



Assessing public preferences for wildfire mitigation policy in Crete, Greece

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Introduction

Crete is the largest and most populous island in Greece, spanning 8336 km². It has a unique heterogeneous landscape shaped by anthropogenic and natural processes over time resulting in a rich biodiversity with many endemic species [1]. The island of Crete experiences many wildfires due to its fire-prone climate and the prevalence of human-caused fires. Global models suggest that wildfires in Crete will become more frequent and severe in the coming years as the climate changes [2]. Expansions into the wildland-urban interface, rural abandonment, and the focus on fire suppression increase the vulnerability and flammability of the island. In Greece, this is further exacerbated by burgeoning socio-economic and political complexities that have catalysed the current ineffective and unsustainable fire management strategies. Understanding the interactions between ecosystems and humans through environmental valuation is key to implementing effective policy.

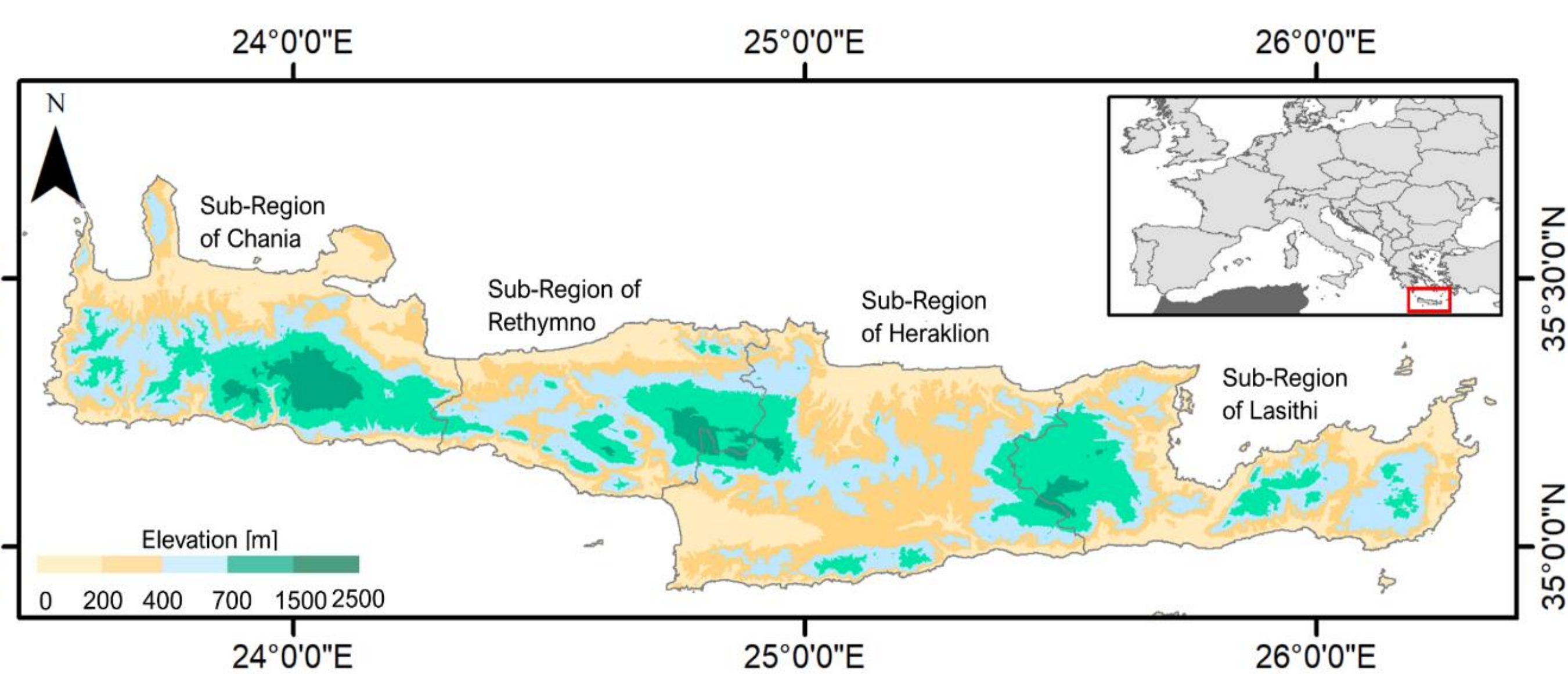


Figure 1 Elevation map of the island of Crete. Grey lines depict administrative boundaries

WHICH OF THE FOLLOWING ALTERNATIVES TO THE MANAGEMENT OF WILDFIRES DO YOU PREFER?

	ALTERNATIVE 1	ALTERNATIVE 2	OPT-OUT
FREQUENCY OF FIRE = 100 FIRES	300 FIRES PER YEAR	600 FIRES PER YEAR	600 FIRES PER YEAR
AGRICULTURAL FIRES	200 HA OF AGRICULTURAL LAND BURNT PER YEAR	50 HA OF AGRICULTURAL LAND BURNT PER YEAR	350 HA OF AGRICULTURAL LAND BURNT PER YEAR
LANDSCAPE QUALITY	Some visible hard engineering	No intervention	No intervention
PROTECTION AGAINST POST-WILDFIRE DAMAGES	ABSENT	ABSENT	ABSENT
TAX PAYMENT	€10.00	€20.00	€0.00

Figure 3 Example of a choice card presented to respondents

Aims and Objectives

1. Employs non-market valuation to assess Cretan public preferences for wildfire management
2. Estimate their willingness to pay (WTP) for a wildfire management programme and its attributes
3. Examine the heterogeneity of preferences across consumers

$$U_{ij} = \beta_1 \cdot FreqFires + \beta_2 \cdot AgriBurnt + \beta_3 \cdot Intervention + \beta_4 \cdot ProtectionPostFire + \beta_5 \cdot Tax + \varepsilon_{ij} \quad (1)$$

$$WTP = \beta_{1-4} / \beta_5 \quad (2)$$

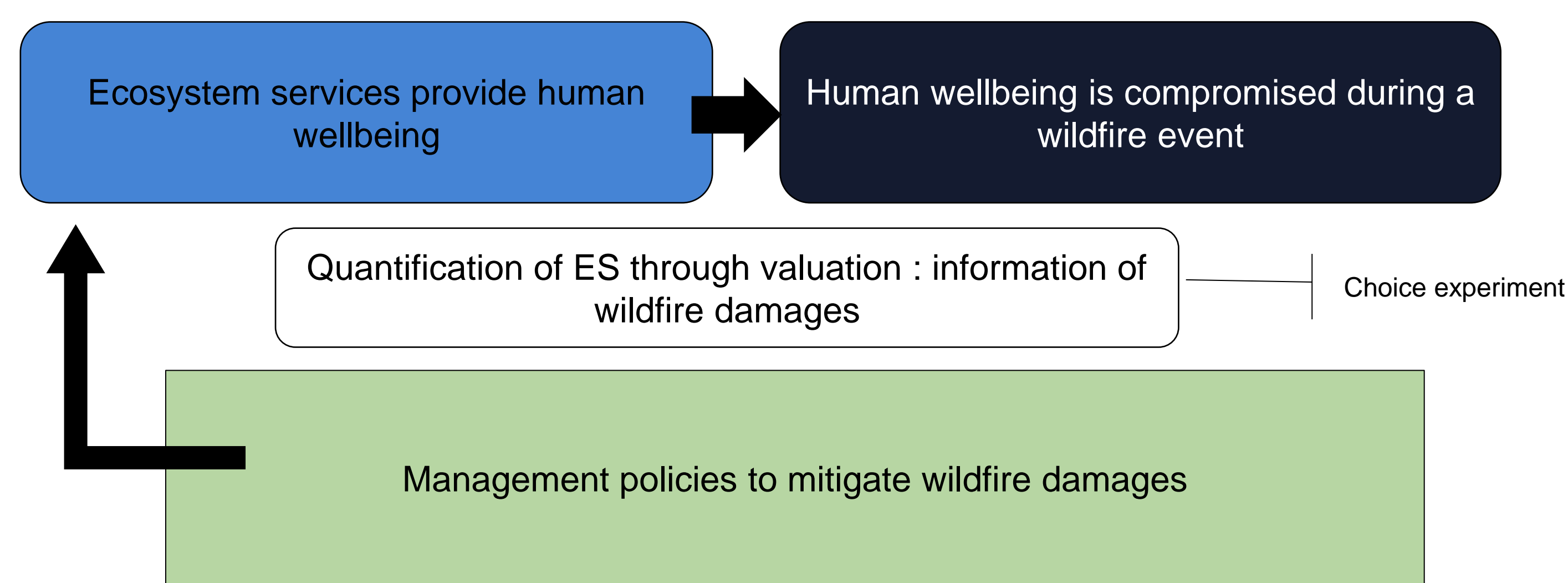


Figure 2 Conceptual framework

Methodology

Discrete choice experiments (DCE), are part of economic valuation methods which can be used to model preferences for hypothetical policies that maximises an individuals' utility [3] (Equation 1). It can also be used to infer willingness-to-pay (WTP) for the policy (Equation 2).

Results & Conclusions

- Measures to manage post-wildfire damage are highly valued by the sampled respondents - achieving values that range between **€25.92** in conditional logit model to **€46** in one of the latent classes identified.
- Improving landscape quality is also considered important, but there is more variation in the responses.
- The latent class approach revealed that individuals associated with the agricultural or tourism sectors had significantly different preferences for the proposed attributes.
- The general public strongly prefers shifting current policies from suppression-focused approaches to more integrated ones that address both prevention and post-fire management.
- The study's findings can provide guidance to decision makers in developing targeted management plans based on their specific audience.

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