



HUNTING AND ECOSYSTEM SERVICES IN GREECE

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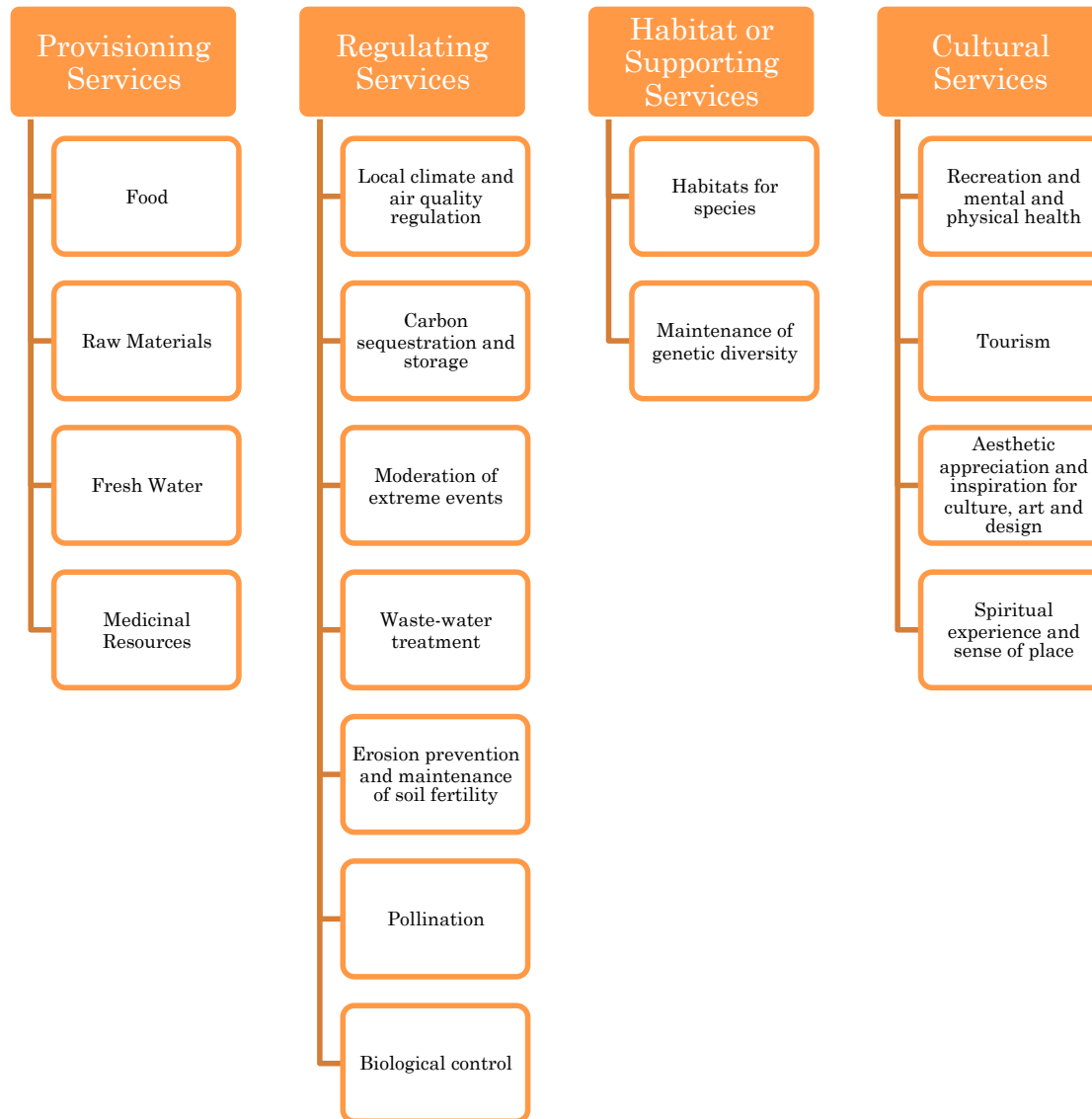
ECOSYSTEM SERVICES (ES)

Nature provides
ES for free to
humans, crucial for
well-being

They are not
traded in markets
and are difficult to
evaluate



ECOSYSTEM SERVICES



PAYMENTS FOR ECOSYSTEM SERVICES (PES)

Popular economic tool for
managing ecosystems and their
services

They are defined as the
contracts between land owners
and stakeholders in which the
first are paid from the second
for the production of one or
more ecosystem services



PAYMENTS FOR ECOSYSTEM SERVICES (PES)

It is an agro-environmental measure

It covers the need for conserving the services offered by the agricultural ecosystems, which are now degraded

Land owners are paid by ecosystem services “purchasers” to cover at least the opportunity cost of their agreement to produce the ES

PES can reduce poverty at least to land smallholders



PES AND WILDLIFE MANAGEMENT

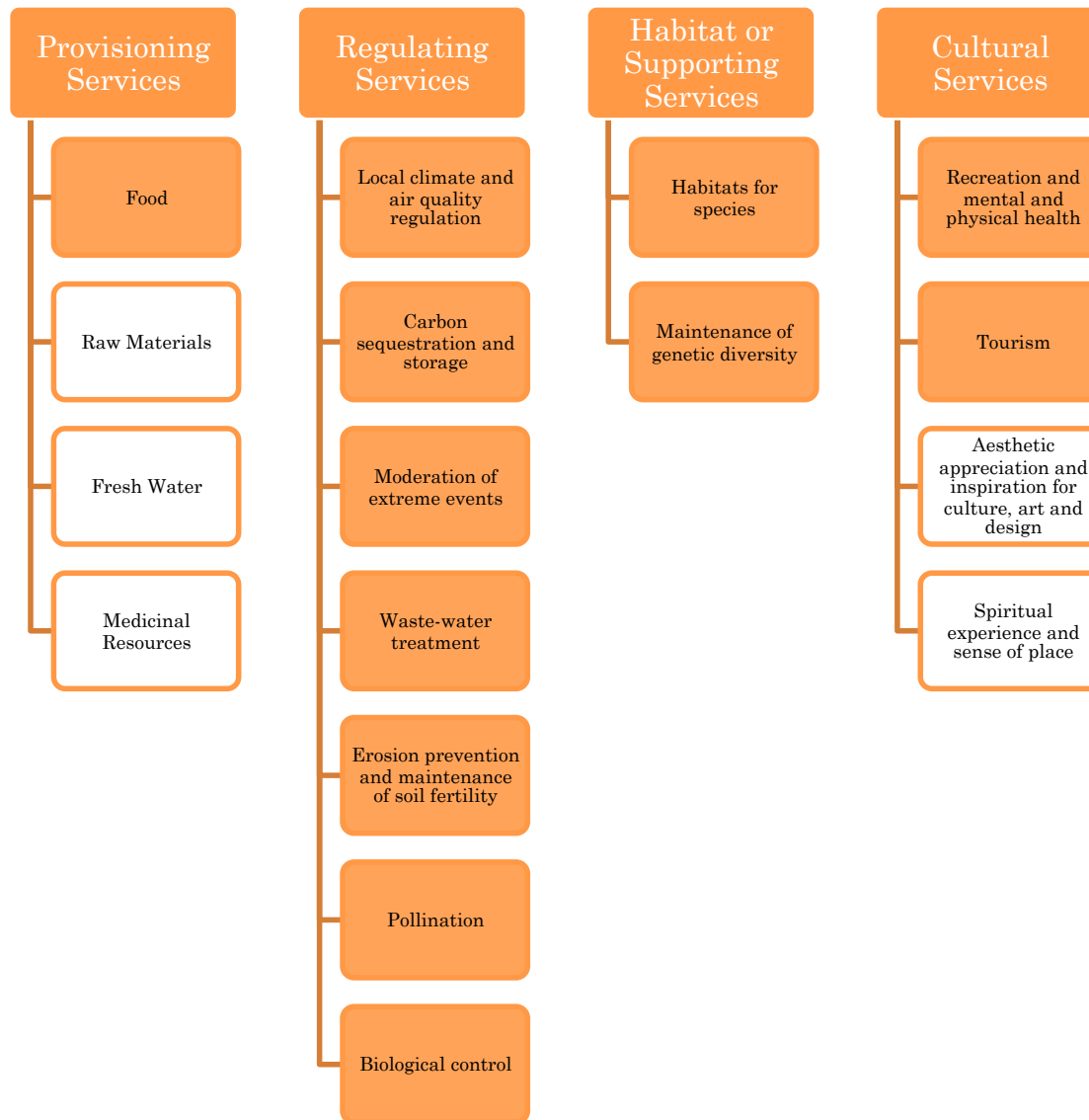
Literature refers that PES contribute to the conservation and wildlife species improvement for

birdwatching

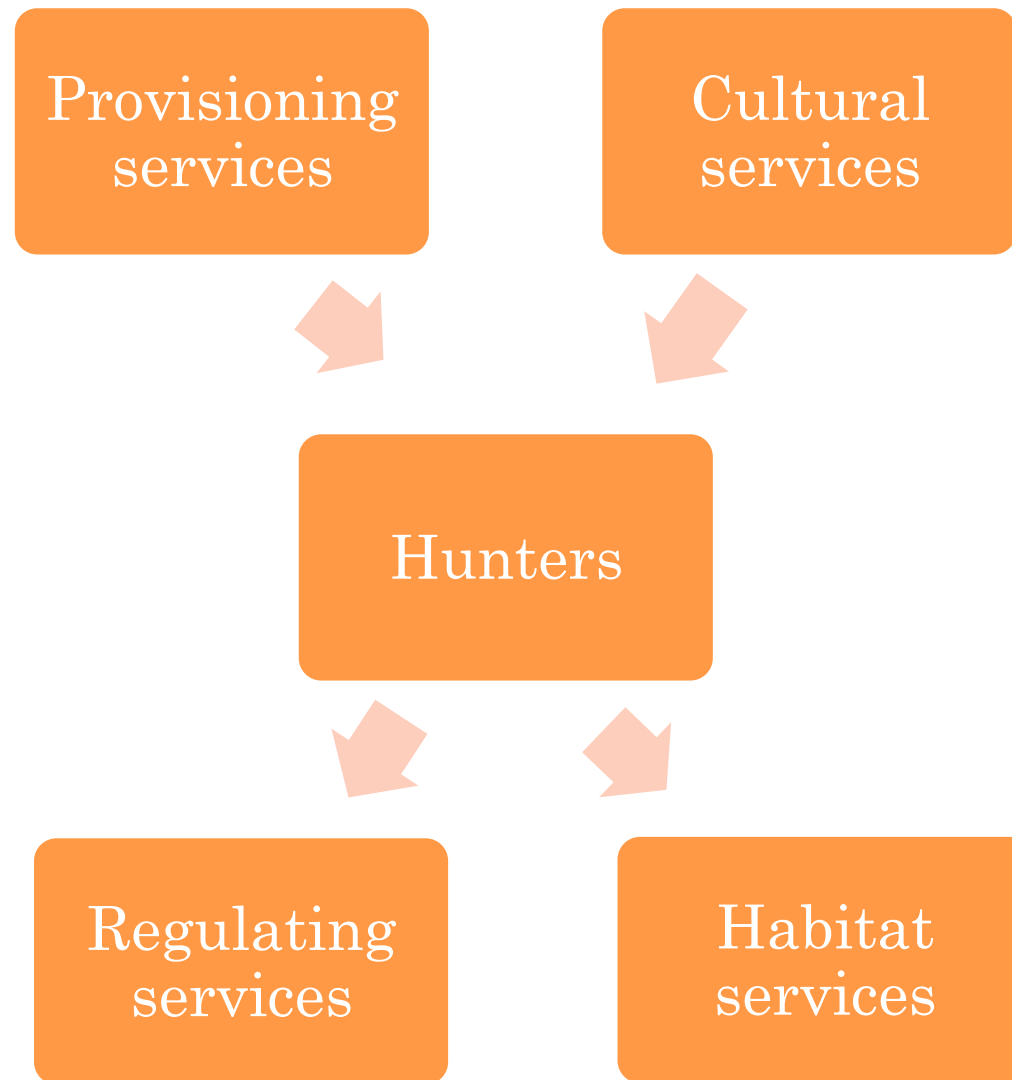
hunting



HUNTING AND ECOSYSTEM SERVICES



PES AND HUNTERS



HUNTING IN GREECE

A very ancient human activity

It is considered traditional

More than 200 thousand hunters

Hunting is managed by Public Forest Service and Hunting Organizations

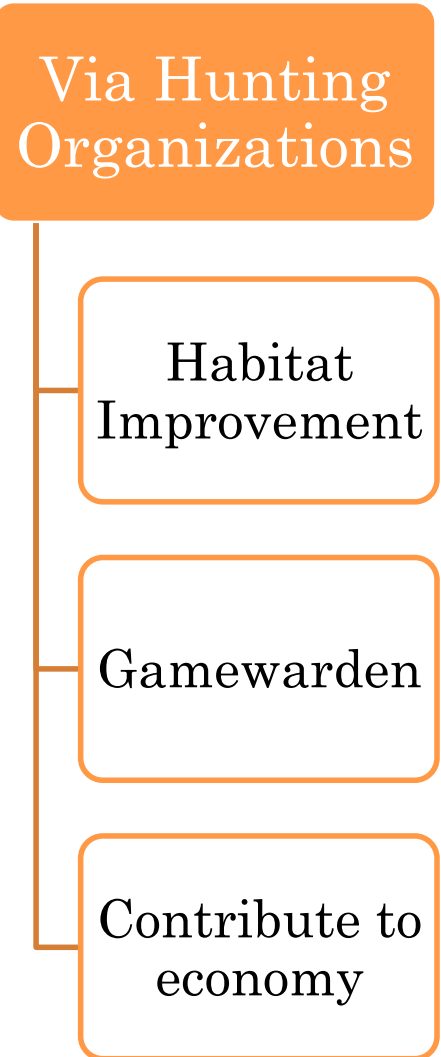
Hunting Confederation

Seven Hunting Federations (Hunting Federation of Macedonia Thrace, Κ Ο Μ Α Θ)

Hunting Associations (Clubs)



HUNTERS IN GREECE



HUNTING AND ECONOMY

South Africa

- More than 68 million US\$

USA

- More than 76 billion US\$ - 1.6 million jobs

Europe

- 16 billion

Greece

- More than 2 billion annually



OK, but why hunters should bother
with ecosystem services?



BECAUSE...

...ecosystem services conserve wildlife
as a natural renewable resource

...hunters manage ecosystems
through their voluntary work

...they strengthen their position
within society

...NNL is about to come



EU NO NET LOSS INITIATIVE (NNL)



EU NO NET LOSS INITIATIVE (NNL)

Hunters are not straightly affected, however...

...some will try to relate biodiversity loss with hunting

Hunters should be able to prove their work for enhancing ecosystem services

Even if EU demands from hunters to offset their “impacts” on biodiversity, hunters will have to be ready to prove that they already do it through habitat improvement and Gamewarden actions



OUR RESEARCH ON ECOSYSTEM SERVICES

Focused on Habitat
Improvement
action

Economic
dimension of
hunting and
ecosystem services

Assessment of
impact of hunting
organizations on
ecosystem services

Economy's impact
on hunting demand



ESTIMATING THE REGULATING SERVICES

Used Environmental Management Accounting methodology and Global Reporting Initiative indicators with positive dimension

Defined the positive environmental impact of hunting organizations on ecosystem services

Distinguished the within and outside the scope of operation impact of actions

Estimated the environmental costs of such actions

ESTIMATING THE REGULATING SERVICES

Table 1
Inputs and outputs in HFMT.

Negative environmental impact (NEI)		Positive environmental impact (PEI)	
Input	Output	Input	Output
Electricity consumption	CO ₂ emission (WS)	Land leasing	i) Habitat improvement (WS) ii) Soil protection (OS)
Water consumption	Waste water (WS)	Seeds	i) Habitat improvement (WS) ii) Soil protection (OS)
Fuel consumption	CO ₂ emission (WS)	Seedlings	i) Habitat improvement (WS) ii) CO ₂ absorption (OS) iii) Soil protection (OS)
Operating materials (paper, ink)	Waste (WS)	Gamewardens	i) Protection of wildlife resources (WS)
		Scientific personell	i) Habitat improvement (WS) ii) CO ₂ absorption (OS) iii) Protection of wildlife resources (WS)

WS: within the scope of operation, OS: outside the scope of operation.

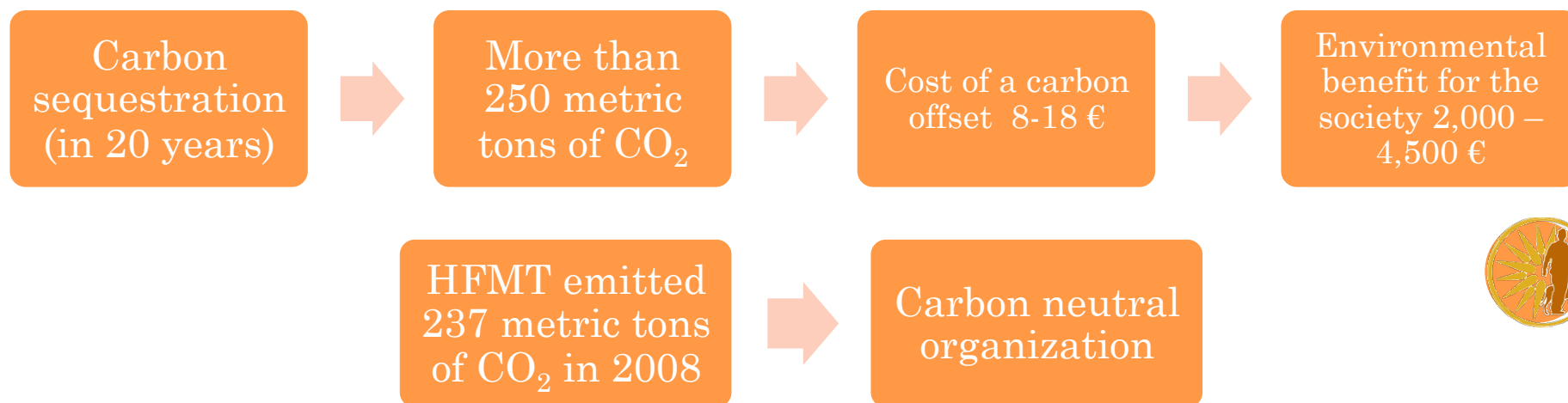


ESTIMATING THE REGULATING SERVICES

Table 2
HFMT's physical account according to GRI EPI for 2006, 2007 and 2008.

Environmental performance indicators (according to GRI – G3 guidelines)	Fiscal year		
	2006	2007	2008
<i>Aspect: Materials</i> EN1^a Materials used by weight or volume		c) Seeds (t), d) Number of chestnuts	
	c) – d) 76.00	c) 56.66 d) 323.00	c) 40.16 d) 822.00

input materials



ESTIMATING THE REGULATING SERVICES

Aspect: biodiversity					
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	132.89 ha	162.81 ha	182.81 ha	
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas		Seeds and seedlings improve habitats		
EN13	Habitats protected or restored	16,003 controls to hunters	16,648 controls to hunters	16,330 controls to hunters	

Table 4
Percentages of environmental related costs for 2007 (in %) [adapted from Jasch (2009)].

Environmental domain	Air & climate	Water & waste water	Waste	Wildlife & natural environment protection	Total
<i>1. Materials costs of non-product outputs</i>	6.2	0.0	0.0	1.1	7.4
1.1 Operating materials (paper, cartridges, seeds, seedlings)	0.3 (p)		0.0 (n)	1.1 (p)	1.5
1.2. Water		0.0 (n)			0.0
1.3. Energy	5.9 (n)				5.9
<i>2. Proactive environmental management</i>				81.4	81.4
2.1. Land leasing				2.4 (p)	2.4
2.2. Internal personnel				57.8 (p)	57.8
2.3. External services				0.9 (p)	0.9
2.4. Other				20.1 (p)	20.1
<i>3. Research & development costs</i>				11.2 (p)	11.2
<i>4. Less tangible costs</i>	0.1 (n)				0.1
Total environment-related costs	6.3	0.00	0.04	93.65	100.0

(p) positive environmental impact; (n) negative environmental impact.



ESTIMATING THE REGULATING SERVICES

93.65% of total
expenses
enhance the
ability of
ecosystems to
provide their
services to
society



ESTIMATING THE HABITAT SERVICES

Annual cost of
habitat
improvement

2,000,000 €

Payment for
ecosystem
services

10 €/hunter

Payment for
ecosystem
services



ESTIMATING THE HABITAT SERVICES

Table. Impact of habitat improvement on quail abundance

Do you believe that after improvement, quail population:	Hunters (%)
Increased a lot	55,7
Increased a little	23,0
Remained unchanged	14,8
Was reduced	4,9
Do not know/do not answer	1,6
Total	100,0



ESTIMATING THE CULTURAL SERVICES

Hunting tourism contribution in Greece

“Nature tourism provides considerable economic benefits and is a vital source of income for many countries” (TEEB, 2010)

Many reasons may reduce hunting activity and tourism



ESTIMATING THE CULTURAL SERVICES

Table 2. *Habitat improvement impact on hunting trips in the region*

Trips to the area per week	Before the action (%)	After the action (%)
0	13,1	1,6
1	34,4	14,8
2	21,3	21,3
3	13,1	23,0
More than 3	18,0	39,3
Total	100,0	100,0



ESTIMATING THE CULTURAL SERVICES

Hunting Licences vs GDP

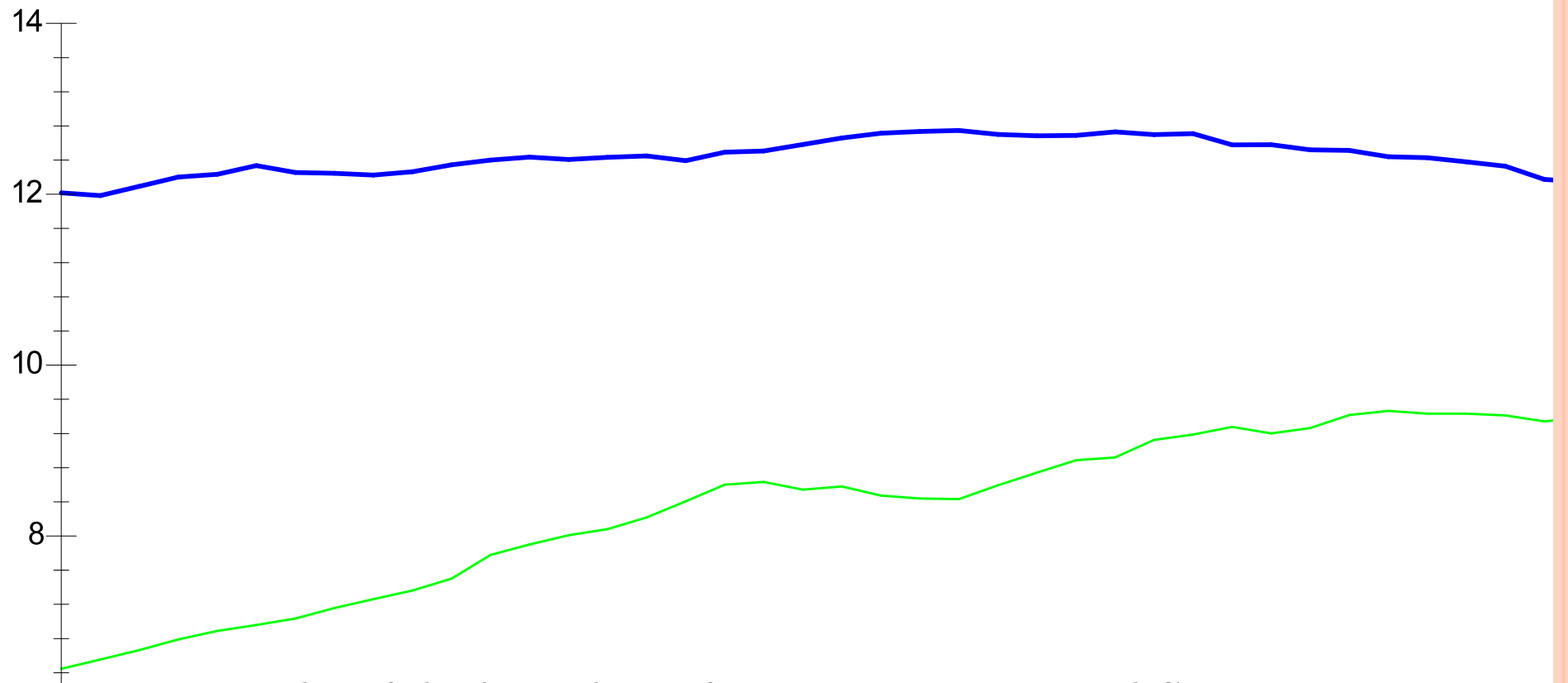
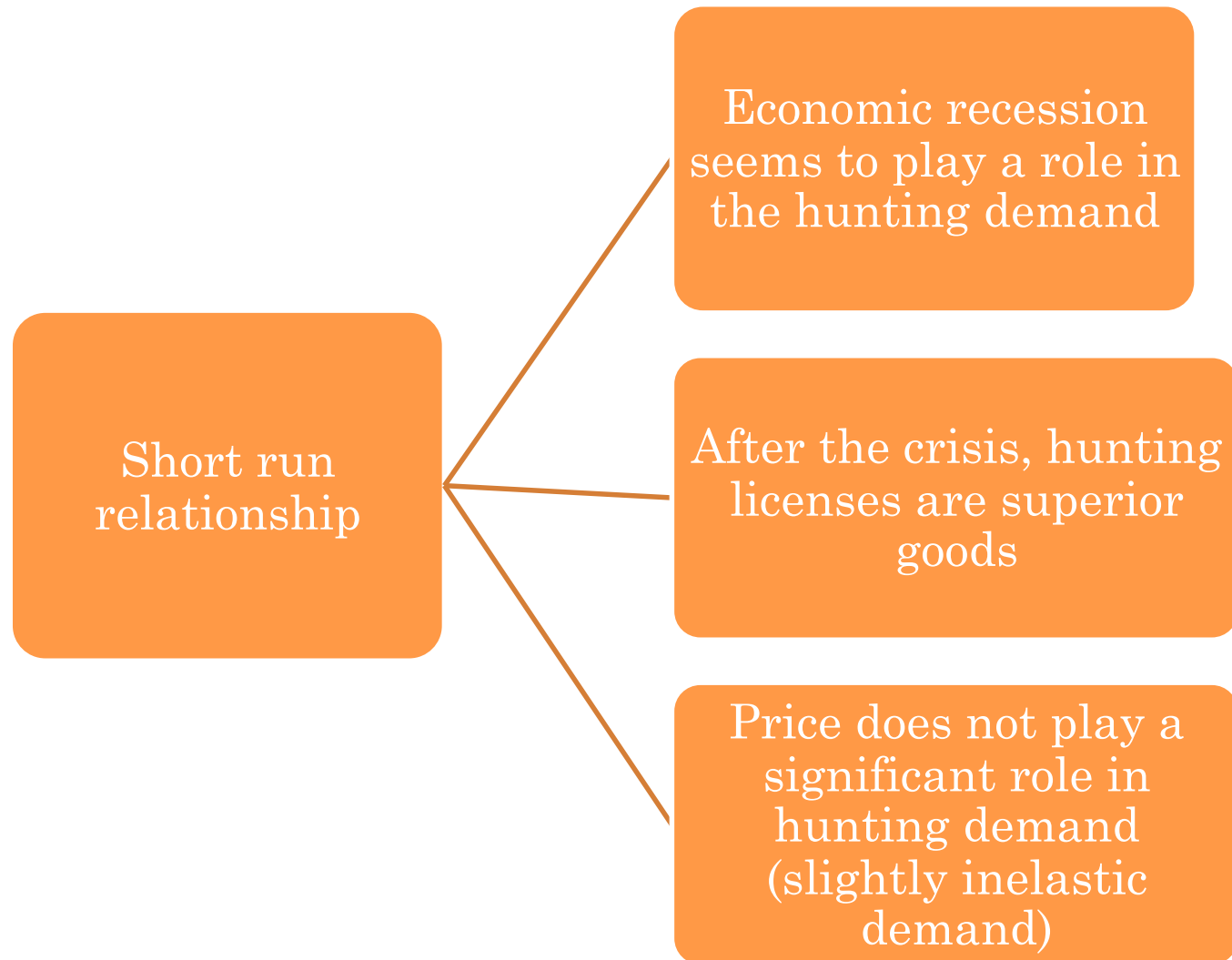


Figure 1. Plot of the log values of Hunting Licenses and GDP per capita

ESTIMATING THE CULTURAL SERVICES



ESTIMATING THE CULTURAL SERVICES



ESTIMATING THE CULTURAL SERVICES

Effects of wildfires on hunting demand

Questions about quality of hunting before and after a wildfire in Kassandra in 2006

Results show that hunting licenses were reduced 13.5% and 8.8% after the first and the second hunting period after wildfire

Hunting excursions were reduced significantly



CONCLUSIONS

Hunters in Greece are affected and affect Ecosystem Services

They are interested for managing and conserving them

They pay landowners to produce ES

Win-win-win environmental policy (hunters, farmers, and environment are satisfied)

Pro-active environmental management action to strengthen hunting within society and “answer” to initiatives like NNL



SUGGESTED LITERATURE

- Papaspyropoulos, K. G., Sokos, C. K., & Birtsas, P. K. (2014). The impacts of a wildfire on hunting demand: a case study of a Mediterranean ecosystem. *iForest-Biogeosciences and Forestry*, 380.
- Skordas K.E. and Papaspyropoulos, K.G. (2013). National economy's impact on hunting demand :evidence from Greece. IUGB, Brussels. Book of abstracts.
- Papaspyropoulos, K.G., Blioumis, V., Christodoulou, A.S., Birtsas, P.K. and Skordas, K.E. (2012). Challenges in implementing environmental management accounting tools: the case of a non-profit forestry organization. *Journal of Cleaner Production*, 29-30: 132-143.
- Papaspyropoulos KG, Koufis J, Tournida L, Georgakopoulou A (2012). Estimating the economic impact of a long-term hunting ban on local businesses in rural areas in Greece: a hypothetical scenario. *Animal Biodiversity and Conservation*, 35(2): 163–170.
- Papaspyropoulos KG, Sokos CK, Hasanagas ND, Birtsas PK (2012). Sustainability of recreational hunting tourism: a cluster analysis approach for woodcock hunting in Greece, in *New Trends Towards Mediterranean Tourism Sustainability*. NOVA Publishing. Β ο ο κ Chapter, p. 79–94.
- Sokos C K, Skordas KE, Birtsas PK (2003). Valuation of hunting and management of brown hare (*Lepus europaeus*) in rangelands. Proceedings of 3rd Pan-Hellenic Rangelands Conference. Hellenic Rangelands and Pasture Society, 4–6 September 2002, Karpenissi, Greece. (in Greek). <http://www.panida.gr/site/wp-content/uploads/2003-harehunters.pdf>.
- Papaspyropoulos K.G., Sokos C.K., Skordas K.E., Kelesidou S., Birtsas P.K., (2012). *Demand for hunting licenses in Greece*. International Conference on “Hunting for sustainability: ecology, economics and society”, Ciudad Real, Spain March, 27-29, 2012
- Hasanagas N.D., Birtsas P.K., Sokos C.K., Papaspyropoulos K.G., (2009). *Hunting engagement and attitude to hunting management strategies*. Proceedings of the 2nd International CEMEPE & SECOTOX Conference, Mykonos, June 21-26, 2009, pp. 2097-2101.



ΚΥΝΗΓΕΤΙΚΗ
ΟΜΟΣΠΟΝΔΙΑ
ΜΑΚΕΔΟΝΙΑΣ
ΘΡΑΚΗΣ

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Thank
you!

