

## Appendix A. Semi-structured Interview Questionnaire

### Introduction

My name is Sara Guadilla and I am undertaking a research about the traditional management of forest commons inside and outside a protected area. My research project will culminate in the writing of a PhD thesis for the Institute for Environmental Sciences and Technology thesis programme of the Autonomous University of Barcelona. My research also collaborates with the Spanish National Inventory of Traditional Knowledge related to Biodiversity.

Within this study case, my aim is to understand the evolution of traditional uses that has taken place in forest commons of the Liébana valley. My aim is to collect information about local farming and forestry management practices such as timber harvesting and firewood collection, in particular how regulations to these practices have influenced on present use of natural resources from Liébana's forest commons.

All the information given during this interview will be managed confidentially. Only me will have access to the personal data, which will not be published, and the only reason for asking this information is for updates in the forthcoming years, if necessary. Information provided about the local practices will be used as part of the PhD thesis for understanding the impact of traditional management activities in current forest status, and conclusions will be sent to a scientific journal on the topic of study. This interview is expected to be one hour of duration.

### General questions

#### *Information about the informant:*

1. Municipality and date of interview:
2. Name and age:
3. Educational level:
4. Occupation:

#### *General script:*

1. What is your opinion about the uses carried out by the neighbours of their surrounding forest commons?
2. Have these uses always been the same?
  - a. Yes: What main changes, if any, have occurred? What most contributed to this change/continuity? To whom/what do you think may benefit these changes?
  - b. No: In which year did it change? How do you think it changed? How it has contributed to traditional uses loss? Would you like to keep any of the former uses?
3. Overall, what do you think are the most important ways to promote neighbours' use of their surrounding forest commons? Do you think it could engage more local inhabitants in the preservation of the forests?
4. Do you make use of the products offered by your forest commons? Which ones?

*Specific questions to livestock farmers:*

## **LIVESTOCK FARMING**

1. What type of livestock do you have? Which is the main breed? Which is the herd/flock size? Who is involved in livestock farming activities? How are they involved? Please describe. What is produced (e.g., milk, meat, cheese)? Does it graze in private fields or common meadows? Do you pay a fee to graze in common areas? Do you choose the grazing area? What criteria is applied? Please describe.
2. Does the livestock farming activities include pastoralism? Please provide as much detail as possible of the pastoral system: livestock density, grazing days, seasonal mobility, people involved, rangeland type. Does traditional pastoral system differ from nowadays livestock farming? If so, how has it change (range species, calendar, means of transportation to summer pasturelands)? Is transhumance still practiced? What about traditional lopping and pruning activities? Please describe (e.g., plant species, tools, customs, beliefs)
3. Are there any hindrances to traditional livestock farming practices (by whom, where, when, reason)? Please indicate a farming or forestry practice relate to livestock herding carried out in the past that is banned nowadays. Do you think illegal grazing arose because of the banning? Under what conditions do you consider that illegal grazing could be prevented (e.g., more licences, control)?
4. Is prescribed burning used to promote pastureland at the expense of shrub or forested lands? Is it used to prevent woody colonization of grasslands? Please describe traditional fire practices (e.g., number of people involved, suitable weather conditions, perimeter of the control line). How has the abandonment of traditional burning influenced on landscape change?
5. Does the proximity to Picos de Europa National Park affect livestock farming in this area (e.g., disturb animals grazing in upland summer pastures, food brand-new foundation, influence on species ecology of predators like wolves)? Do you think it brings visitors to this area? What is your opinion about the impact of visitors on the forest (e.g., have an adverse impact due to the presence of litter or a positive one by promoting the cleaning of paths)? Are visitors interested in buying agri-food products?
6. What is your opinion about the presence of livestock feeding on the forests? Would you say that livestock grazing is beneficial for preserving forest habitats? Why?
7. Finally, is there anything else you would like to add to help me to understand better how livestock farming in forest commons could be promoted?

*Specific questions to loggers:*

## **TIMBER HARVESTING**

1. Which tree species do you harvest? When does the harvesting start and finish? What method of harvesting do you use? Who is involved? How are they involved? Please describe. What is the destination of the harvested timber (e.g., sawmill, local household construction)? Do you harvest from private fields or common areas? Do you pay a fee to harvest in forest commons? Do you choose the woodlot? What criteria is applied? How do you purchase a woodlot? Please describe.
2. Does timber harvesting technique applied in the past differ from nowadays? If so, how has it change (species, tools, means of transportation)? Please provide as much detail as possible of changes in any aspects of the practice. Are there hindrances at the time of harvesting (by whom, where, when, reason)? Can you indicate a practice involving the harvest of timber in the past that is banned nowadays? Is this area affected by illegal felling because of the banning? Under what conditions do you consider that illegal timber harvesting could be prevented (e.g., through more licences, control)?
3. Do you think timber harvesting has positively influenced on forest conservation? Does it impact on the landscape (e.g., in a decline/promotion of species diversity)? Is any silvicultural treatment (e.g., weeding, pruning, thinning) implemented in the stands? Who implements it? What is your opinion about the accessibility to the forests (e.g., good/poor trail layout)? Who participates in the maintenance of the unpaved paths? How are they maintained (e.g., mechanical clearing, livestock, burning)?
4. How does the proximity to Picos de Europa National Park affect timber harvesting in this area (e.g., considerations to reduce the visual impact of the cuttings, limitations to non-native species use)? Do you think it brings visitors to this area? What is your opinion about the impact of visitors on the forest (e.g., have an adverse impact due to the presence of litter or a positive one by promoting the cleaning of paths)? Are visitors interested in buying timber from any particular species?
5. Overall, would you say that timber harvesting is beneficial for preserving forest habitats? Why?
6. Finally, is there anything else you would like to add to help me to understand better how timber harvesting in forest commons could be promoted?

*Specific questions to NTFP harvesters:*

### **NON-TIMBER FOREST PRODUCTS**

1. Tell me about the collection of plants for firewood, cork, fruits, or other non-timber forest products. Which species do you collect? When does the collection start and finish? How often do you gather these products? What method of harvesting do you use? Who is involved? How are they involved?
2. How much do you collect? What is the destination of the product collected (e.g., household use for cooking or heating, livestock fodder, human consumption, commercial uses)? Do you harvest from forest commons, common pastures, or private fields? Do you need a licence or pay a fee to collect these products (by/to whom, when)? Please describe.
3. Is there any regulation to the amount of product collected? For instance, in the gathering of firewood, what criteria (and by whom) is applied to choose the woody biomass to remove (e.g., dead wood, branches, twigs)? Does the technique applied in the past differ from nowadays? If so, how has it change (species, tools, limits to quantity gathered, location)? Please provide as much detail as possible of changes in any aspects of the practice.
4. Are there hindrances at the time of collecting NTFP (by whom, where, when, reason)? Can you indicate a practice involving NTFP collection in the past that is banned or no longer carry out nowadays? Is this area affected by illegal harvest of NTFP because of the banning? Under what conditions do you consider that illegal NTFP harvesting could be prevented (e.g., regulation)?
5. When going into the woods for collecting products, what is your opinion about the accessibility to these areas (e.g., easily to move around, well-maintained trail layout)? Who participates in the maintenance of the unpaved roads? Which method is applied to maintain those paths (e.g., mechanical clearing, livestock, burning)? Is any silvicultural treatment (e.g., weeding, pruning, thinning) implemented in the stands? Who implements it? Is any afforestation done afterwards to prevent the depletion of the resource?
6. How does the proximity to Picos de Europa National Park affect NTFP collection in this area (e.g., visual impact of biomass removal, gathering of products by visitors, promotion of certain plant species). What is your opinion about the impact of visitors on the forest (e.g., have an adverse impact due to the presence of litter or a positive one by promoting the cleaning of paths)? Are visitors interested in collecting or buying NTFP?
7. Overall, would you say that NTFP collection is beneficial for preserving forest habitats? Why?
8. Finally, is there anything else you would like to add to help me to understand better how NTFP collection in forest commons could be promoted?

*Specific questions to hunters:*

## HUNTING

1. What game species do you hunt? What method of hunting do you use? When does hunting season start and finish? Please describe further. What is the reason for hunting (e.g., recreational, food supply, wildlife population regulation)?
2. Who can hunt? Is it necessary to request a hunting license (by/to whom, when)? Where do you hunt (i.e., in private hunting reserves or forest commons)? Do you pay a fee to hunt in forest commons?
3. Does hunting system carried out in the past differ from nowadays? If so, how has it change (game species, hunting methods, habitat)? Please provide as much detail as possible of changes in any aspects of the practice. Is there any new regulation of the hunting practice (by whom, where, when, reason)? Is poaching frequent in the area? Under what conditions do you consider that poaching could be prevented (e.g., giving more hunting licences, control)?
4. When moving to the assigned location to stand hunting of wild boar or moving around the forest, what is your opinion about the accessibility to the forested areas (e.g., easily to move around, a well-maintained walking trail layout that progressively improves)? Who participates in the maintenance of the unpaved roads? Which method is applied to maintain those paths (e.g., mechanical clearing, livestock, burning)? What is your opinion about the impact of stand hunting (*batida*) in plant communities (e.g., brush cutting of unpaved paths and immediate surrounding areas of hunting locations)?
5. Does the proximity to Picos de Europa National Park affect hunting in this area (e.g., wildlife population number, bag limits on game, presence of predators like wolves)? What is your opinion about the impact of visitors on the forest (e.g., have an adverse impact due to the presence of litter or a positive one by promoting the cleaning of paths)? Are visitors interested in buying products obtained from hunting?
6. Overall, would you say that hunting is beneficial for preserving forest habitats? Why?
7. Finally, is there anything else you would like to add to help me to understand better how hunting in forest commons could be promoted?