

Montado value for Portuguese citizens: a nation-wide choice experiment

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OPERAs meeting Sofia May 2017




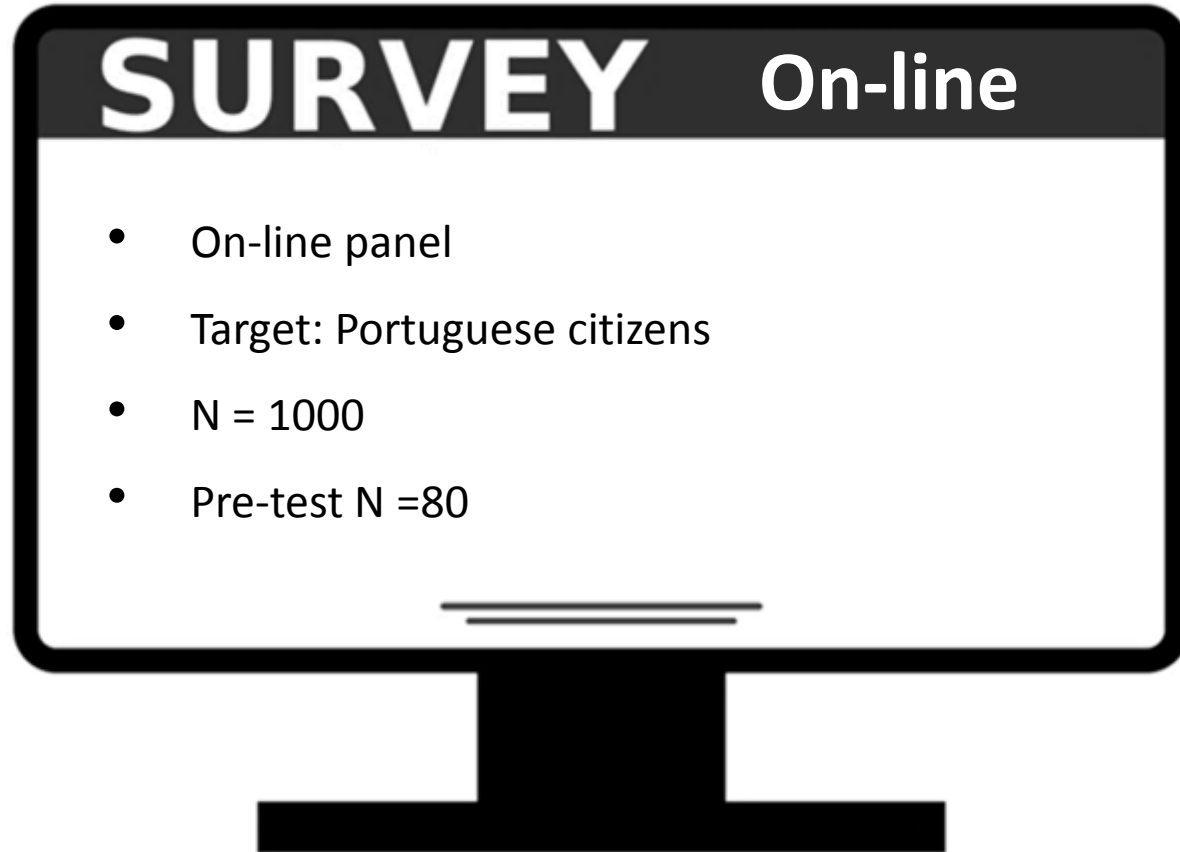


Goals

- Evaluate people's knowledge about the Montado and the ES it delivers

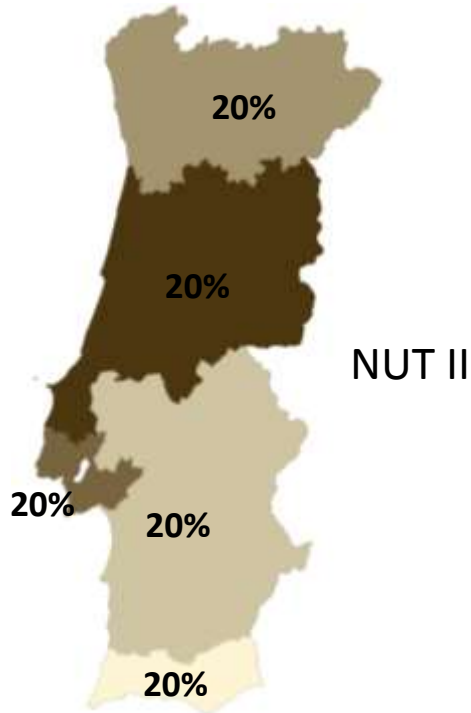
- Evaluate if people value the Montado

- 
- ```
graph TD; A[• Evaluate people's knowledge about the Montado and the ES it delivers] --> C[• Analyse the willingness of people to pay for different managements that can improve the montado condition]; B[• Evaluate if people value the Montado] --> C;
```
- Analyse the willingness of people to pay for different managements that can improve the montado condition



# Methods – Stratification

Stratified by:



Gender

50%

50%



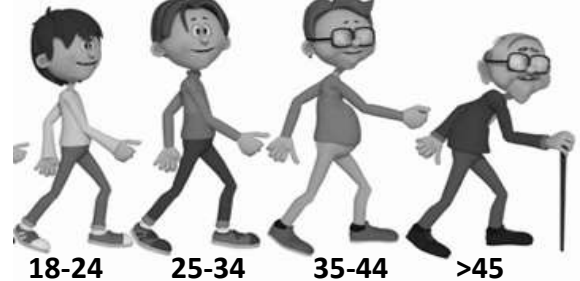
Age

25%

25%

25%

25%



## **SURVEY** On-line

### **Survey sections**

- I. knowledge about the montado
- II. knowledge about ES delivered by the montado
- III. Valuation of the montado
- IV. Choice experiment



## **SURVEY** On-line

### **Survey sections**

- I. knowledge about the montado
- II. knowledge about ES delivered by the Montado
- III. Valuation of the montado

### **Closed format questions**

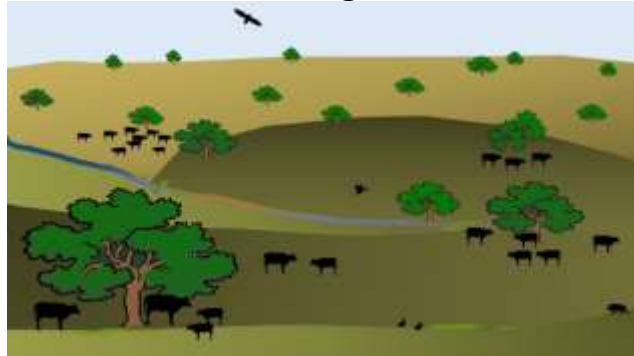
- Multiple choice
- Evaluation scale questions

# Methods – Choice experiment

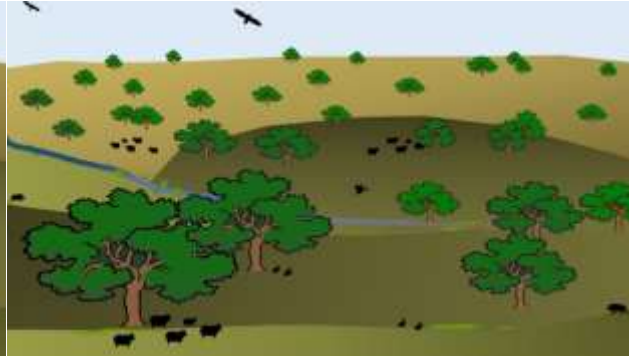
People must choose between 3 scenarios with varying attributes

## 1. Management type:

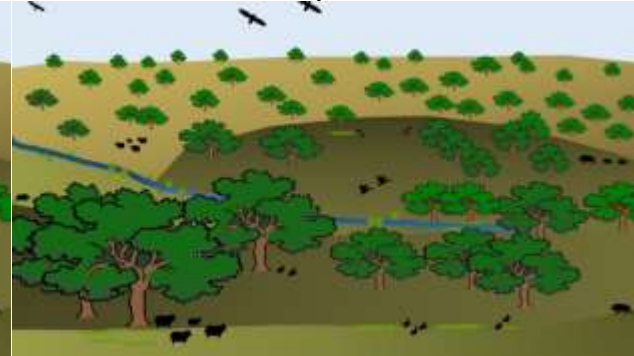
Actual management



Livestock management



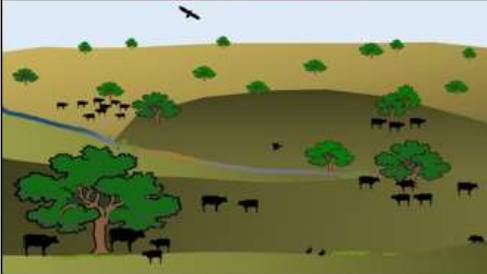
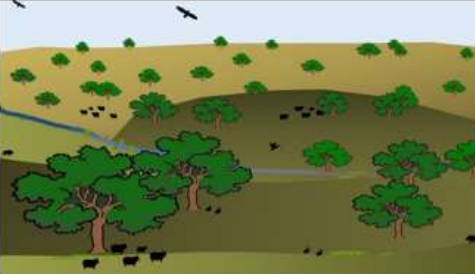
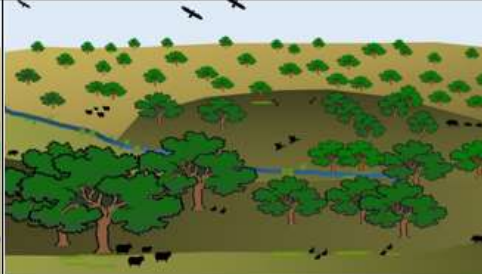
Forest improvement



2. Montado type: holm oak montado or cork oak montado
3. Fund management: NGO's, Associations, State
4. Value of the contribution to the fund: 2€, 4€, 10€ or 20€



# Methods – Choice experiment

| exemplo                 | Cenário I - Gestão atual                                                                                                                                                                                                                                                                                                                                                             | Cenário II - Diminuição do pastoreio                                                                                                                                                                                                                                                                                                                                                 | Cenário III - Melhoramento Florestal                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tipo de gestão          |  <ul style="list-style-type: none"> <li>Gestão sem mudança</li> <li><u>Sobrepastoreio</u></li> <li>Remoção extensiva de matos (danificando a estrutura do solo e as raízes das árvores)</li> <li>Remoção da vegetação ribeirinha</li> </ul>                                                         |  <ul style="list-style-type: none"> <li>Substituição das vacas por ovelhas, cabras ou porco-preto</li> <li>Remoção extensiva de matos (danificando a estrutura do solo e as raízes das árvores)</li> <li>Remoção da vegetação ribeirinha</li> </ul>                                                |  <ul style="list-style-type: none"> <li>Substituição das vacas por ovelhas, cabras ou porco-preto</li> <li>Remoção de matos com grades (sem danificar o solo e as raízes das árvores)</li> <li>Recuperação e manutenção das linhas de água</li> <li>Plantação de mais árvores (sobreiros e/ou azinheiras)</li> </ul> |
| Consequências da gestão | <ul style="list-style-type: none"> <li>Baixa: <ul style="list-style-type: none"> <li>→ regeneração de árvores</li> <li>→ vegetação ribeirinha</li> </ul> </li> <li>Baixa a moderada: <ul style="list-style-type: none"> <li>→ biodiversidade</li> <li>→ atividades recreativas ao ar livre</li> </ul> </li> <li>Poluição moderada da água</li> <li>Elevada erosão do solo</li> </ul> | <ul style="list-style-type: none"> <li>Ligeiro aumento de: <ul style="list-style-type: none"> <li>→ número de árvores</li> <li>→ biodiversidade</li> <li>→ vegetação ribeirinha</li> <li>→ atividades recreativas ao ar livre</li> </ul> </li> <li>Ligeira diminuição de: <ul style="list-style-type: none"> <li>→ erosão do solo</li> <li>→ poluição da água</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>Aumento significativo de: <ul style="list-style-type: none"> <li>→ número de árvores</li> <li>→ biodiversidade</li> <li>→ vegetação ribeirinha</li> <li>→ atividades recreativas ao ar livre</li> </ul> </li> <li>Ligeira diminuição de: <ul style="list-style-type: none"> <li>→ erosão do solo</li> <li>→ poluição da água</li> </ul> </li> </ul>              |
| Tipo de montado         | Não aplicável                                                                                                                                                                                                                                                                                                                                                                        | Montado de azinho                                                                                                                                                                                                                                                                                                                                                                    | Montado de sobreiro                                                                                                                                                                                                                                                                                                                                                                                     |
| Gestão do fundo         | Não aplicável                                                                                                                                                                                                                                                                                                                                                                        | Estado                                                                                                                                                                                                                                                                                                                                                                               | ONG Conservação da Natureza                                                                                                                                                                                                                                                                                                                                                                             |
| Imposto                 | Sem imposto                                                                                                                                                                                                                                                                                                                                                                          | 2€ anualmente                                                                                                                                                                                                                                                                                                                                                                        | 20€ anualmente                                                                                                                                                                                                                                                                                                                                                                                          |

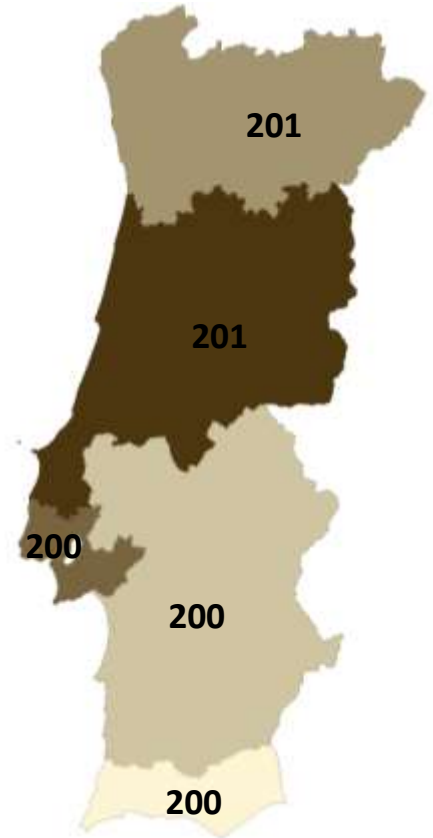
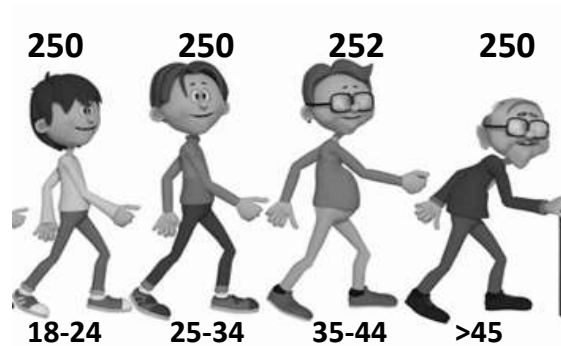
# Results – Citizens profile



Gender

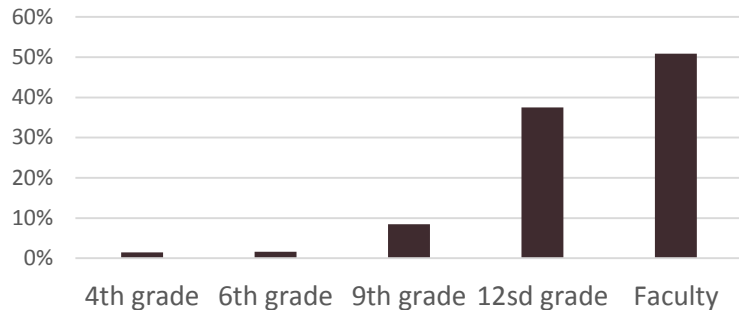


Age

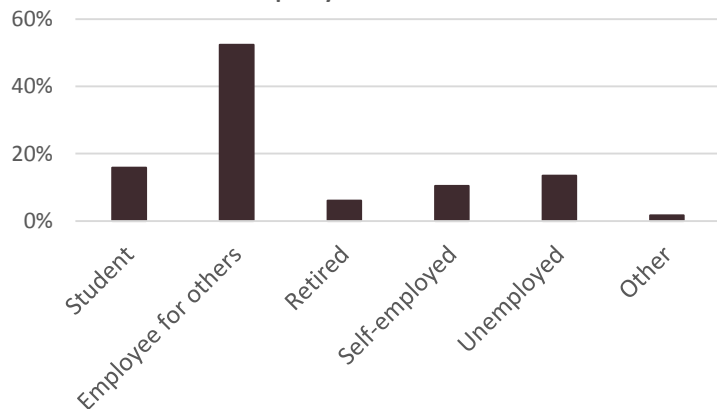


# Results – Citizens profile

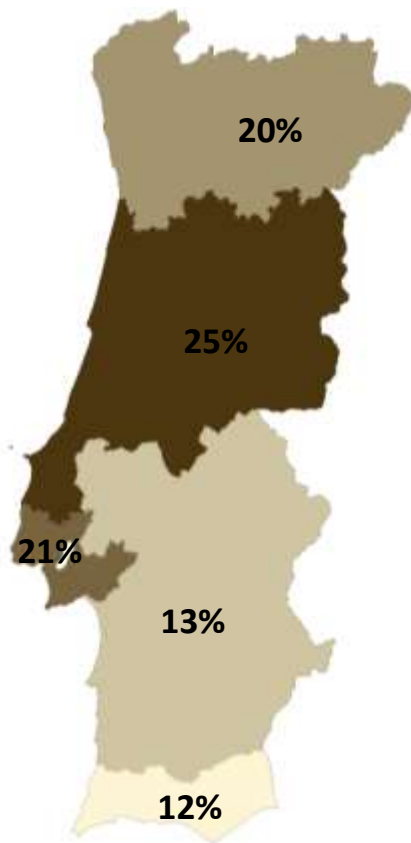
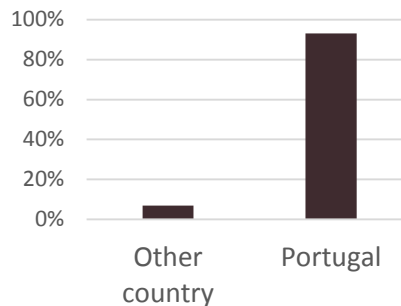
## Education



## Employment status

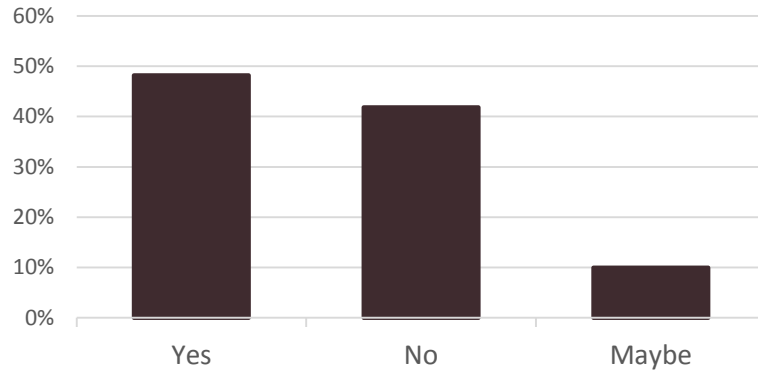


## Place of birth

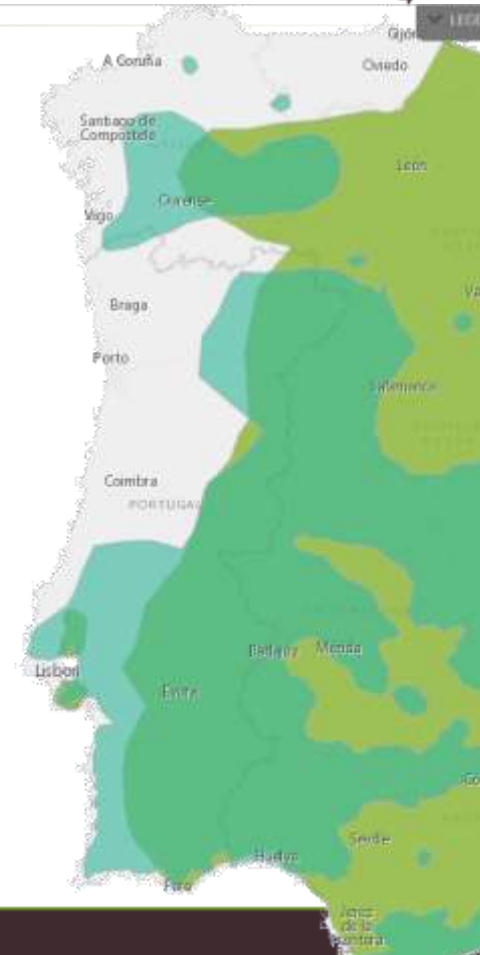
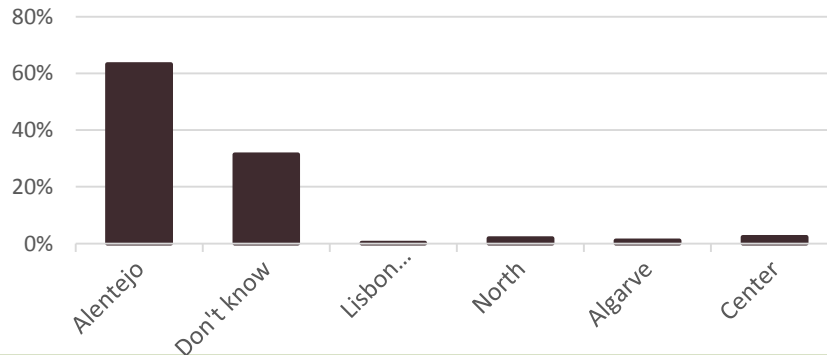


# Results – Knowledge

Have you heard about the montado?



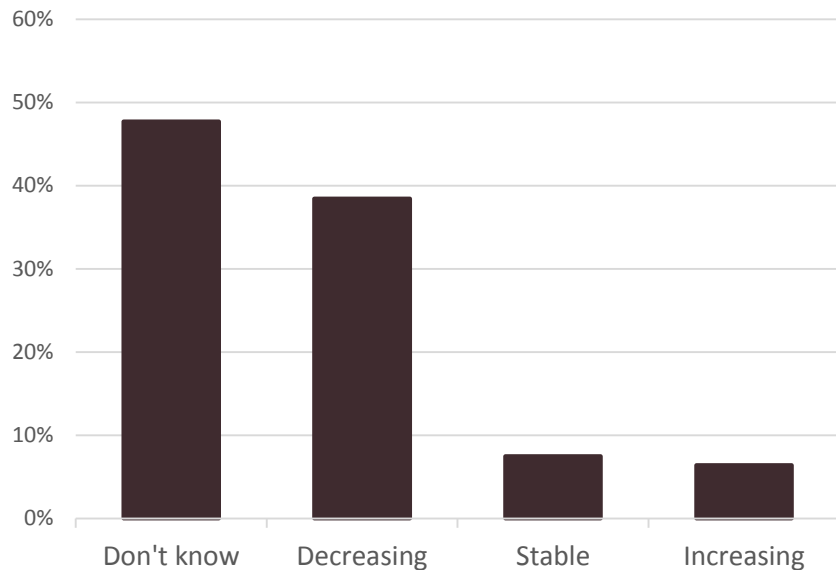
Where is the main area of montado?



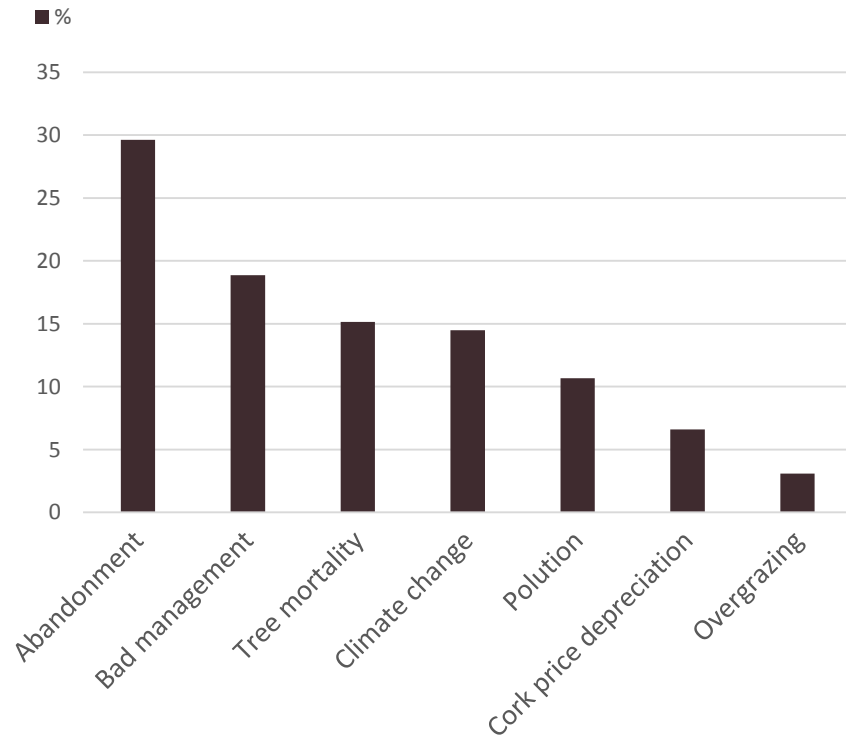
# Results – Knowledge



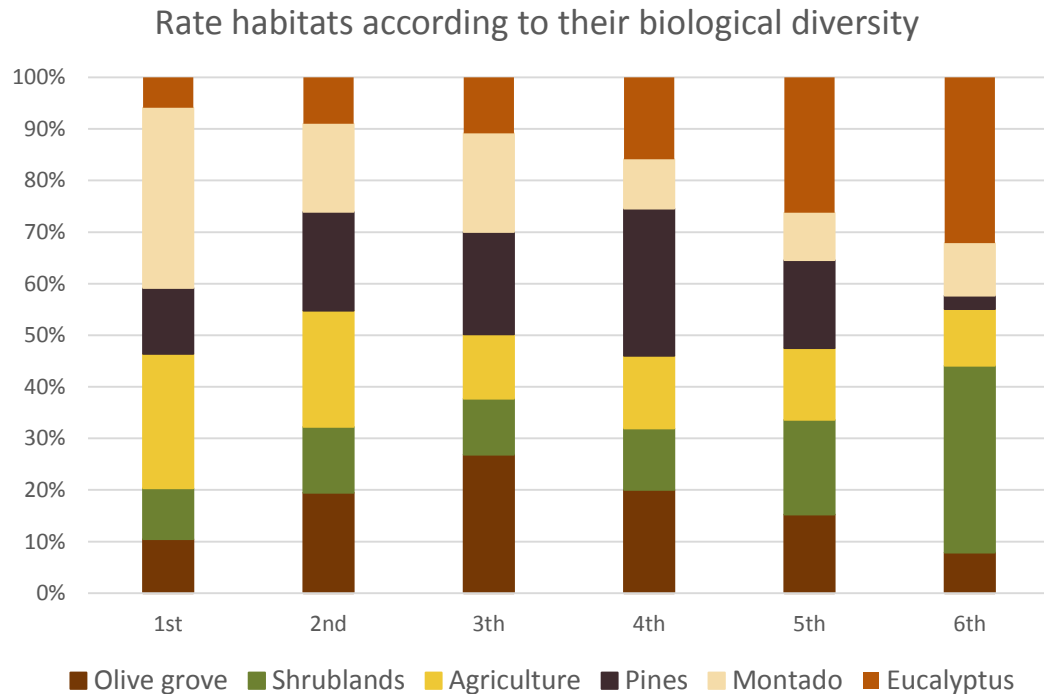
What is the current trend of the montado?



Reasons for decline



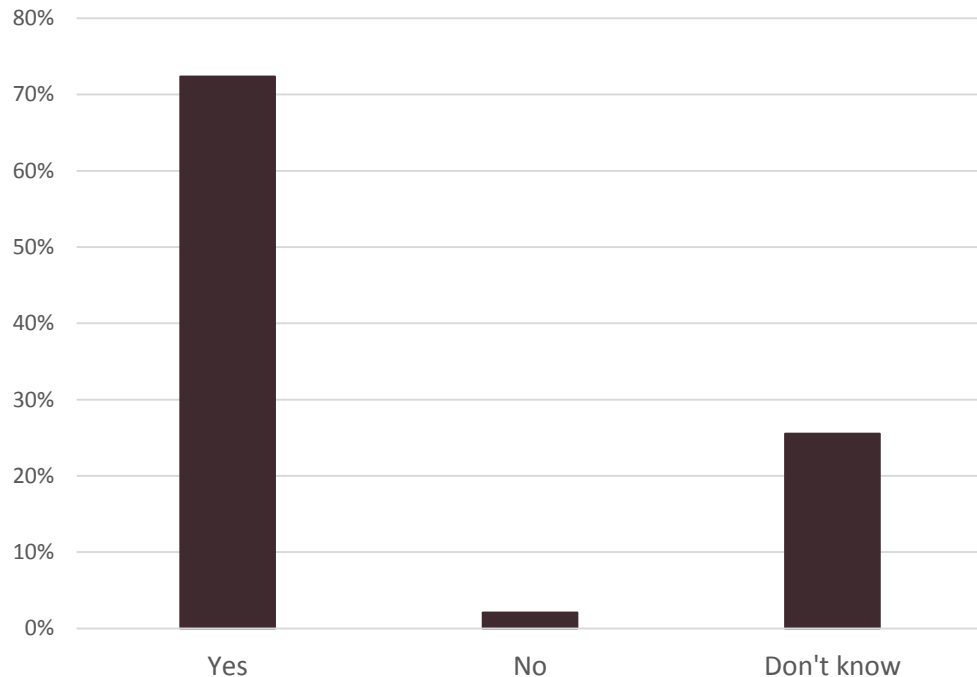
# Results – Knowledge



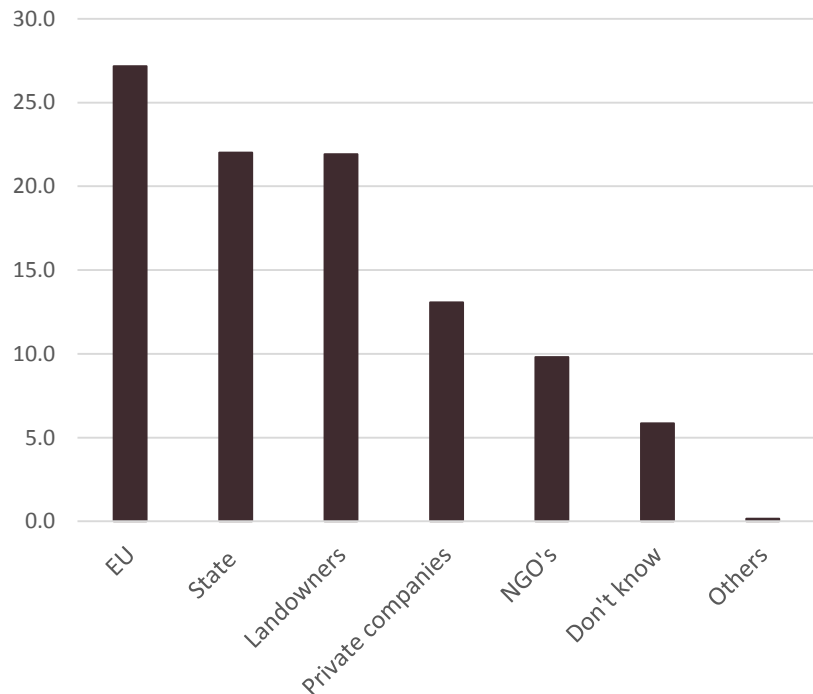
# Results – Knowledge



Is the montado important for Portuguese economy?



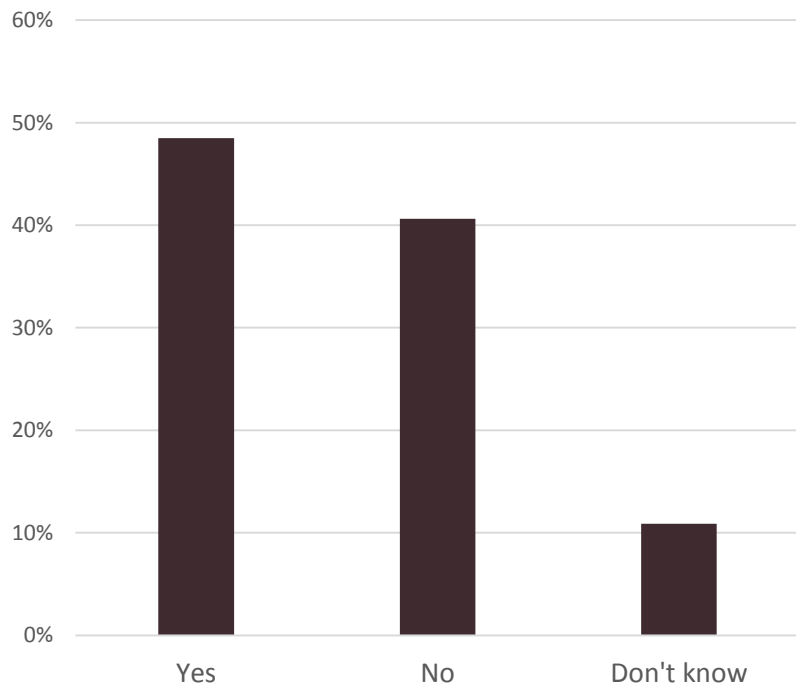
Which entities should give funds to support the preservation of the montado?



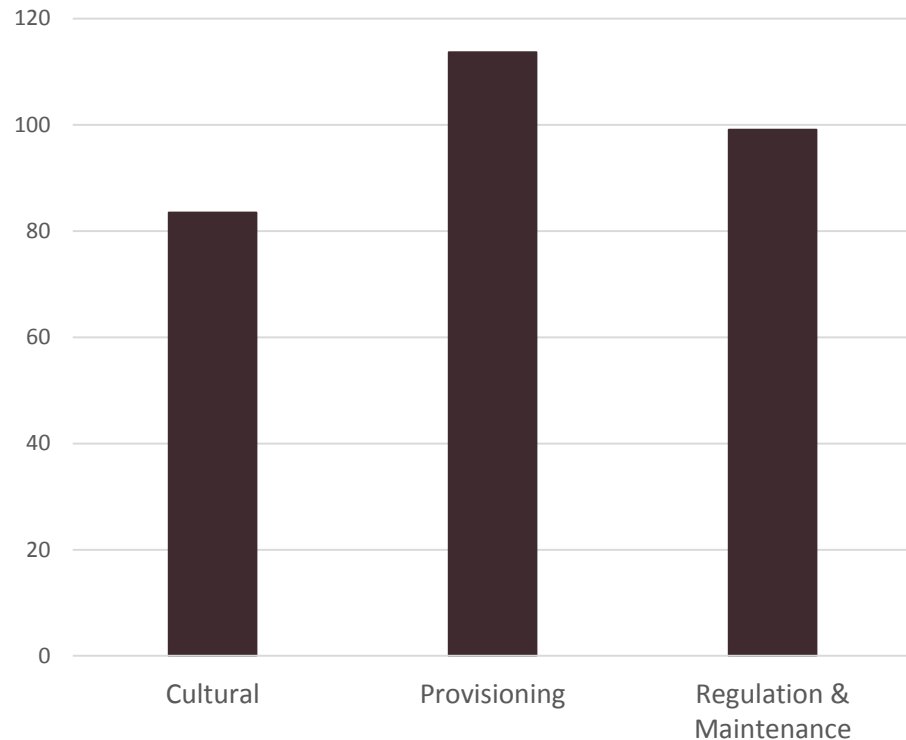
# Results – Knowledge



Are you familiar with the term Ecosystem services?



Which benefits are delivered by the montado?

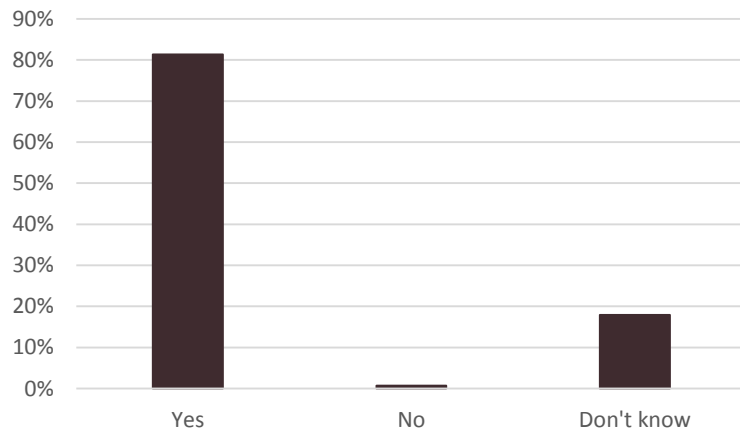




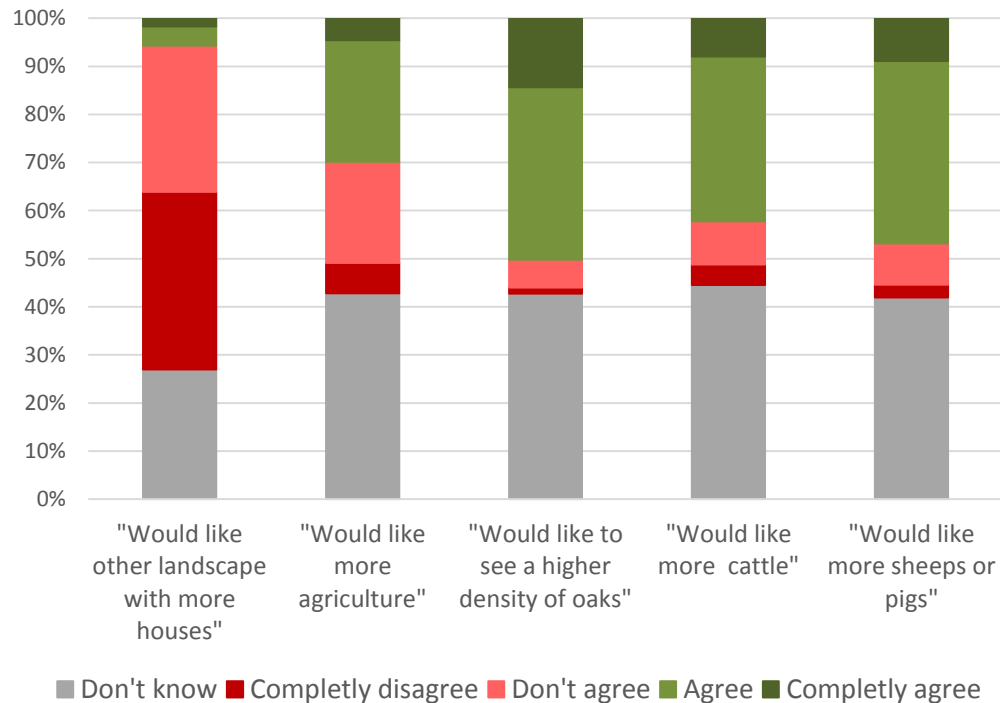
# Results – Valuation



Do you think it is important to preserve the Montado?



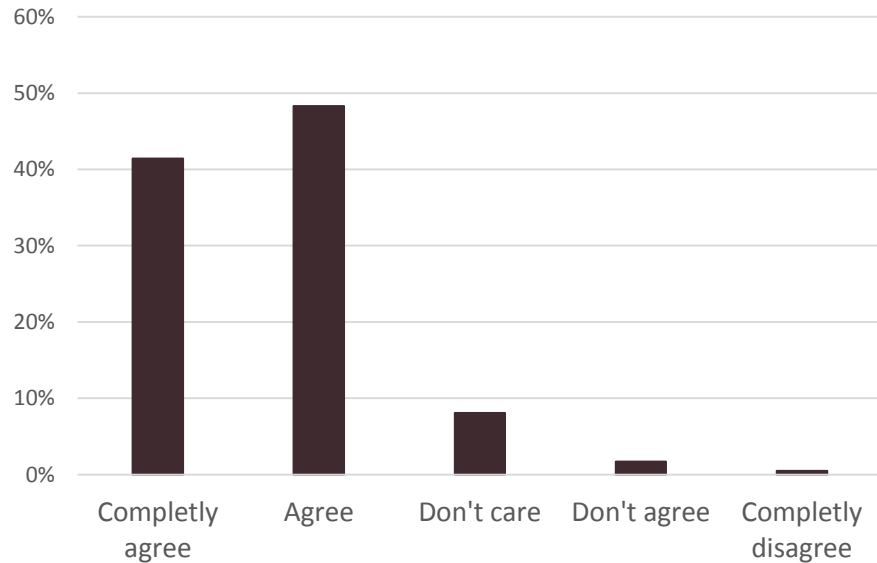
Rate the following statements



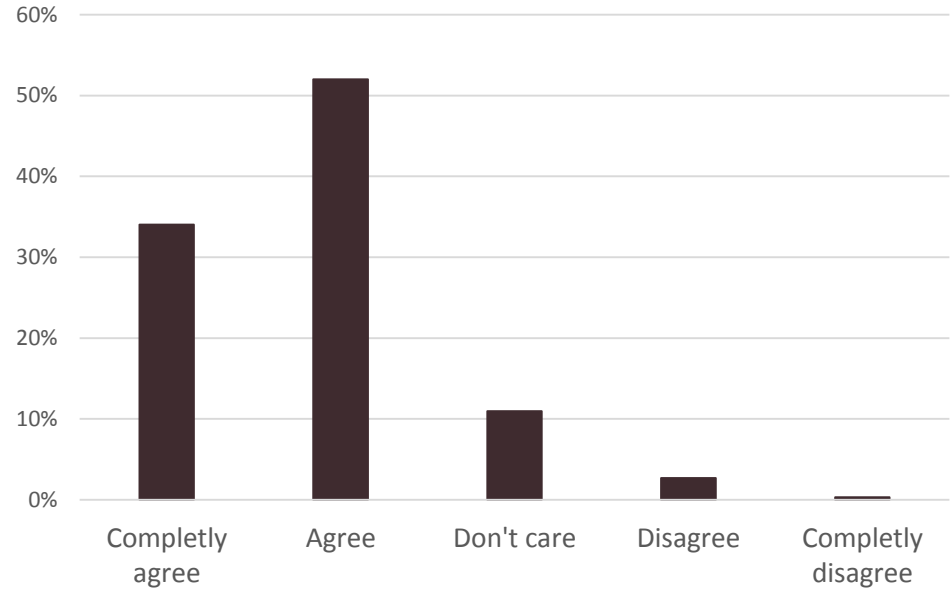
# Results – Valuation



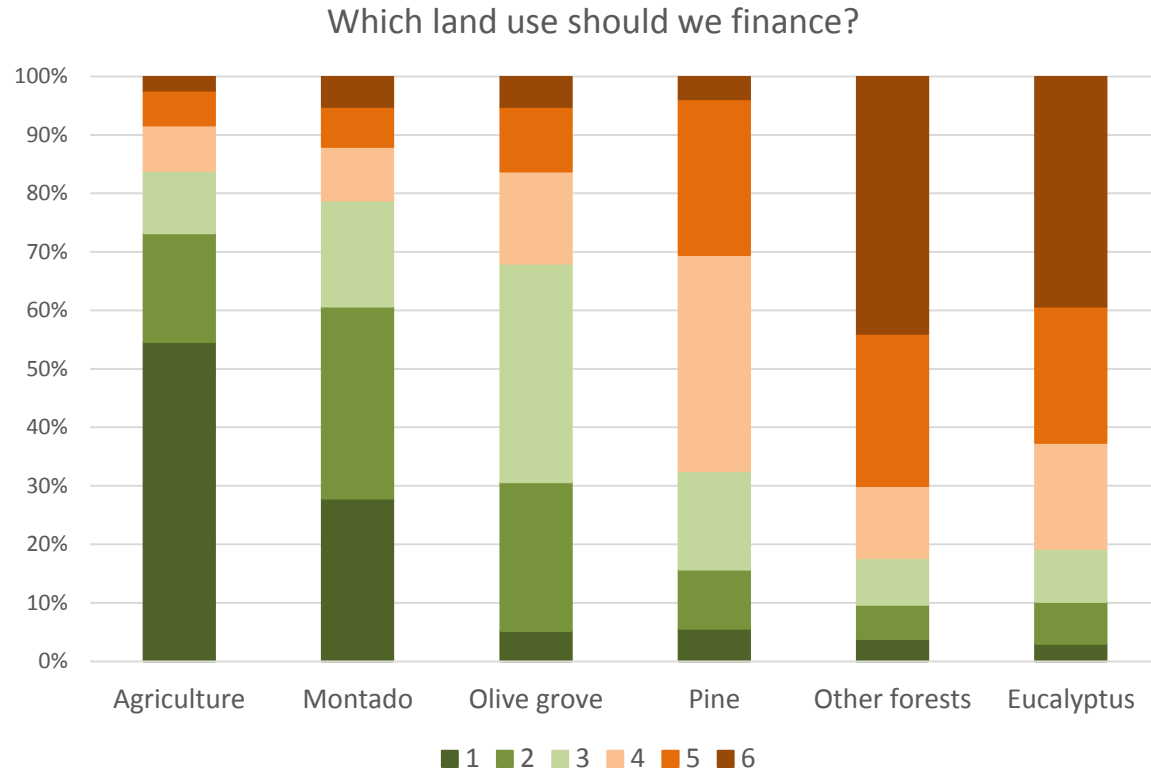
The Portuguese Parliament established the cork oak as the National Tree of Portugal



Application to the UNESCO to recognize and classify cork oak forests as World Heritage



# Results – Valuation



# Results – Choice experiment

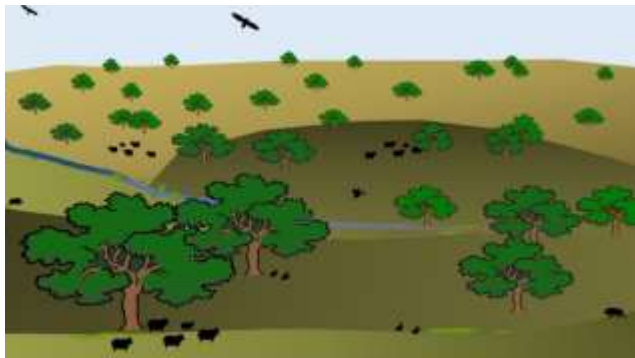
## RPL (Random Parameter Logit) Model

| CHOICE                                           | Coefficient | Standard Error | z      | 95% Confidence Interval |          |          |
|--------------------------------------------------|-------------|----------------|--------|-------------------------|----------|----------|
|                                                  |             |                |        | Prob.  z > Z*           |          |          |
| Random parameters in utility functions           |             |                |        |                         |          |          |
| ASC1                                             | .46725***   | 0.1807         | 2.59   | 0.0097                  | 0.11309  | 0.82142  |
| ASC2                                             | 2.78033***  | 0.19299        | 14.41  | 0                       | 2.40208  | 3.15858  |
| NAT                                              | 0.00068     | 0.06834        | 0.01   | 0.992                   | -0.13326 | 0.13462  |
| SA                                               | -.22589**   | 0.09784        | -2.31  | 0.021                   | -0.41765 | -0.03414 |
| AA                                               | -0.107      | 0.0983         | -1.09  | 0.2764                  | -0.29967 | 0.08567  |
| DON                                              | -.17486***  | 0.00958        | -18.25 | 0                       | -0.19364 | -0.15608 |
| Distns. of RPs Std. Devs or limits of triangular |             |                |        |                         |          |          |
| UsASC1                                           | 5.70694***  | 0.29014        | 19.67  | 0                       | 5.13827  | 6.27562  |
| UsASC2                                           | 6.64072***  | 0.28154        | 23.59  | 0                       | 6.08891  | 7.19254  |
| UsNAT                                            | 1.55807***  | 0.17581        | 8.86   | 0                       | 1.21348  | 1.90266  |
| UsSA                                             | 1.83364***  | 0.22828        | 8.03   | 0                       | 1.38621  | 2.28107  |
| UsAA                                             | 1.89031***  | 0.22634        | 8.35   | 0                       | 1.4467   | 2.33392  |
| TsDON                                            | .17486***   | 0.00958        | 18.25  | 0                       | 0.15608  | 0.19364  |

# Results – Choice experiment

- Management type:

## Livestock management

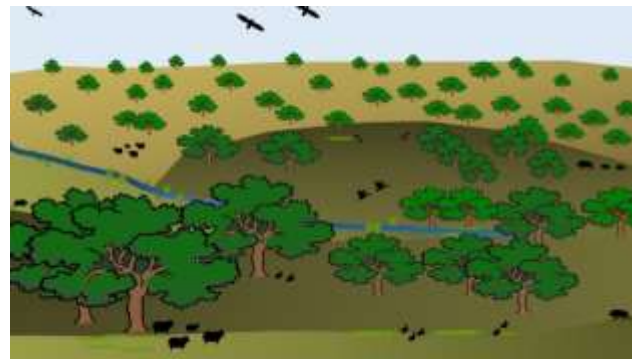


Willingness to pay: 2.67€

(statistically significant at 1%)

People are willing to donate 2.67 € for this management option, compared to status quo (assuming a nature NGO manages the fund and implementation is at holm oak montado)

## Forest improvement



Willingness to pay: 15.9€

(statistically significant at 1%)

On average people are willing to donate 15.9 € for this management, compared to status quo (assuming a nature NGO manages the fund and implementation is at at holm oak montado)

# Results – Choice experiment



- Montado type: holm oak or cork oaks montado - **Not significant**  
People do not care whether investment to plant trees is done at holm oaks or cork oaks montados  
Could be sign of not knowing that these are actually different systems.
- Fund management: NGO's, Associations, State
  - State agency compared to NGO: -1.29 (statistically significant at 5%)  
On average people are willing to donate 1.29 Euro less when a state agency manages the fund compared to a NGO
  - Agricultural or forest association compared to NGO: -0.61 (not significant)  
People do not care whether an agricultural or forest association manages the fund compared to a NGO

# Conclusions



- Results showed that many respondents don't know well the montado
- However, when asked if they value the montado people tend to say it is important
- Moreover, people are willing to pay 15.9 € to see a scenario diferente from the status quo, preferring the more sustainable management option (forest improvement).
- We still have to analyse the relations between knowledge and valuation and the willingness to pay to improve our conclusions

# Thank you!

# Obrigada!

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