



Old Roots, New Insights

Modeling Levantine Wild Olive
and Grape Phytogeography
across the Holocene

Joseph Meadows





Project Outline



- *Olea europaea* (Olive) & *Vitis vinifera* L. (Grape)

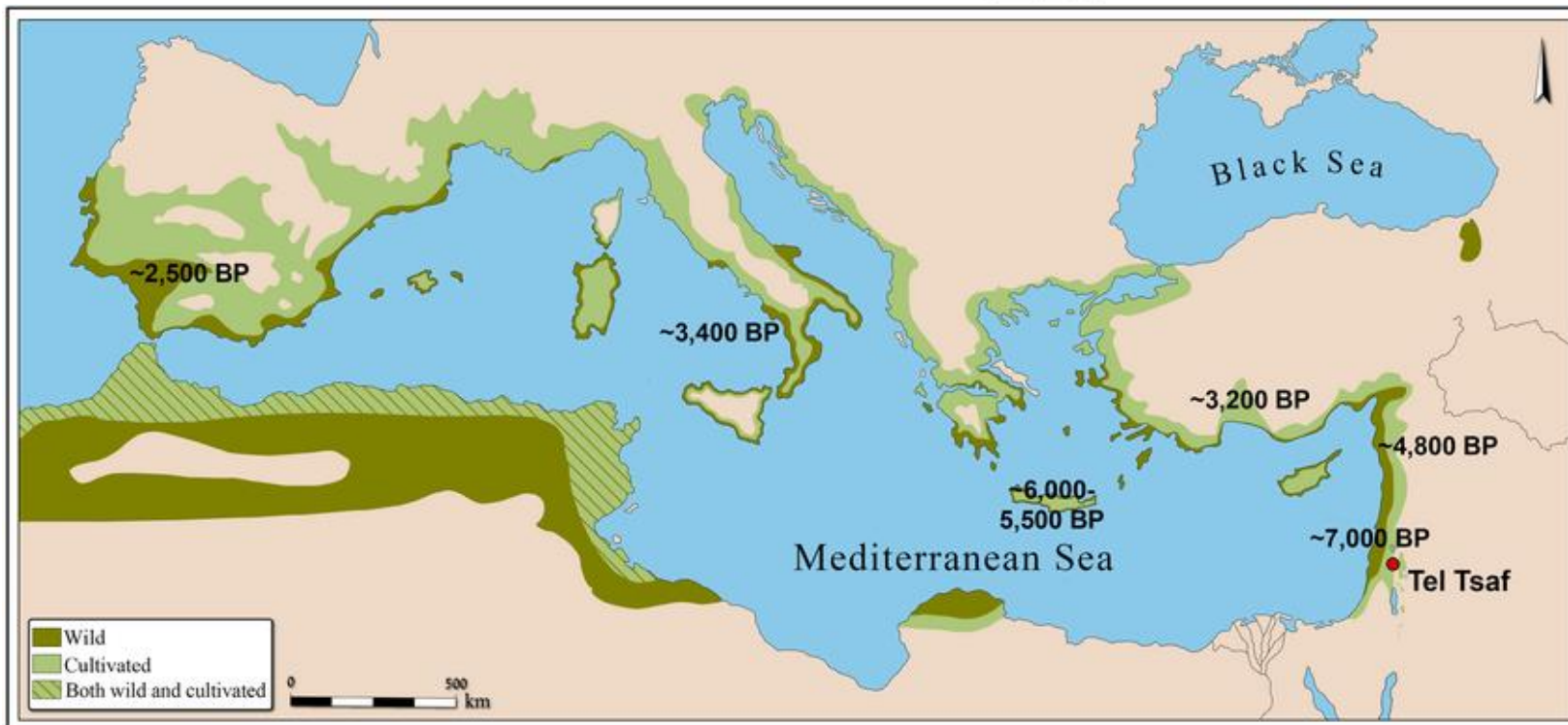
- Important economic and cultural value - ‘cash crops’ (Dighton et al 2017; Fuller & Stevens 2019)
- Wild variants *O. oleaster* & *V. sylvestris*

- **Project Objective:** Create a new model that explores alternatives to traditionally accepted phytogeography – investigating access

Traditional Phytogeography



Traditional *V. vinifera*
L. phytogeography
(Grassi et al 2006).

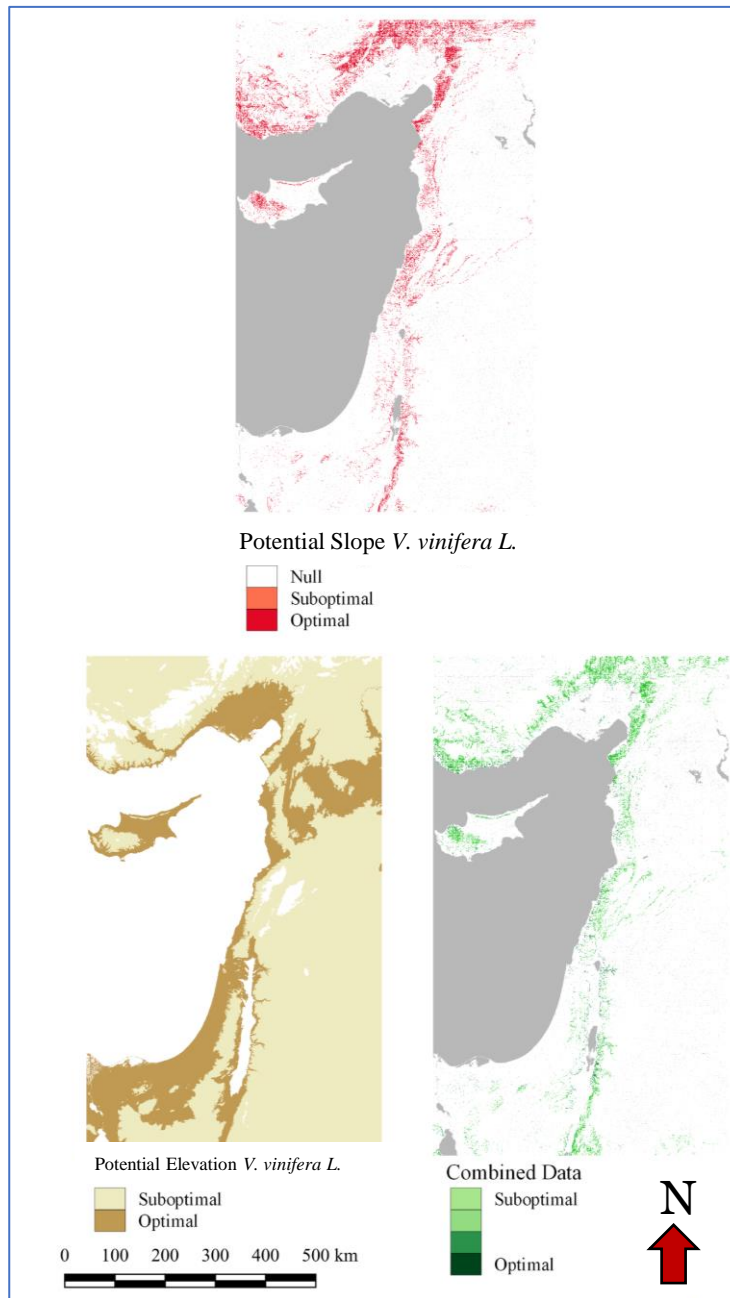


Traditional *O. europaea*
phytogeography
(Langgut & Garfinkel
2022).

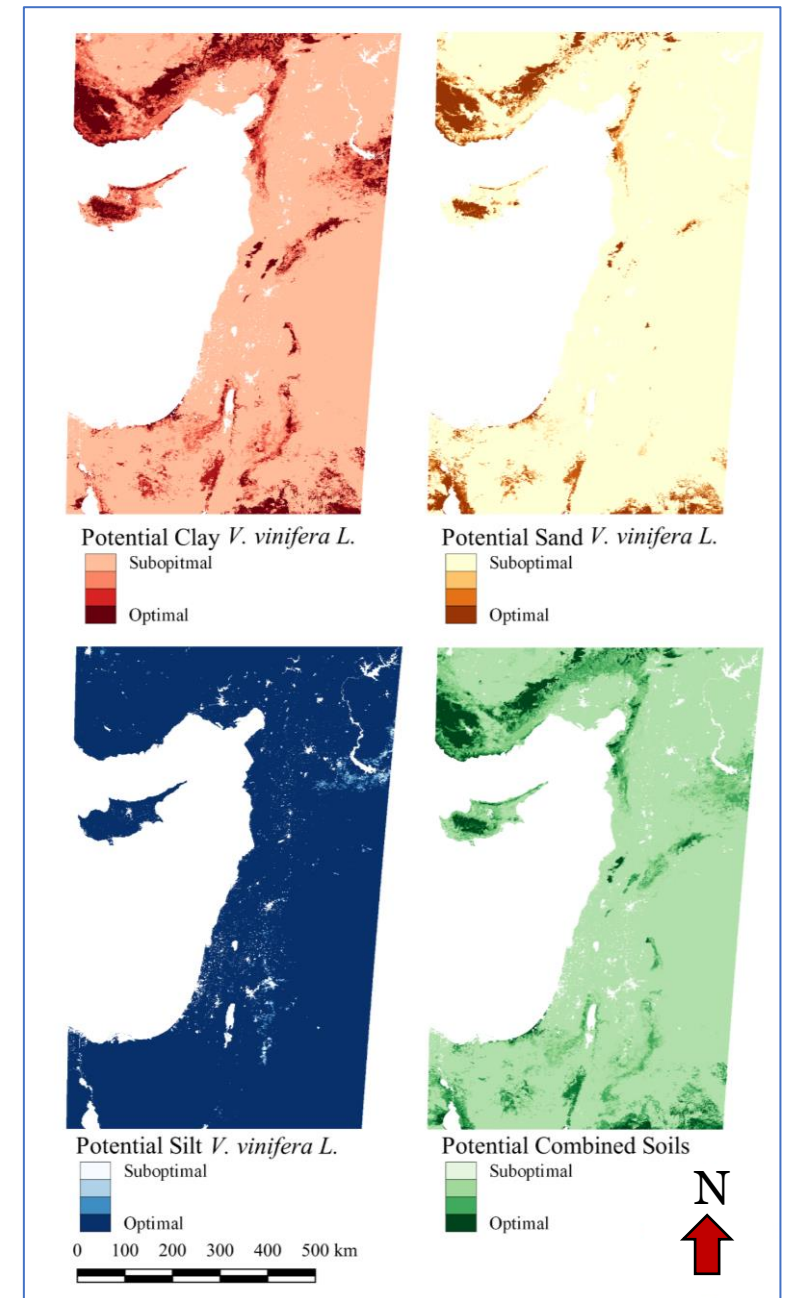


Methodology

Grapes



Vitis vinifera L. Slop and Elevation Input Maps

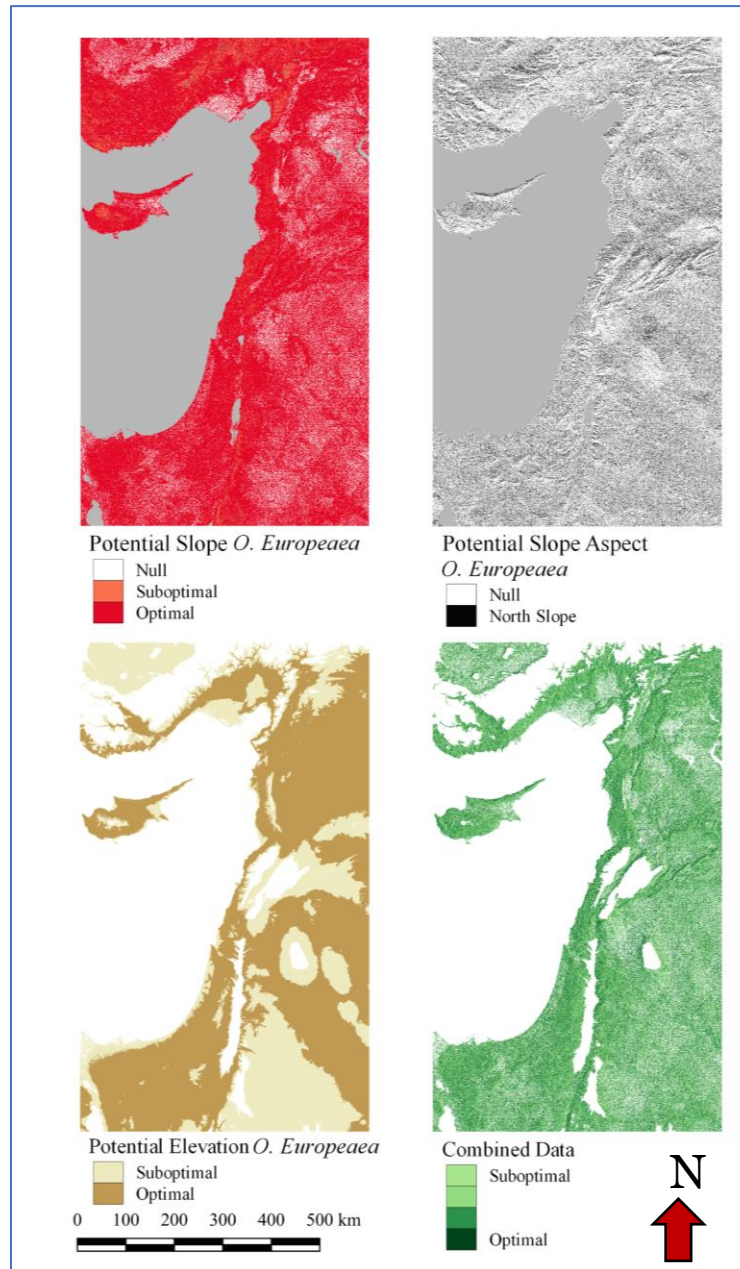


Vitis vinifera L. Potential Wild Distribution Soil Maps



Methodology

Olives



Olea europaea Slope and Elevation Input Maps

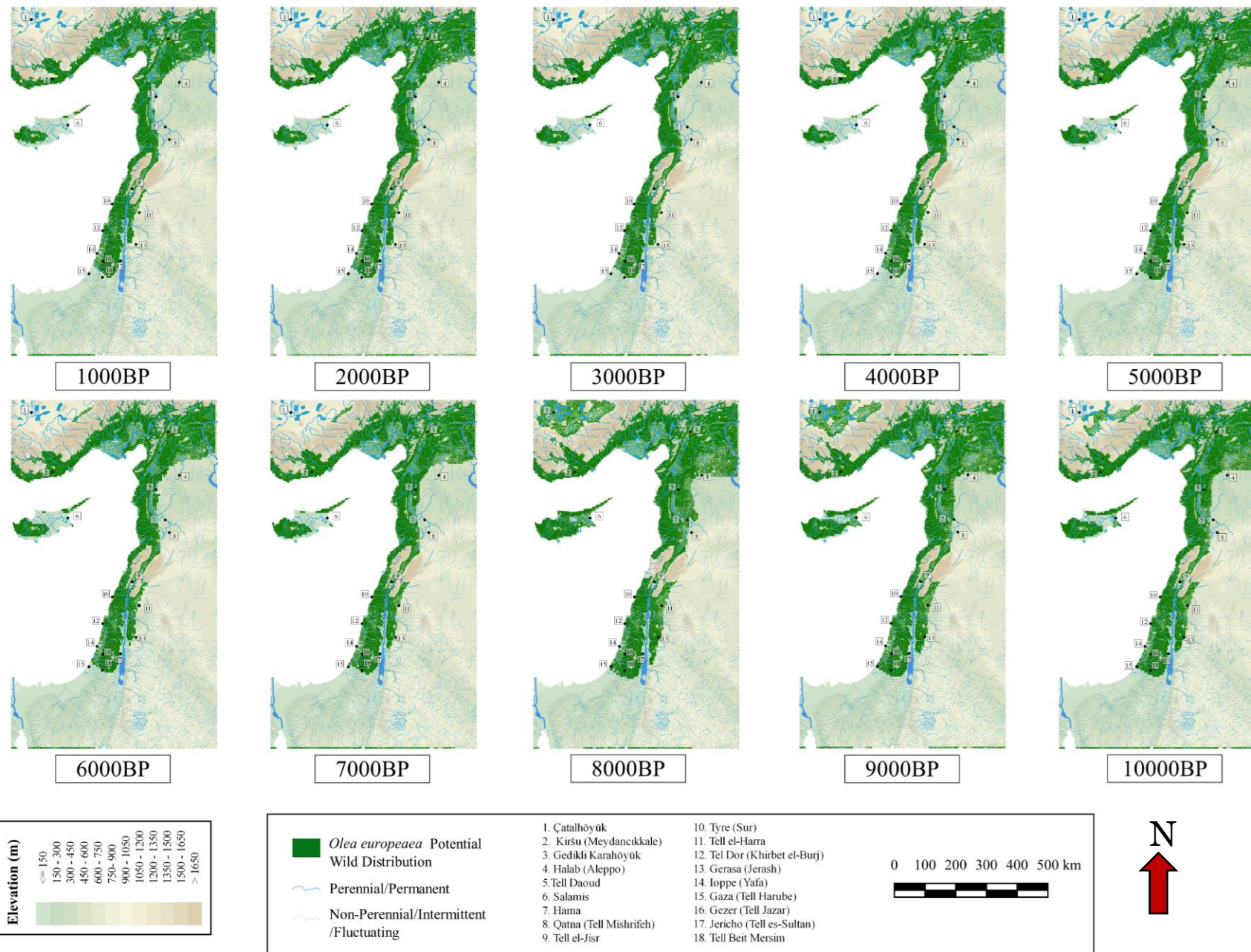


Olea europaea Potential Wild Distribution Soil Maps



Results

Olives

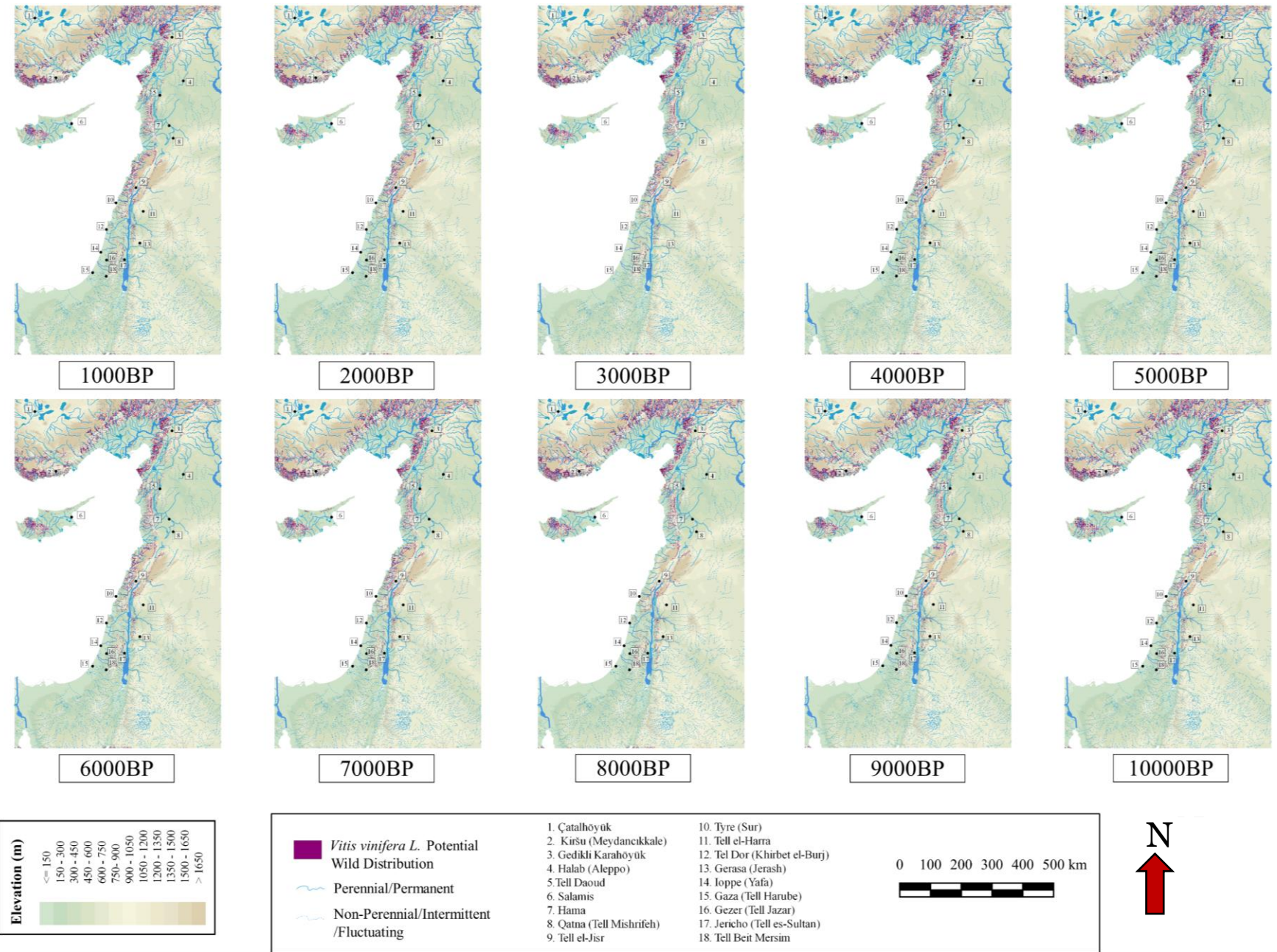


Potential Wild Distribution of *Olea europaea* from 10,000BP to 1,000BP

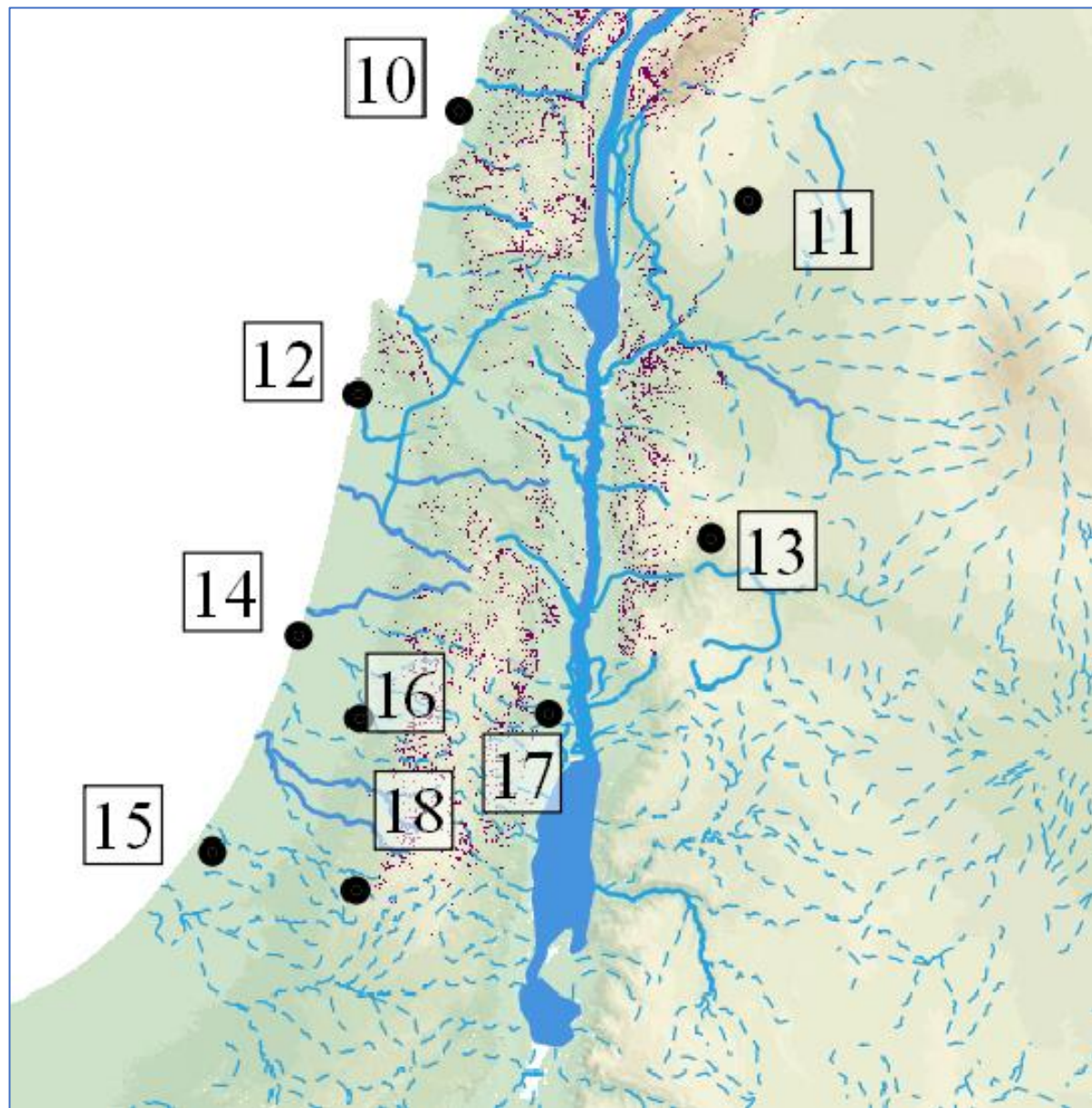


Results

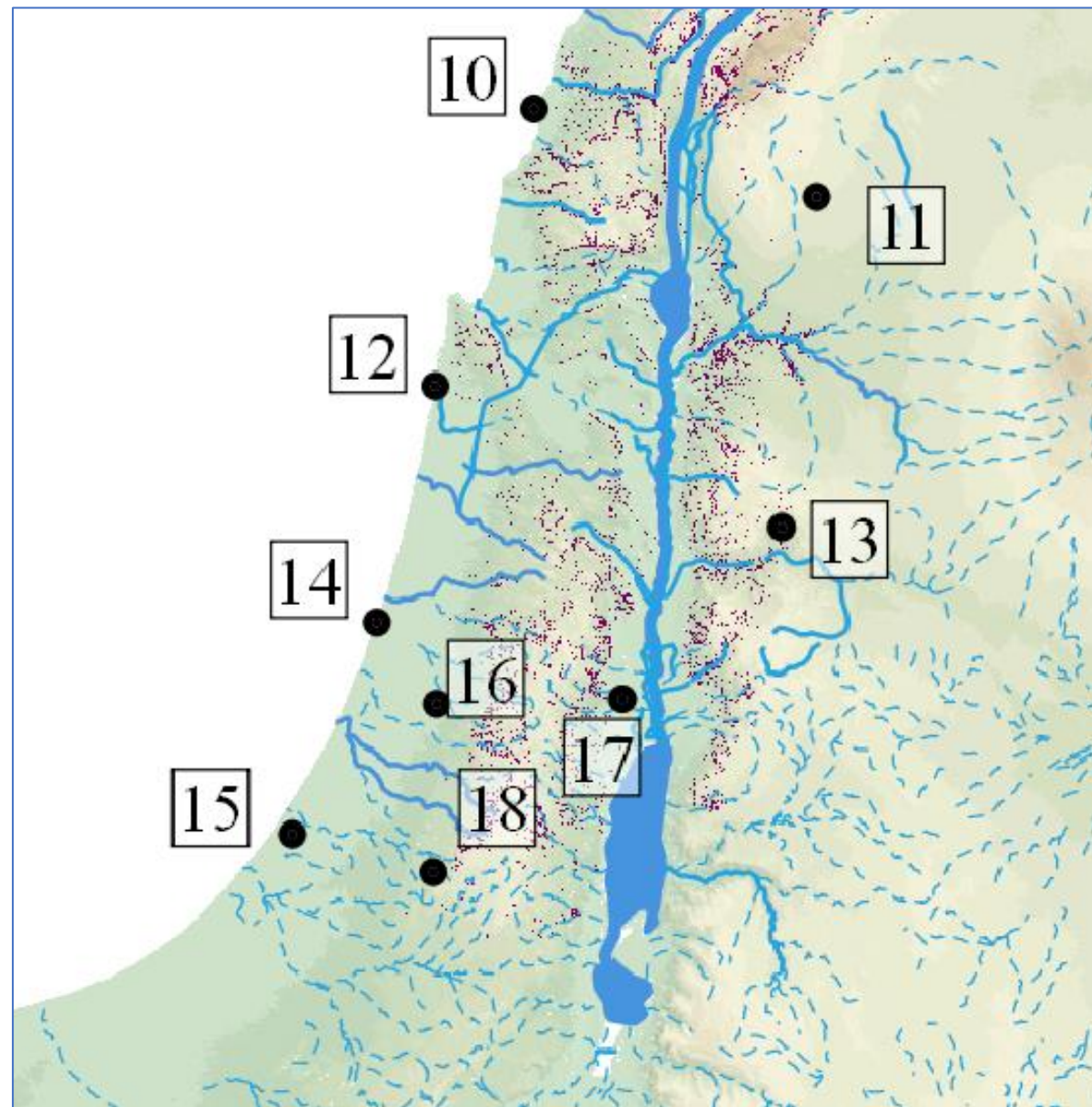
Grapes



Potential Wild Distribution of *Vitis vinifera* L. from 10,000BP to 1,000BP

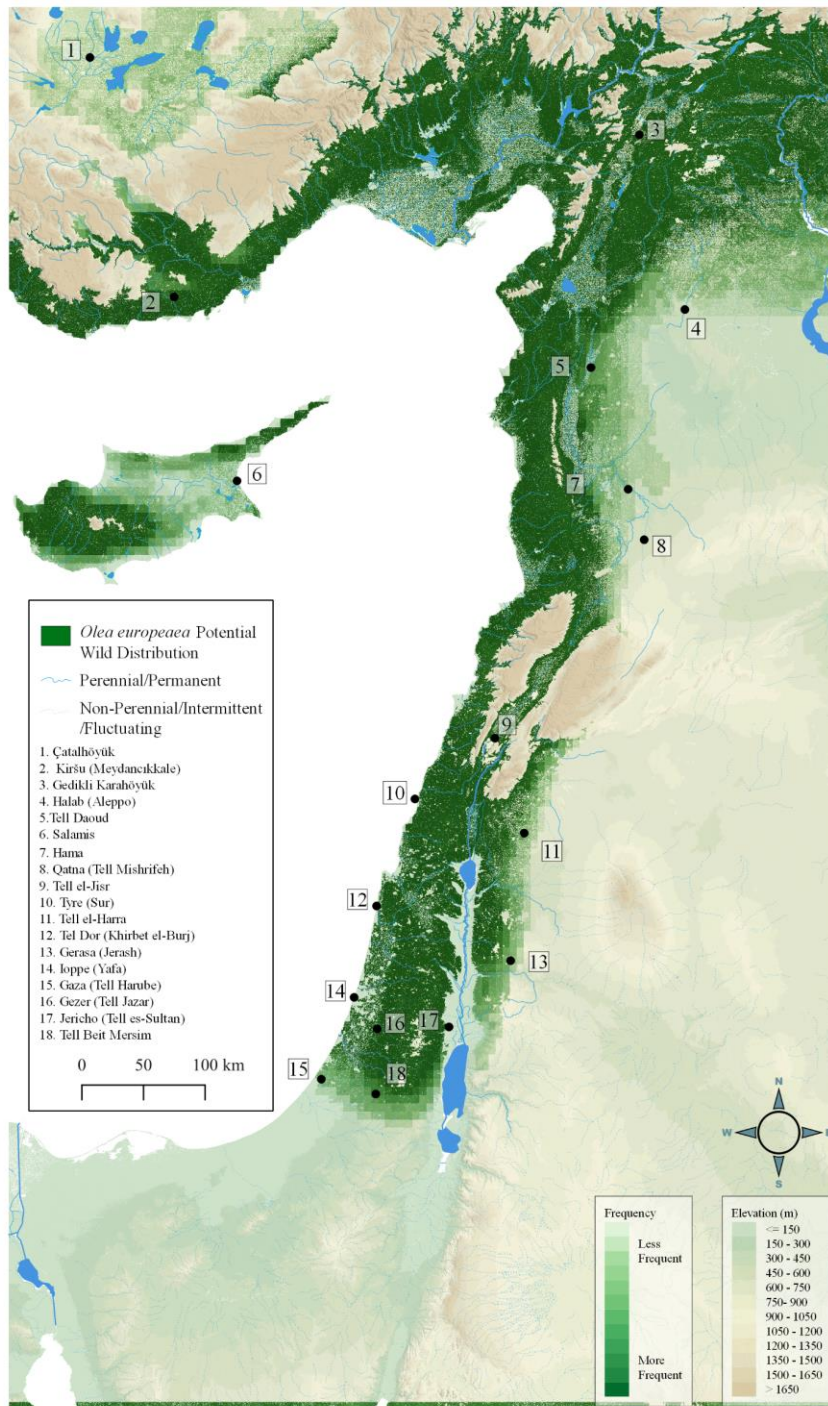


7000 BP

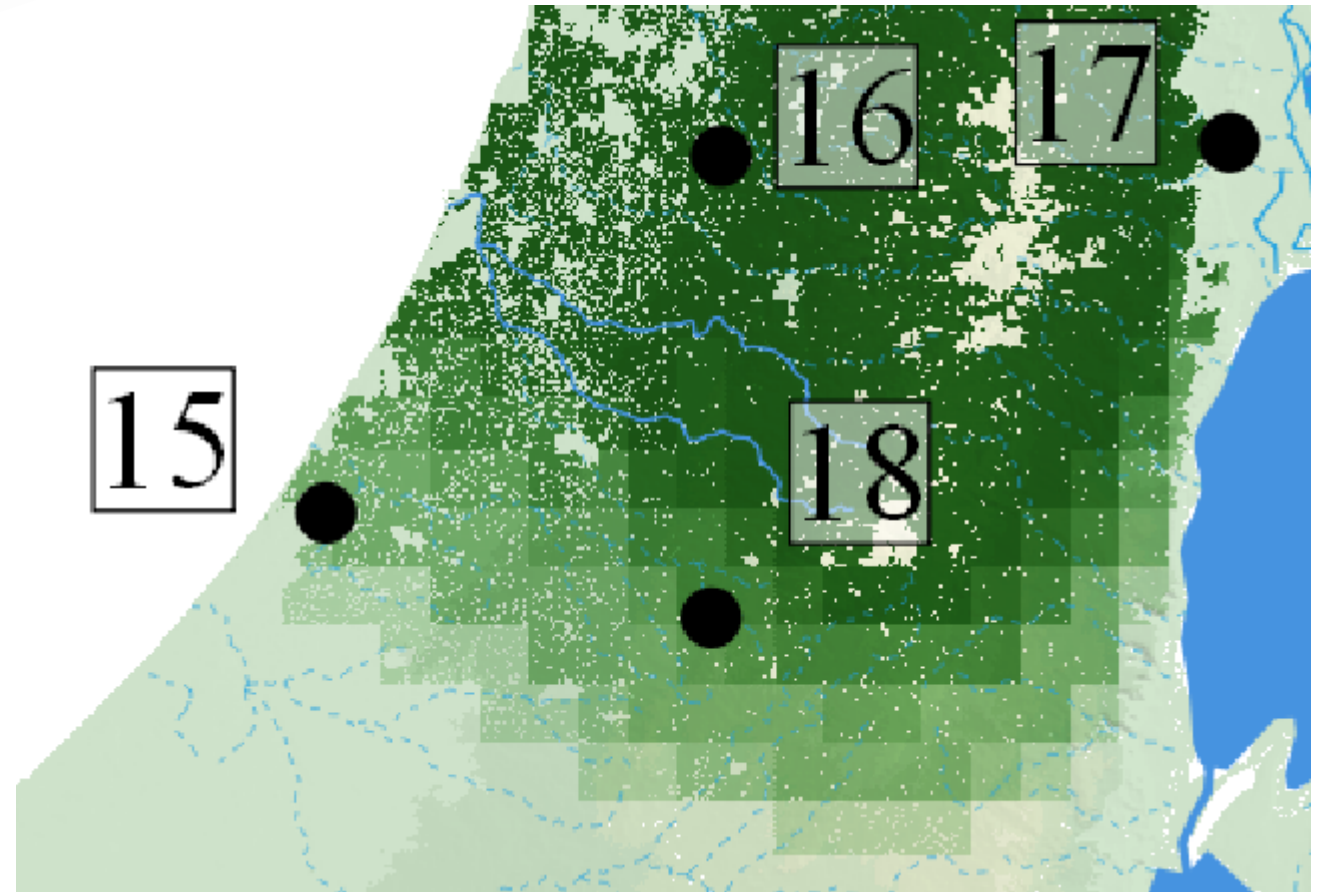


8000 BP

Potential Wild Distribution of *Olea europaea* from 10000BP to 1000BP Heatmap



Heatmap - Olives

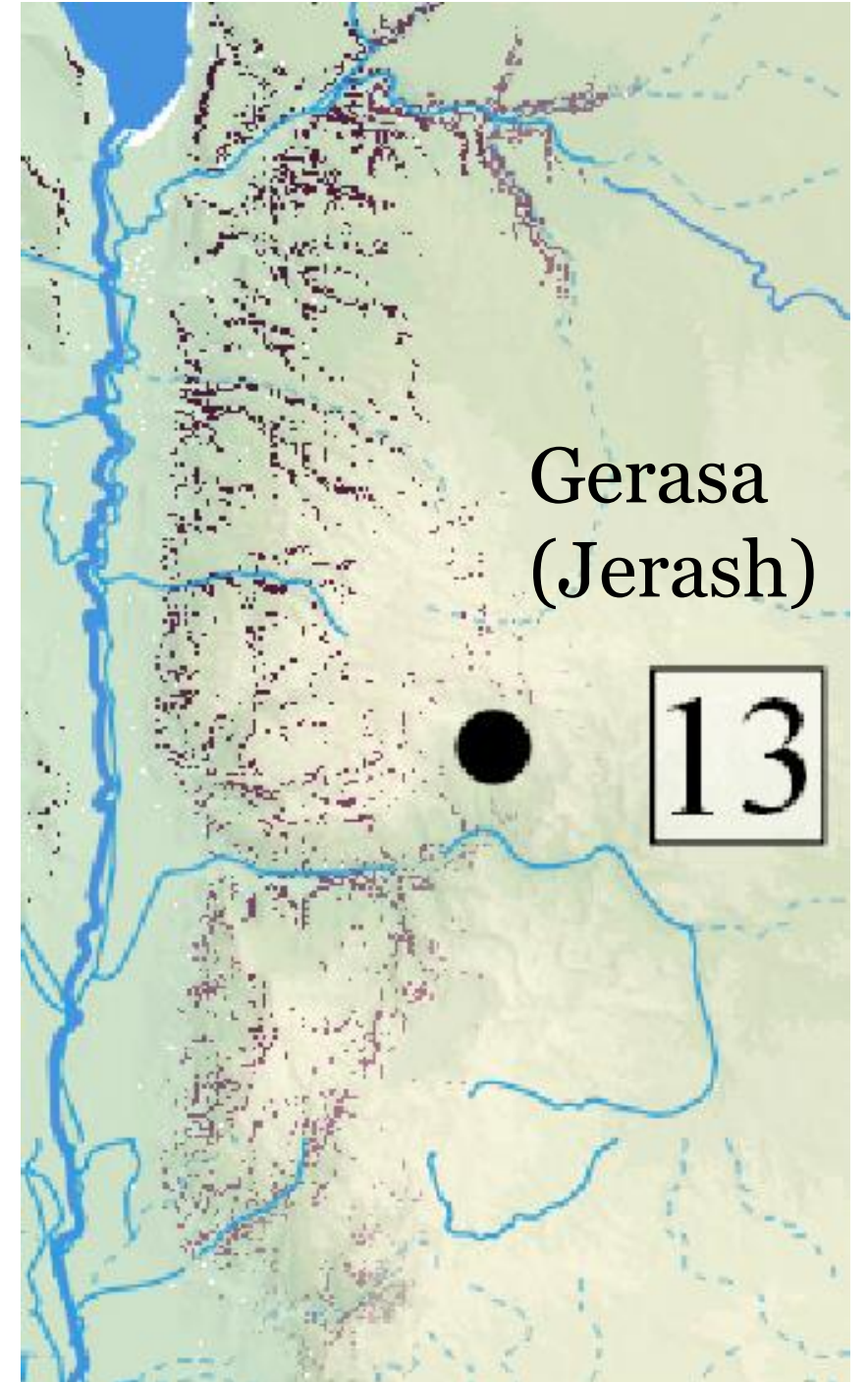
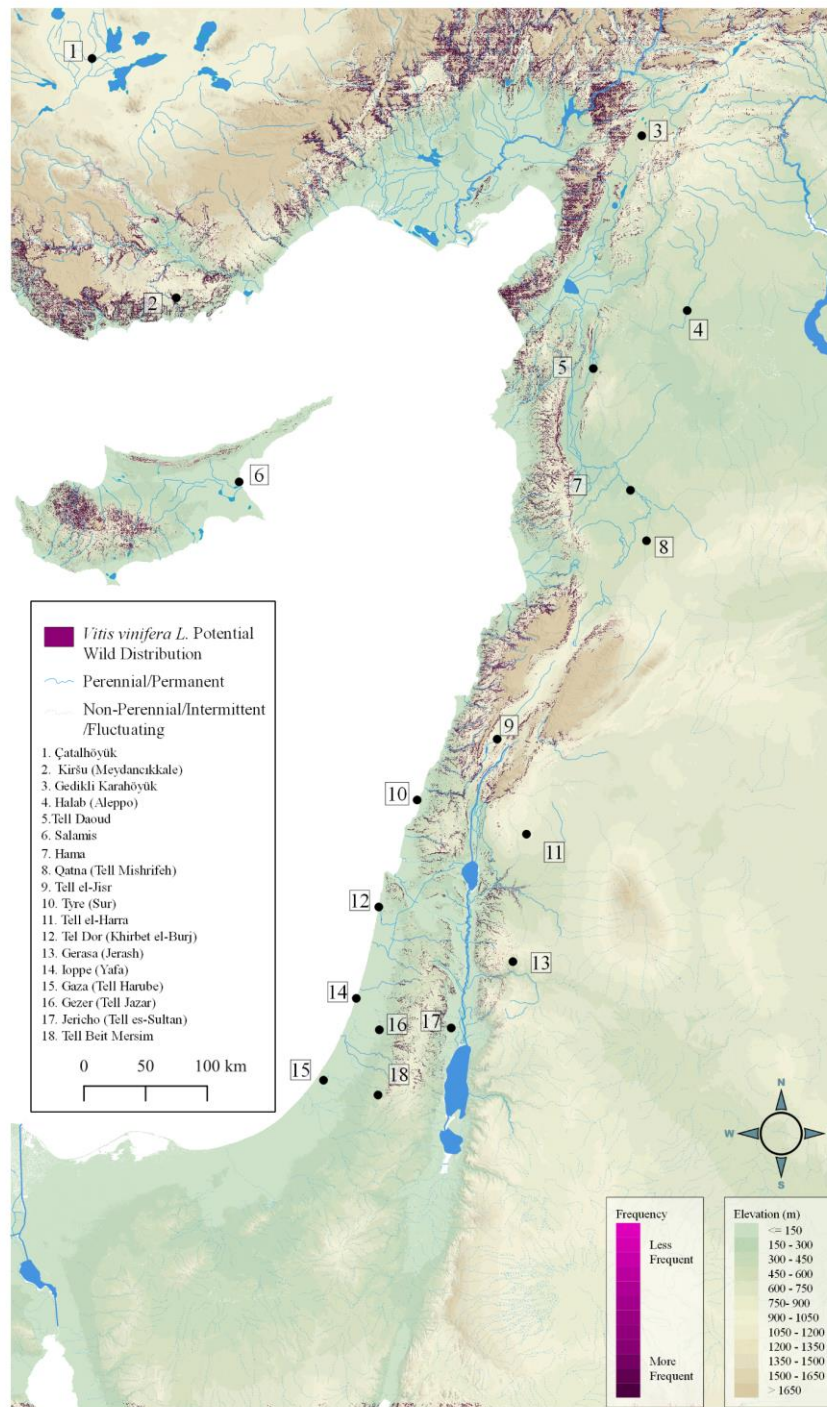


- 15. Gaza
- 16. Gezer
- 17. Jericho
- 18. Tell Beit Mersim



Heatmap Grapes

Potential Wild Distribution of *Vitis Vinifera* L. from 10000BP to 1000BP Heatmap





Discussion



- Significance of these models – dynamic landscape
- Potential for comparison with archaeobotanical record
 - Refuting or supporting within/outside wild distribution claims (Kislev 1994)
- Limitations with models – landscape survey takeaways
 - Soils, slopes, elevation, and unaccounted factors



Conclusions



- New models differ from traditional interpretations
 - Grapes further south; Olives further east
- Many Questions
 - access, cultivation, settlement persistence, wider economic shifts
- Conceptualizing a temporary landscape
 - Placing human activity

“[l]andscape is in eternal flux ... we can therefore never hope to capture and pin down a section of past landscape ... like an entomologist’s butterfly ...”

(Barrow 1988, 191)

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Images (in order of appearance)

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