water

Supplementary Material

The supplementary material contains cartographic evidence and data in support of methods and results presented in the main text. Figures S1 and S3 were available only in Greek and were modified to provide information in English; Figure S2 is a picture taken during fieldwork and Figures S4 and S5 present supplementary data on agriculture and tourism. Tables S1 and S2 provide information supplementary to Tables 1 and 2.

Figures

Figure S1. 1952 historical map in Greek, based on aerial photograph from 1945 but with no legend available (acquired by the Hellenic National Geographical Services). The map was modified by adding a legend with basic information based on the results of the current study.

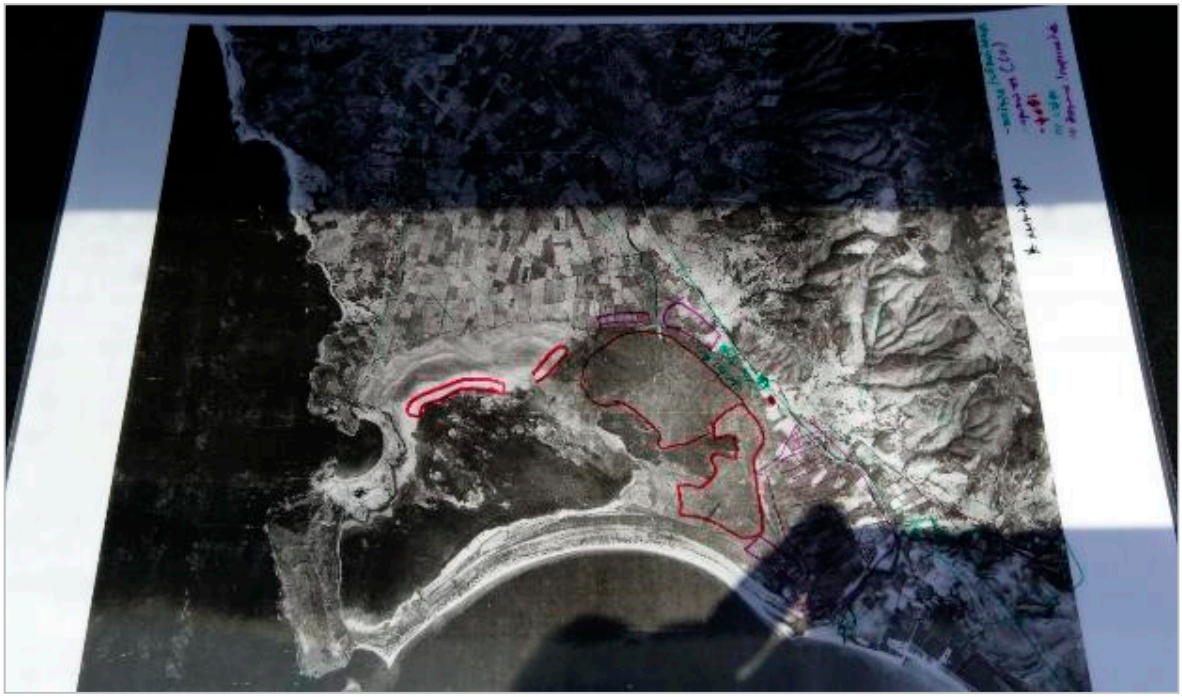

Figure S2. 1945 aerial photograph on which past uses and vegetation were drawn by the key informants (photograph taken by the main author during an interview).

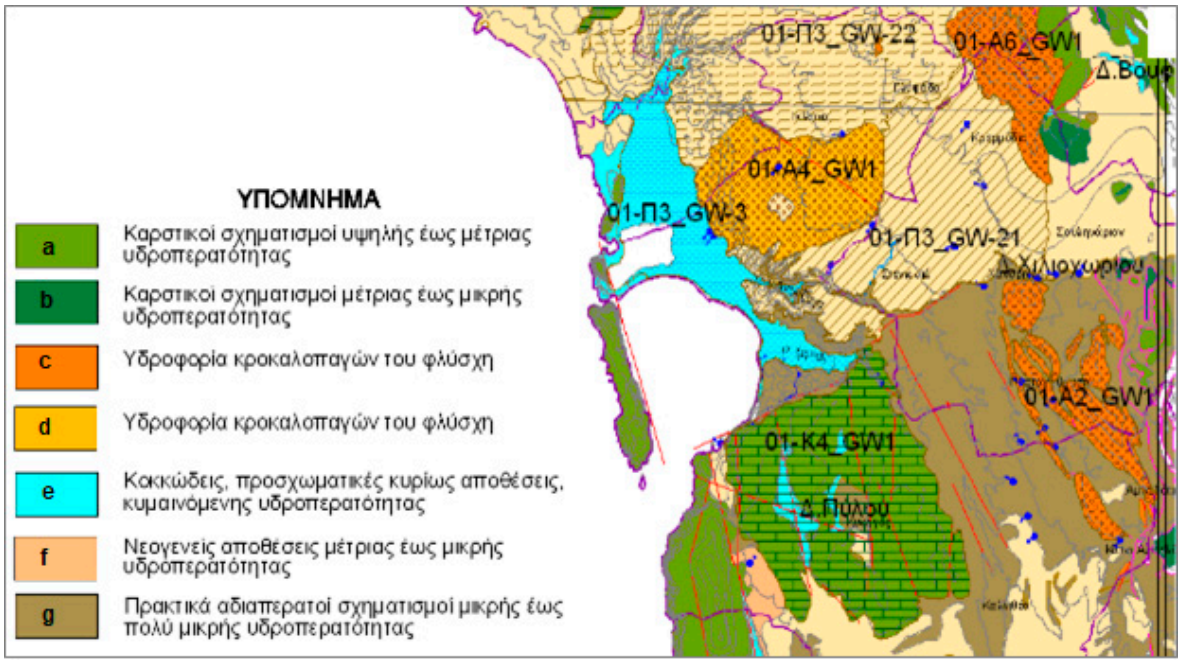

Figure S3. Hydrogeological map presented in a previous study [1]. Tyflomitis aquifer is the orange area at the east of the wetland identified by the code 01-A4_GW1. Added letters in the legend refer to: (**a**) karst forms with high to intermediate permeability, (**b**) karst forms with intermediate to low permeability, (**c**) and (**d**) flysch conglomerate aquifers, (**e**) alluvial sand and gravel deposits with high permeability, (**f**) Neogene deposits of intermediate to low permeability and (**g**) complex area with low to negligible permeability.

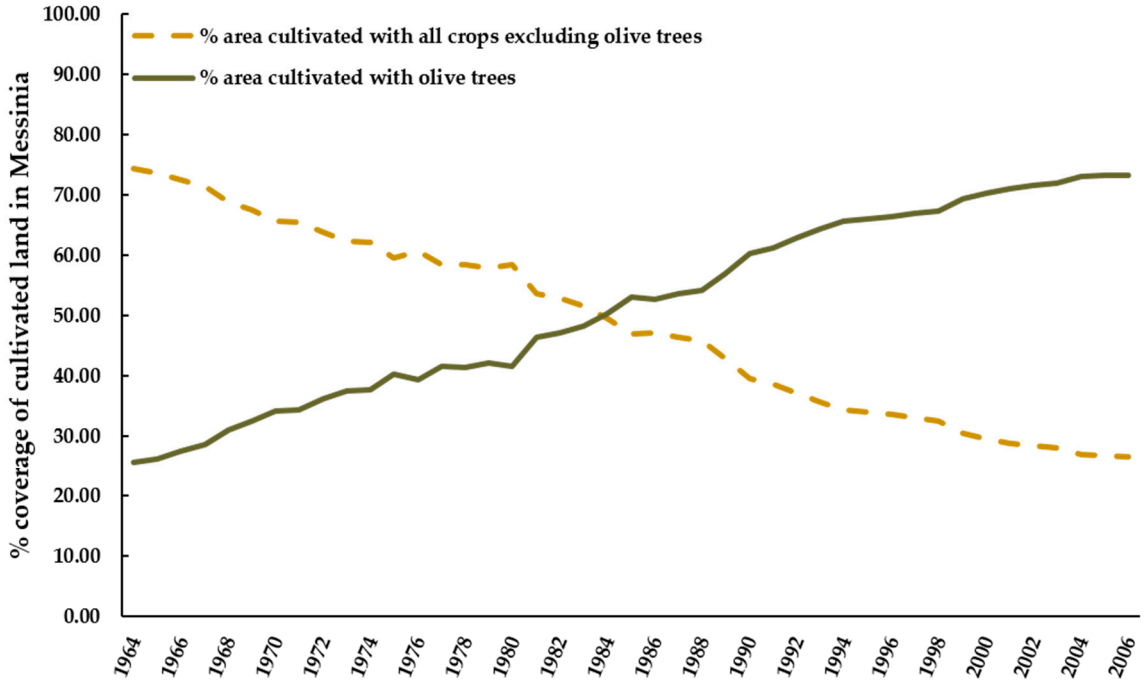

Figure S4. The history of changes in type of crops in Messinia for the period 1964–2006 based on digitized historical annual statistical reports for agriculture in Messinia [2]. The gold line depicts the % of cultivated land in Messinia which is covered by of crops and arable land, vegetables, vineyards and trees (citrus, fruits, nuts and dried fruit trees (e.g., figs)). The dark green line depicts the percentage of cultivated land in Messinia which is covered by olive trees. In 1964, almost half of the cultivated land (46%) was cultivated with arable crops; 17% vineyards; 5% vegetables; 7% citrus, fruit, nuts and trees used to produce dried fruits (e.g., figs); and only 26% of the total cultivated land was covered with olive trees. From 1964 to 2006, more than 7,500,000 olive trees were planted in Messinia, and as a result, in 2006, the covered area of crops and arable land was 13% of the total cultivated area, vineyards 6%, vegetables 3%, other tress 4% and olive trees 73%.

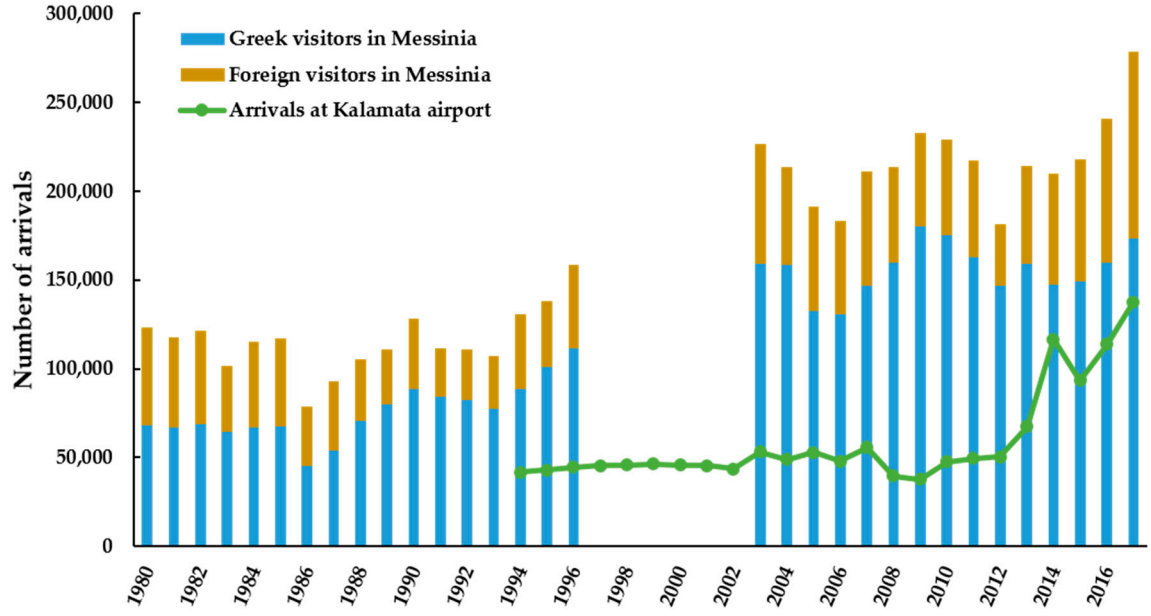

Figure S5. Number of foreign and Greek tourist arrivals in hotels and camping sites in Messinia (columns) and arrivals at Kalamata airport. Data for the period 1980–1996 were collected from digitized statistical reports on tourism, while data for the period 2003–2017 were available in digital

format. Only arrivals at hotels were available for the 2015–2017 period; to estimate the total number of arrivals, we added the average of the last ten years (2005–2014) of foreign and Greek tourists at camping sites. Data from 1997 to 2002 were not available. The digitized and digital data were downloaded from the official website of the Hellenic Statistical Authority [2]. Data on arrivals at Kalamata airport from 1994 to 2017 were downloaded from the official site of Civil Aviation Authority [3].

Tables

Table S1. Area coverage (hectares) of different classes in reference (prior to 1960) and present (2010) periods. The studied area includes the GLw-Natura2000 and the Tyflomitis area. The coverage of each class before and after human interventions is given in the right column and last line respectively. Areas that do not change (persistence) are displayed on the diagonal of the table. Changes (gains or losses) in area coverage are displayed in the cells outside the diagonal. Changes (gains or losses) in area coverage are displayed in the cells outside the diagonal (e.g., 82.4 hectares belonged to the W-M class in the reference period but became part of the W-OW class in the present period). Errors attributable to uncertainties in the definition of the land use polygons amount to less than 0.5% of the total area.

Period	**Present period**								
Reference period	GLw-Natura2000 area		W-TA	W-OW	W-M[1]	SD	RA	AGR	TOT
	Wetland—Tyflomitis Area	W-TA	**7.2**					0.7	7.8
	Wetland—Open Water	W-OW		**225.5**	18.0			7.3	250.8
	Wetland—Marshes	W-M		82.4	**85.2**			26.1	193.7
	Sand Dunes	SD				**36.2**			37.0
	Rocky Areas	RA					**52.1**		52.1
	Agriculture	AGR						**76.6**	76.6
	Total area	TOT	7.1	307.9	103.2	36.2	52.1	110.7	**617.2** [2]

[1] W-M in the present period refers to salt meadows and some reeds which remain at the sides of the canals, while in the past period refers to fresh and brackish water vegetation. [2] When compared to the past, 0.8 hectares were lost from the Divari sand barrier due to erosion (west side).

Table S2. Area coverage (hectares) of different classes in the wider area in reference (prior to 1960) and present (2010) periods. The coverage of each class before and after human interventions is given in the right column and last line respectively. Areas that do not change (persistence) are displayed on the diagonal of the table. Changes (gains or losses) in area coverage are displayed in the cells outside the diagonal (e.g., 363.7 hectares belonged to the UCL class in the reference period, but became part of the CL class in the present period). Errors attributable to uncertainties in the definition of the land use polygons amount to less than 0.5% of the total area.

Period	**Present period**					
Reference period	Wider area		CL	UCL	UA[2]	TOT
	Cultivated Land	CL	**801.7**			801.7
	Uncultivated Land[1]	UCL	363.7	**195.3**	43.4	602.4
	Urban Areas	UA			**19.8**	19.8
	Total area	TOT	1165.4	195.3	63.2	**1423.9**

[1] Estimated uncultivated land in both periods includes the areas which are neither cultivated nor urban, as well as the sand dunes found at the west coast of the wider area of interest, which is marked with yellow line in Figure 1. [2] UA at present also includes the part of Costa Navarino resort, which is found south of Selas river, and is within our study area.

References

1. Perleros, V.; Pavlakis, G. *Water Resources Management Study for Pylos and Romanos Catchments*; Technical Report Submitted to the Region of Peloponnese; available in Greek; Enveco S.A., Athens, Greece, September 2009.
2. Hellenic Statistical Authority. Annual Reports on Agriculture, Tourism and Demographics. Available online: www.statistics.gr (accessed on 30 September 2018).
3. Civil Aviation Authority. Annual Statistics of Arrivals/Departures at Kalamata Airport. Available online: http://www.ypa.gr (accessed on 18 October 2018).