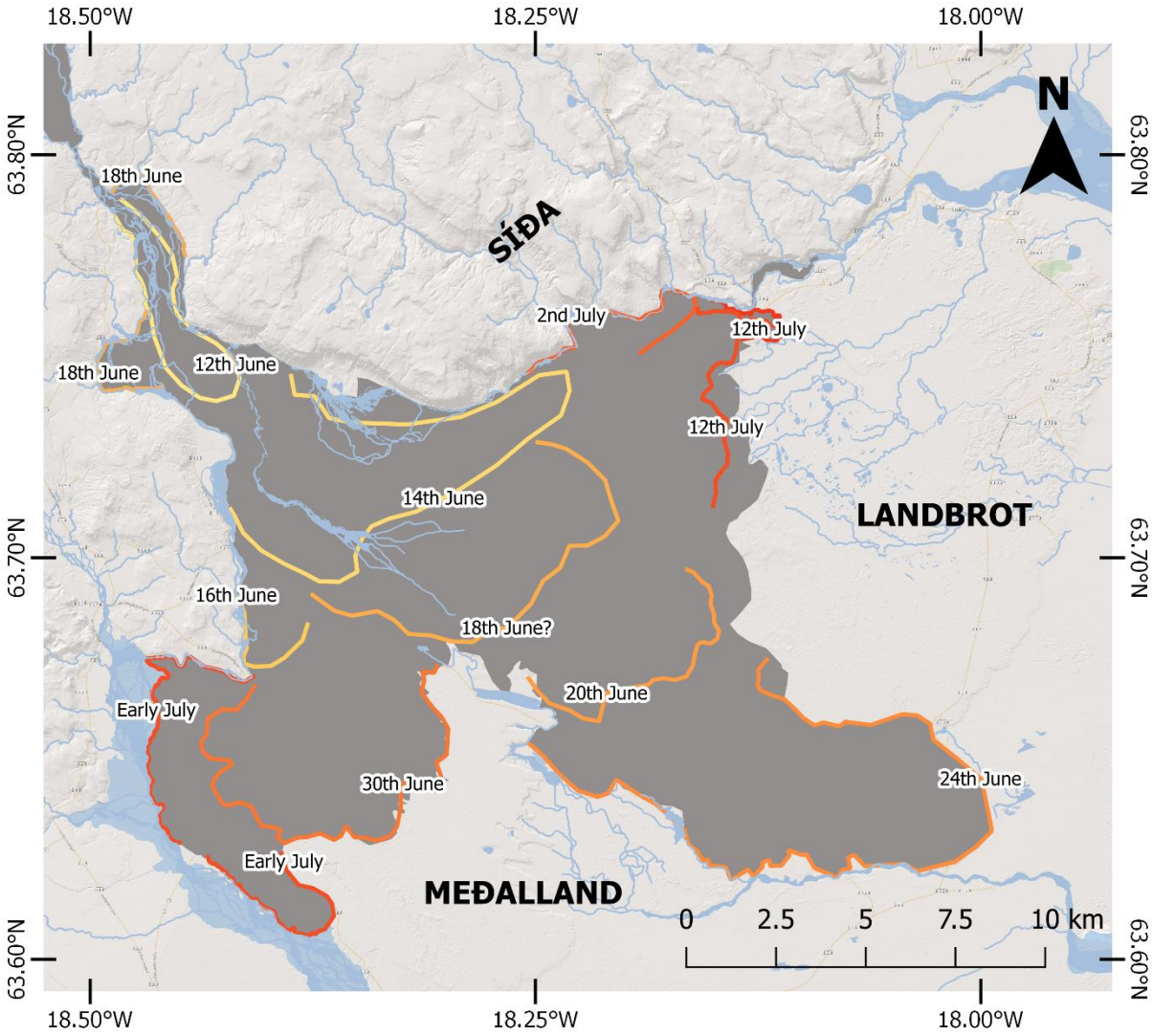

Figure S1. Progression of the Laki lava flow throughout the Síða, Landbrot and Meðalland districts in June and July of 1783 (based on Thordarson et al., 2003). Rivers are shown in light blue.

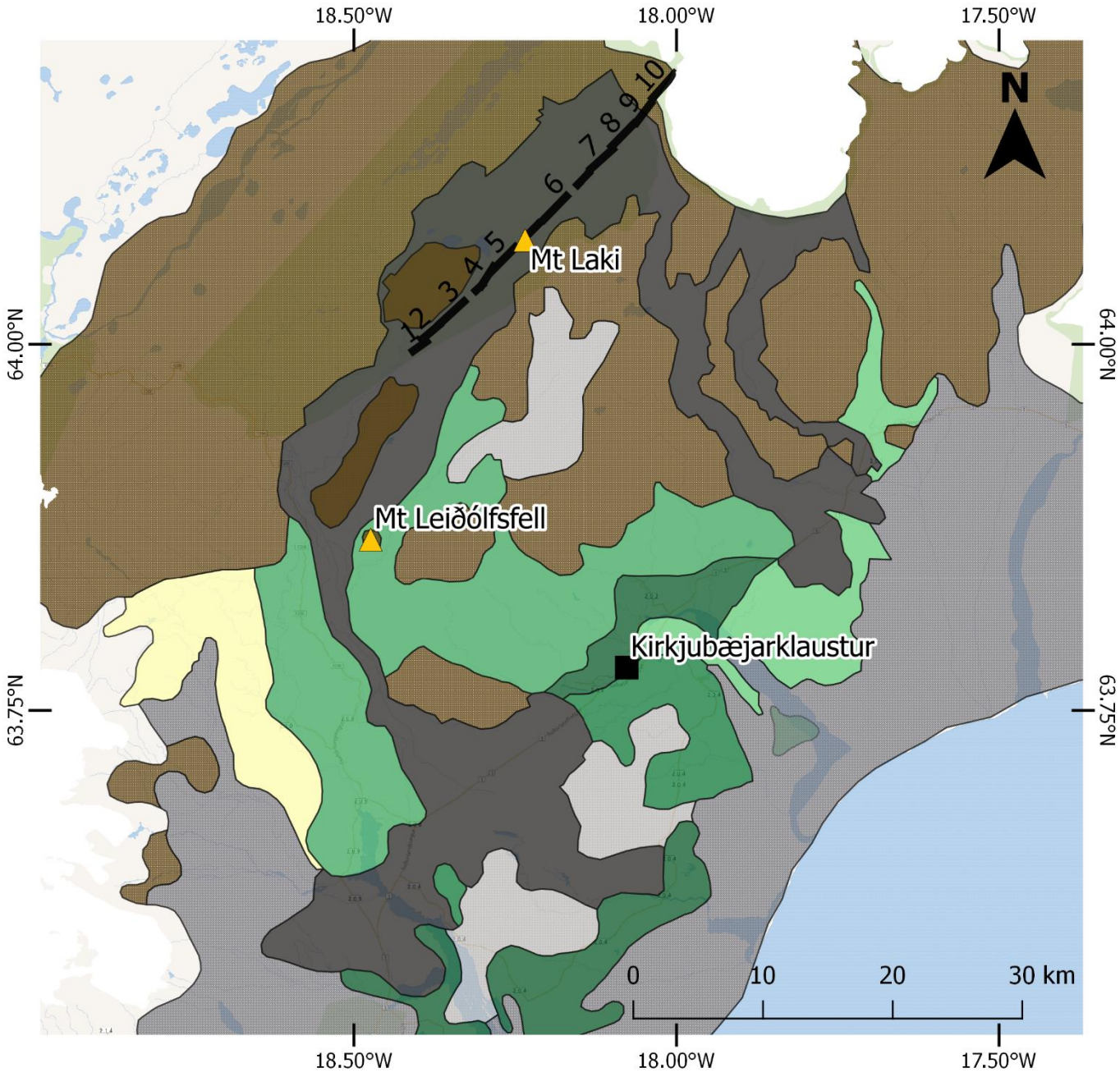

Figure S2. A map of the soils and substrates in the region around the Laki lava flow (based on Nygard, 1959).

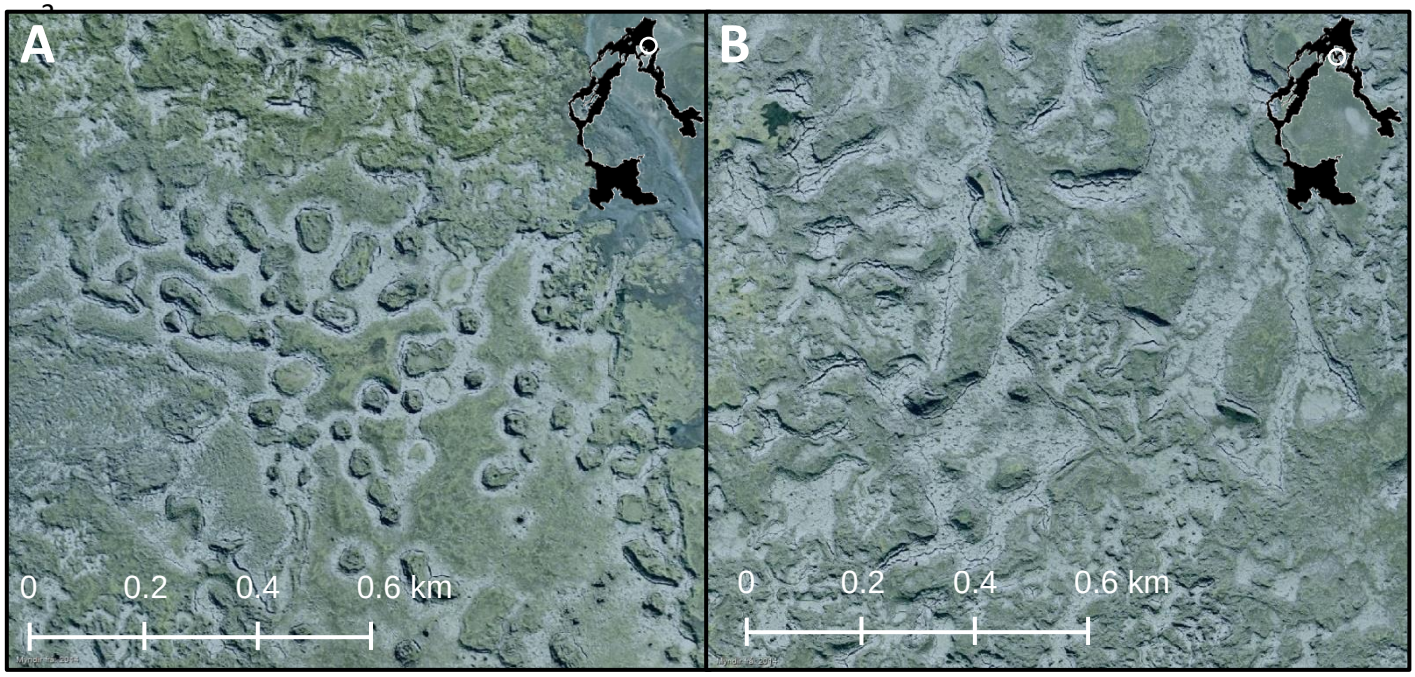

Figure S3. Laki lava flow features not counted as rootless cones. A) Collapse pits resembling rootless cones. Note the continuous cracks running around the perimeter of the pits, which are not present on rootless cones, and the vert sharp crater edges. These pits are at the top of the Hverfisfljót gorge at the north-east end of the fissure. B) Possible buried rootless cones. There are continuous cracks in the lava flow surface around the perimeter of the pits, but the slope of the craters is much shallower, suggesting that there may be an underlying structure. White circles show the location of each feature on the main Laki lava flow (outline top right). Imagery from Loftmyndir ehf., available on http://map.is.

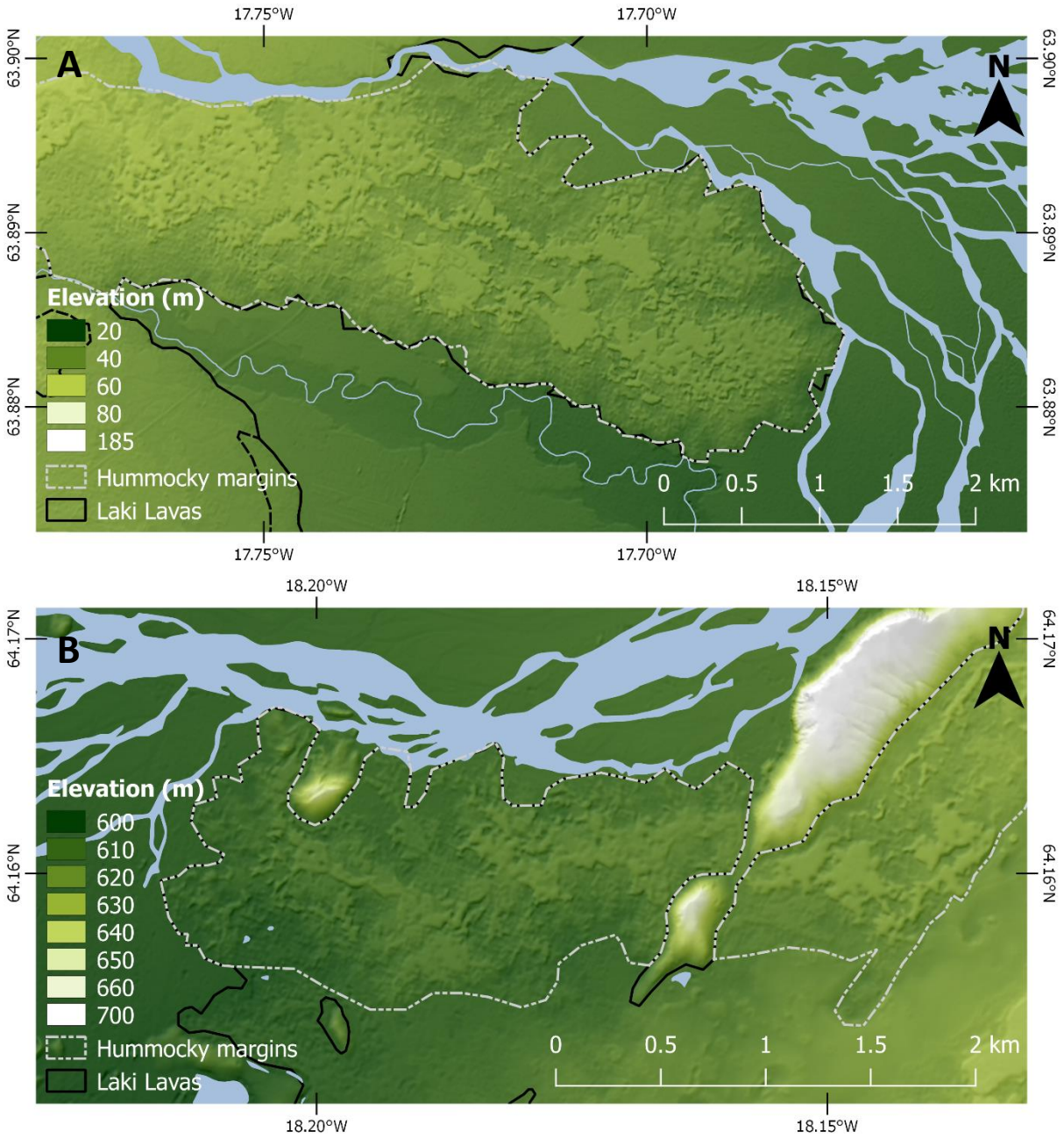

Figure S4 . Hummocky flow margins where the lava interaction with the Hverfisfljót river near Núpar (A) and the Skaftá river in the highlands (B). The morphology and elevation of the lava surface is from the ArcticDEM (created by the Polar Geospatial Center from DigitalGlobe, Inc. imagery).

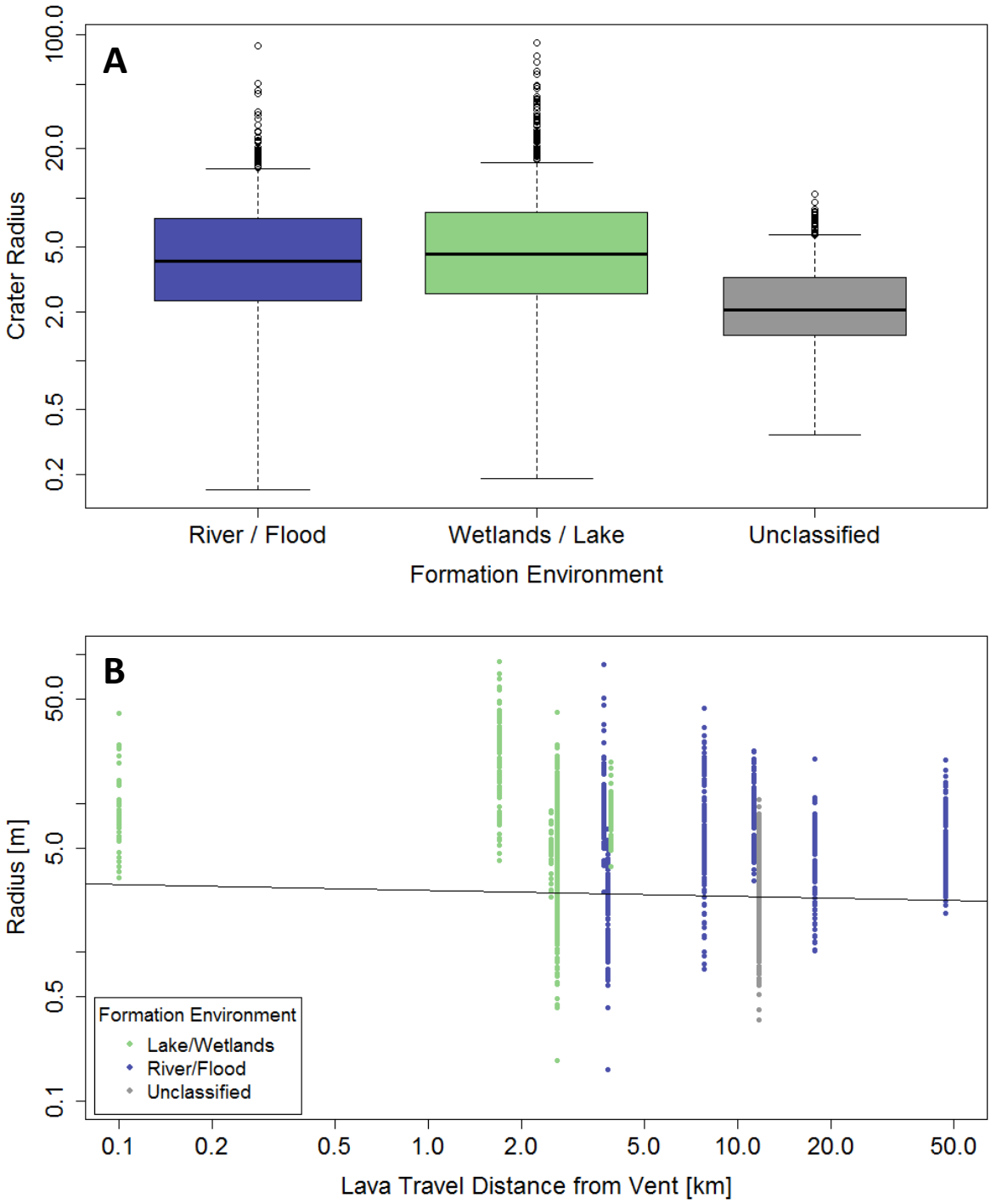

Figure S5. Distribution of rootless cone crater radius for different formation environments (A) and distance travelled by the lava from the vent (B). Blue cones were formed by interaction with rivers or flood water, green cones by lakes or wetlands. Cone groups where the formation environment is unclear are grey. The black line in part B shows the relationship between $\log_{10}$(crater radius) and $\log_{10}$(distance from the vent), with a correlation coefficient of r = –0.21.