Medicinal and Aromatic Plants in the Vjosa Watershed, Albania

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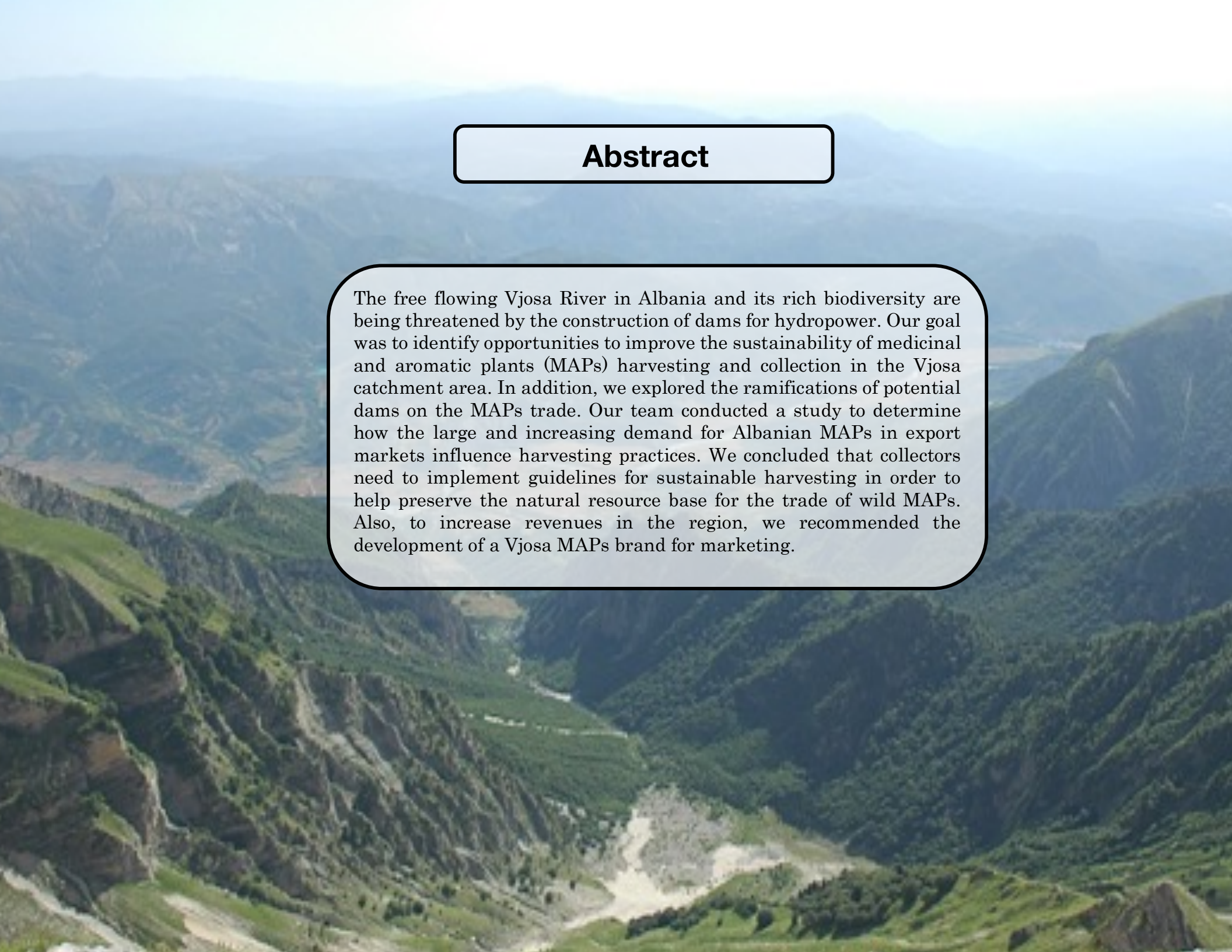

Abstract

The free flowing Vjosa River in Albania and its rich biodiversity are being threatened by the construction of dams for hydropower. Our goal was to identify opportunities to improve the sustainability of medicinal and aromatic plants (MAPs) harvesting and collection in the Vjosa catchment area. In addition, we explored the ramifications of potential dams on the MAPs trade. Our team conducted a study to determine how the large and increasing demand for Albanian MAPs in export markets influence harvesting practices. We concluded that collectors need to implement guidelines for sustainable harvesting in order to help preserve the natural resource base for the trade of wild MAPs. Also, to increase revenues in the region, we recommended the development of a Vjosa MAPs brand for marketing.

Acknowledgements

We would like to thank our sponsors at EcoAlbania and the University of Tirana for their superb guidance during the course of our project. To begin, we could not have done this project without Professor Aleko Miho from the University of Tirana, who was there to answer our questions every step of the way. Additionally, Professor Miho has dedicated countless hours of his busy schedule to contribute to the success of our project, gathering needed information from various Albanian sources that we otherwise would not have been able to access. He, along with Professor Lulzim Shuka and Dr. Jani Marka have shown us incredible hospitality and have made us feel very welcome during our stay in Tirana. We are incredibly grateful and lucky to work with such highly motivated and generous people. Furthermore, the professors introduced us to Gerta Bidoshi, who is a Masters student working in the Department of Biology. We would like to extend our gratitude to her for working diligently on parts of the project with us, all while taking rigorous courses at the University of Tirana.

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Through Olsi and Besjana, we met Eltoni Pashollari, Alexander Totti and Gëzim Shehu, who acted as translators and guides for us during our field studies. Without their hospitality, transportation, and patient translations, a large portion of this project would not have been possible.

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Finally, we would like to thank our project advisors, Professor Robert Hersh and Professor Peter Christopher, for their unwavering support throughout the duration of our project. With their guidance and timely feedback, we were able to realize our project's true potential. They were always willing to help us with the difficulties of our project, and we are incredibly grateful for their support.

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Executive Summary

The Vjosa Watershed

The free flowing Vjosa River in Albania and its biodiversity are threatened by the construction of dams for hydropower (Figure 1). The Vjosa River is one of the largest rivers in Southern Europe, extending 272 kilometers from the Pindos Mountains in Greece to the Adriatic Sea in Vlora (Figure 2) (Save the Blue Heart of Europe, 2016).

The districts in the Vjosa catchment area are incredibly biodiverse, with over 700 taxa of higher plants found in only Gjirokastra (Malo 2010). Experts estimate over 1500 species of vascular plants are present in the region, however Dr. Lulëzim Shuka says it is difficult to know the true number, as new species are still being discovered (personal communication, Nov. 30, 2016). However, this rare natural state is threatened by 33 small hydropower plants (HPPs) either planned or already under construction along the Vjosa and its tributaries. Environmentalists, including our sponsor, EcoAlbania, are working to encourage the government to take into account more fully, when it considers hydropower on the Vjosa, the value of the region's biodiversity and opportunities for rural development based on tourism and sustainable resource use, including the trade of medicinal and aromatic plants, which would be affected by dams.

Figure 1: Vjosa River (© L. Shuka)

Figure 2: The Vjosa/Aoos Basin (Balkinrivers.net)

Medicinal and Aromatic Plants (MAPs)

Over the past decade there has been a clear increase in the demand for medicinal and aromatic plants (MAPs). These MAPs are defined as "botanical raw materials," from which herbal and medicinal drugs, culinary spices, and cosmetic products are created (Export Impact, 2016). There is also a section within the MAPs trade that is focused on essential oils, which are processed from the MAPs and then sold at a higher value. These products are highly sought by medicinal practitioners and common people alike, therefore increasing the demand for MAPs each year (Export Impact, 2016).

MAPs trade in Albania

The supply chain is composed of local harvesters, district collectors and production companies. Local harvesters are responsible for either collecting plants from the wild or cultivating them. Independent collectors at the district level buy MAPs from harvesters and cultivators, and act as middlemen between the harvesters and the production companies. Some district level collectors have facilities for storing and drying plants while others combine MAPs from various harvesters in different districts and then sell the plants to three different markets: packagers, medium processors and large processors. Medium and large processor receive MAPs directly from cultivators (Figure 3). Medium-sized processors are mainly responsible for direct sales to foreign customers, (USAID 2009) while large processors have a more organized operation, working with large international company such as McCormick's (Paul 2014); (USAID 2009).

Estimates suggest that the MAPs trade provides rural Albanians with a significant source of revenue, with figures ranging from as 35% to 90% of household annual earnings. (Furth 2015, Gjedra spokeswoman said 90% in some cases). Medicinal and aromatic plants products are involved in the everyday life of rural Albanian families to supplement their income, and the majority are collected from wild-grown plants within the watershed. In Albania, home-use of

MAPs for traditional medicine is a common occurrence (P. Kumi, personal communication, Sept. 15, 2016). In rural regions especially, household members rely on traditional herbal medicines for most minor illnesses. For example, families often treat coughs with coltsfoot *(Tussilago farfara)* or use Bilberry *(Vaccinium myrtillus)* for intestinal issues, and they typically cultivate frequently used species in their home gardens. (Pieroni, 2010).

In addition to providing income to many families, they help preserve cultural heritage through their use in folk medicinal practice, and on a national scale, stimulate the growth of Albania's international exports (Imami et al 2015). Figure 4 provides illustrations for some of plants found in the Vjosa valley.

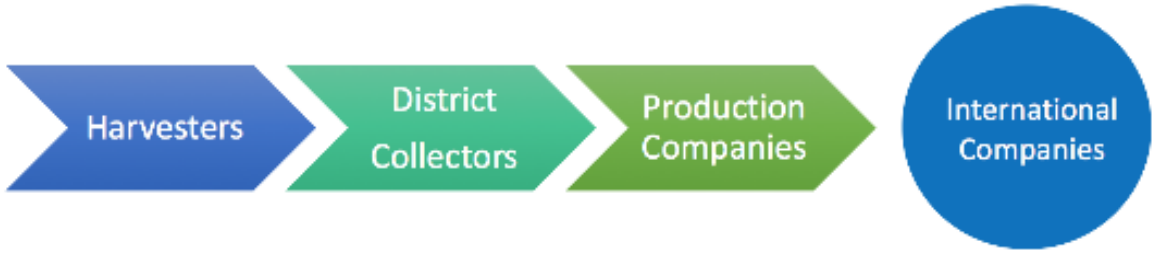

Figure 3: Simplified Flowchart of the Supply Chain (USAID 2009)

Figure 4: Salvia Officinalis (right) and Thymis Longicaulus (left) (L. Shuka)

Objectives

Our sponsor, EcoAlbania, is a non-governmental environmental group, created by professors from the University of Tirana and the Albanian "Save the Blue Heart of Europe" team. EcoAlbania wants to know more about the plants in this ecosystem and to what extent they might be threatened by proposed dam construction.

The goal of our project was to identify opportunities to improve the sustainability of medicinal and aromatic plants harvesting and collection in the Vjosa catchment area and to explore the ramifications of the potential dam construction on the MAPs trade. Our sponsor does not have up-to-date information on the economics or sustainability of the MAPs trade, so they sought our help in exploring sustainable options for MAPs in the region and will use findings to influence the public opinion of the MAPs trade in the Vjosa, since this industry demonstrates the value of the region's biodiversity. To achieve this goal, we compiled the following objectives:

1. Create a comprehensive inventory of medicinal and aromatic plant species in the Vjosa watershed and evaluate the findings.
2. Create an interactive map of Hydropower Plants within the Vjosa watershed.
3. Delineate the practices of people involved with MAPs trade in the Vjosa watershed and identify measures to make the MAPs trade more sustainable.
4. Develop a short documentary that discusses the interplay between the dams, MAPs and rural communities to be used as a persuasion tool by EcoAlbania.

Methods

We created a complete and in-depth inventory of the medicinal and aromatic plants found in the Vjosa Valley through the synthesis of information from a few Masters and PhD theses and several reference books. For each plant in the spreadsheet, we included its Latin name, Albanian name, English name, locations it can be found, the type of plant (i.e. angiosperm, gymnosperm) and its endangerment state, if applicable.

We also conducted several semi-structured interviews in Tirana and in Berat to gain more information about the MAP industry. By interviewing key stakeholders in the MAP supply chain, we were able to analyze the perspective of each level of the chain, and consider what could be done to improve the quality of MAPs through harvesting and post-harvesting practices. We conducted a field study in the southern Albanian towns of Permet, Tepelene and Kelcyre, which involved conducting the majority of these interviews with collectors and production companies. It also was useful in creating our documentary, since it offered a glance at the beauty of the Vjosa region.

After conducting interviews in both Tirana and the Vjosa basin, our team developed a short documentary to showcase the social impacts of the MAPs trade and the potential dam on rural communities. We did this by identifying the major aspects to include in the documentary by analyzing previous interviews and determining which clips and interviews supported those ideas. We used a GoPro to film the documentary and logged each clip by giving it a descriptive title with a

three letter code to represent the location.We then developed a storyboard, which outlines the times of each clip, the clip file being used and the associated section of the file, the music and any voice over that may play. After the creation of the storyboard, we edited the film using iMovie editing software and overlaid the scenes with music. The documentary will be used by our sponsor as a persuasion tool on social media to further their organization's goal to preserve the natural state of the Vjosa River.

Findings

Inventory of Medicinal and Aromatic Plants in the Vjosa Watershed

After the creation of the inventory of MAPs in the Vjosa watershed, we were able to analyze it to evaluate which plants were most commonly collected and which plants were most endangered. The information we found proves that the Vjosa is in incredibly biodiverse region in terms of plant species. Yet we discovered that approximately 12% of the plants that we included in our inventory were either endangered or threatened to some extent. This finding leads us to believe that the biodiversity in the Vjosa region could be in danger if these plant populations do not recover. In addition, from the interviews we conducted with collectors and production companies, most were not concerned about the state of the engenderment but were trading MAPs that were labeled as vulnerable on the red list. For example, Agathokli Proko, a collector, referred to mountain tea as protected and endangered but he mentioned that it was still commonly traded.

Practices of People Involved with the MAPs trade in the Vjosa Watershed and Identifying Measures to Improve Sustainability

As our background literature suggests, the fact that the collectors do not have contracts with production companies or harvesters runs counter to the organic certification process. In order to be declared organic, a product must be traceable back to its source (USAID 2009). If collectors were to have contracts with certified organic harvesters, they could then provide assurances to the production companies that the MAPs they deliver are organic. This focus on quality and organic certification could lead to a premium in the market and hence higher prices for both collectors and harvesters and potentially less damaging harvesting practices.

But often MAPs sent to production companies are commingled, that is a mix of organic and cultivated plants that fetch a lower price in export markets. In our interview with a collector from Kelcyre, he discussed how production companies tend to trust his product more so than some other collectors as he does not mix the wild harvested plant with the cultivated product (F. Mullaraj, personal communication, Nov. 15 2016). A third party company called AlbInspekt, which is financed by certification fees, has the resources to put inspectors in the field to certify that harvesting and processing practices meets organic standards (AlbInspekt, 2014). In doing so, the company enables MAPs production companies to trace the provenance of their products If the company knows which MAPs of theirs are wild-harvested, and they can prove it, they are more likely to obtain organic certification.

From the interview with Gjedra, a medium sized production company, much was learned about the types of products they produce, their markets, and even the investments they have made in their facility. Overall, Gjedra seemed to be positive that business would continue to grow, particularly in the area of organic products (L. Strumi, personal communication, Nov. 6, 2016). This is indicative that the market as a whole is shifting more towards higher quality products, as the customers are the ones showing interest and seeking out the organic products.

Due to the expressed interests of customers, Gjedra has been making an effort to invest in higher quality products. For example, Gjedra invested in a new processing line in 2014, boasting that it is the best in Albania for creating a "clean" product (L. Strumi, personal communication, Nov. 6, 2016). If Gjedra is experiencing this sort of demand and accommodating it, it is also likely that other companies in Albania that receive plants from the Vjosa watershed are also experiencing same demand from their consumers.

Develop a short documentary that discusses the interplay between the dams, MAPs and rural communities

Our first theme highlighted the aesthetic potential of river and showcases the potential the region has for tourism. When we initially arrived in the region, we were astounded by the beauty of the scenery and felt that it could play a crucial role in the ability of our documentary to be persuasive. Another aspect that we wanted to focus on was the significance of the river to the rural community members. To address the importance of the MAPs trade to the Vjosa region we captured footage of a field of cultivated sage, street markets in Permet and a collection facility in Permet to attempt to have the viewer visualize all of the steps of the MAPs supply chain. While showing those clips in the documentary, we determined that the best way to convey our message of the importance of the MAPs trade was by using text at key points to describe the trade, use statistics and facts to build our argument and ultimately make the claim that the MAPs trade is crucial to those in the region.

The final and most significant issue we focused on in our documentary related directly to our goal and our sponsor's overall purpose. While we did not have the opportunity to visit the dams directly, we did discuss the potential impact of the construction of the dams on the MAPs trade with the collectors we interviewed, who saw the potential impact of the dams not simply on the MAPs trade, but on the lives of the individuals in the regions themselves.

Conclusion and Recommendations

From our interviews with production companies who export MAPs to the EU and the USA to our discussions with collectors in the Vjosa region, the issue of how to make MAPs harvesting more sustainable was a major concern. It is a complex issue: harvesters often feel the need to harvest a higher quantity because of the growing demands of the market, collectors are not typically in a position to monitor harvesting practices, and production companies have a difficult time tracking their products back to the source to prove they are organic.

Starting with production companies, we recommend that they share their vision for higher quality products with the collectors that work with them, incentivizing them to want to provide the company with a higher quality and more sustainable product. We also suggest that collectors produce and distribute leaflets to the harvesters from whom they buy their plants, since they work more closely with them. This would ensure that the stock of high quality medicinal and aromatic plants would be less likely to dwindle due to poor harvesting practices.

In order to increase opportunities for production companies to sell to higher end international markets, we recommend that the Ministry of Agriculture, Rural Development and Water Resources, as well as the municipalities of the Vjosa region develop a brand and marketing strategy that focuses on product quality and its relation to the biodiversity of the Vjosa region. Albanian MAPs have a global reputation for their quality, but could further establish this with a concerted effort between the national and local governments and with the production companies in the MAPs trade. Albanian MAP companies also could implement “quality based pricing” once they attain organic status, to overall increase the prominence and revenue of the MAPs trade.

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Chapter 1: Introduction

The Vjosa River, one of the largest in Albania, is undammed along its main course and is therefore considered the last wild river in Europe (Time Magazine, 2016). However, this rare natural state is threatened by more than 33 hydropower plants, planned or already under construction, along the Vjosa and its tributaries. Environmentalists, including our sponsor, EcoAlbania, are working to encourage the government to halt this construction and save this uniquely natural area, as development of hydropower plants can have profound and long-lasting negative environmental consequences, disrupting ecosystem integrity and causing loss of biodiversity.

The Vjosa region is incredibly biodiverse, resulting in a corresponding diversity of medicinal and aromatic plants (MAPs), which are significant to both local and national economies. In many rural regions, including those within the Vjosa watershed, households harvest and sell MAPs to earn money, with such sales contributing up to 35% of rural family income (Furth, 2015). Given the significance of this industry, EcoAlbania wants the government to consider the potential of the region, in terms of medicinal and aromatic plants and ecotourism. A growth in the sustainability of MAPs collection would increase the potential of this region, as it would increase the sustainability of the trade as a whole.

To achieve this goal, we began by creating a directory of MAPs in the Vjosa watershed using data from many different sources so that we could understand the contextual significance of the region's plants.

Next, we interviewed collectors and production companies to better comprehend their relationship with their products and practices for collecting their source material, as well as how they interact with other stakeholders. We recorded and analyzed these interviews, as well as interviews with our sponsors and experts on the region. We determined the best way to showcase our study was through a documentary, as it presents the material in a way that is also visually entertaining. Our sponsor wishes to influence public opinion about the MAPs trade in the Vjosa region, so a documentary will be most effective to reach larger audiences, in addition to fact sheets and our academic report.

Chapter 2: Background and Literature Review

2.1 The Vjosa River and its Catchment

The Vjosa River is one of the largest rivers in Southern Europe, extending 272 kilometers from the Pindos Mountains in Greece to the Adriatic Sea in Vlora (Figure 2.1) (Save the Blue Heart of Europe, 2016). It passes through several major regions in Southern Albania, including Permet, Tepelene and Gjirokastra, and has several tributaries associated with it.

The river can be divided into three sections based on the topography (Figure 2.2) of the region: the lower sector, which is comprised of wetlands and is at sea level (Figure 2.3); the middle sector, which is comprised of hills of varying altitudes (Figure 2.4) and the upper sector, which is composed of more mountainous and choppy terrain (Figure 2.5) (A. Miho, personal communication, Nov. 30, 2016). The lower sector is also frequently flooded, as shown in Figure 2.6 (A.Miho, personal communication, Nov. 30, 2016), (Sala & Qirjazi, 2016).

FIGURE 2.1: THE VJOSA/AOOS BASIN (HTTP://BALKANRIVERS.NET/EN/KEY-AREAS/VJOSA-RIVER)

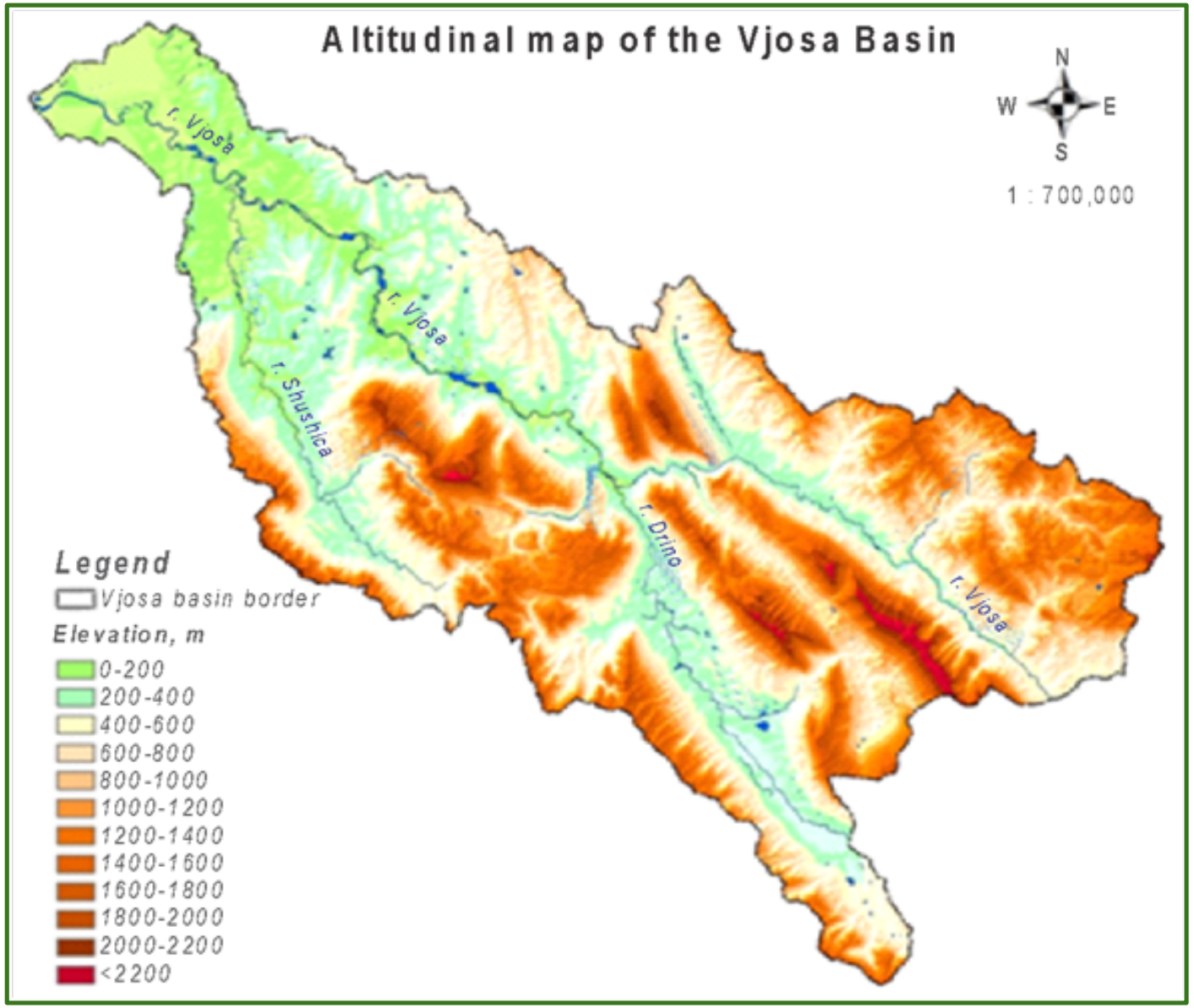

Figure 2.2: Altitudinal map of the Vjosa Basin (Sala & Qirjazi, 2016)

FIGURE 2.3: VJEW OF WETLANDS IN VJOSA DELTA (FIERI REGION) (LOWER SECTOR) (© A. MIHO)

Figure 2.4: View of Vjosa river in Tepelena (Middle sector) (A. Miho)

FIGURE 2.5: VJEW OF VJOSA RIVER IN THE UPPER SECTOR, ÇARSHOVA (LEFT) AND KELCYRA (RIGHT) (PERMETI) (© A. MIHO & L. SHUKA)

Figure 2.6: Flooding of Vjosa (Low sector and its delta) during 31 January to 5 February 2015 (Sala & Qirjazi, 2016)

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As of the last census, the total population of the region was 184,781 inhabitants (INSTAT, 2011). The Vjosa Valley has an average population density of 40.7 inhabitants per km^2, much less than the national average of 97 inhabitants per km^2 (INSTAT, 2011). A large majority of the population, approximately 70%, is concentrated in the lower sector of the river, which has more urbanized cities such as Vlora and Fieri (A. Miho, personal communication, Nov. 30, 2016). In the more mountainous upper sector of the river, the population density significantly decreases to about ten inhabitants/km^2 (A. Miho, personal communication, Nov. 30, 2016). The municipalities of the region are outlined in Figure 2.7.

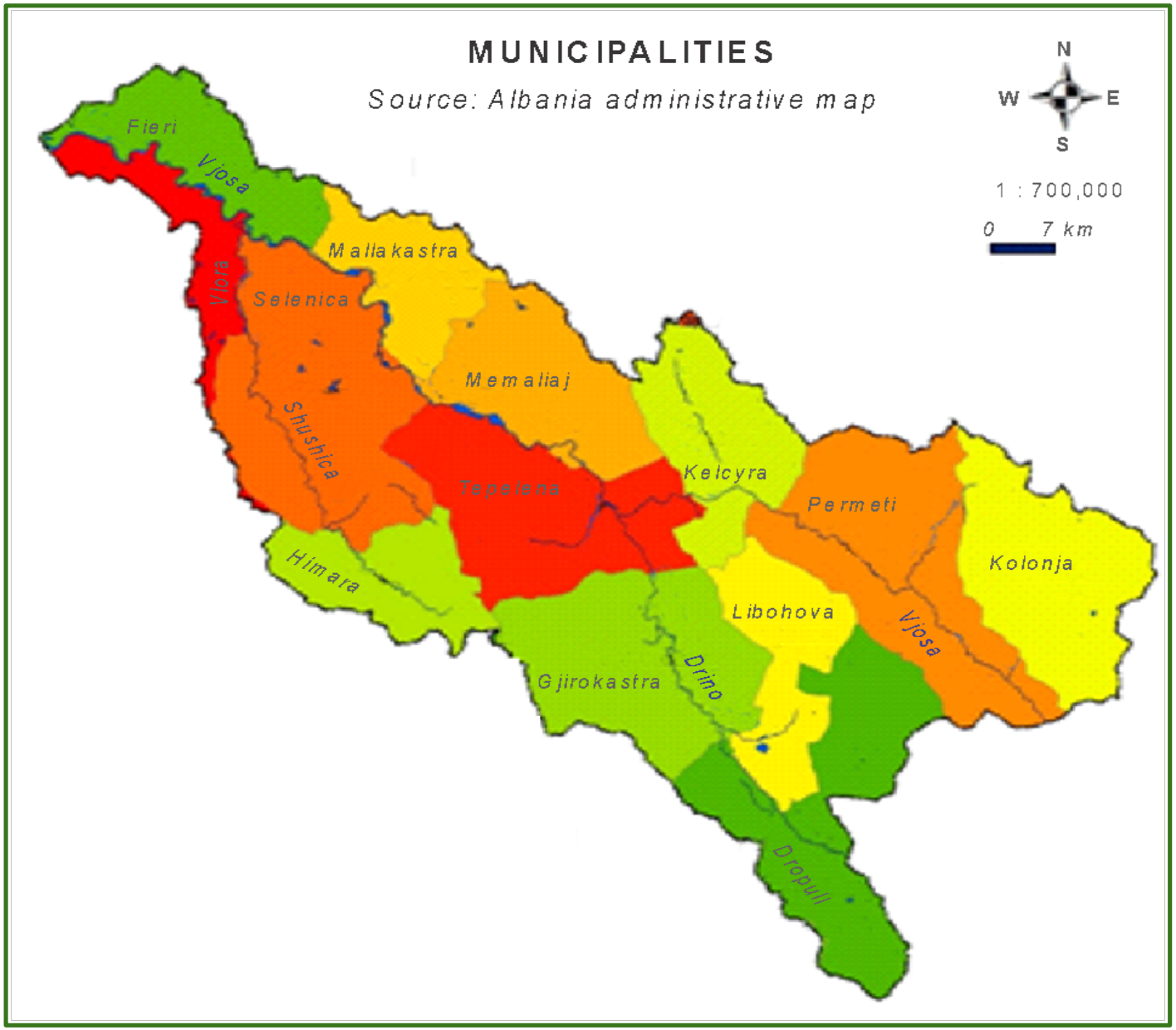

Figure 2.7: Vjosa main administrative units (Municipalities) (ELSA: ASTER DGEM WED 1 Arc second resolution; October 2014, in Sala & Qirjazi, 2016)

2.2 Biodiversity in the Vjosa Catchment

The Vjosa watershed offers a home to more than 570 species of vascular plants in coastal regions and over 700 taxa of vascular plants in the district of Gjirokastra (Miho *et al.,* 2013; Malo, 2010). Experts estimate over 1500 species of vascular plants are present in the region, however Dr. Lulëzim Shuka says it is difficult to know the true number, as new species are still being discovered (personal communication, Nov. 30, 2016). For example, S. Malo identifies in his PhD thesis twelve new taxa, forty species localized to one area and thirty rare and endangered species, such as *Viola acrocerauniensis* and *Stachys seratophylla* (2010), (A. Miho, personal communication, Nov. 30, 2016). In addition, Malo also identifies seven different EUNIS habitat priority types, which are areas that support multiple endangered species (2010), (A. Miho, personal communication, Nov. 30, 2016). The figures below show some of the plants found in this extremely biodiverse region. The figures 2.8 and 2.9 show some of the plants found in this region.

Figure 2.8: Eastern Strawberry Tree (Arbutus andrachne - Ericaceae), with ripen fruits in autumn (© L. Kashta) (Shumka et al., 2016)

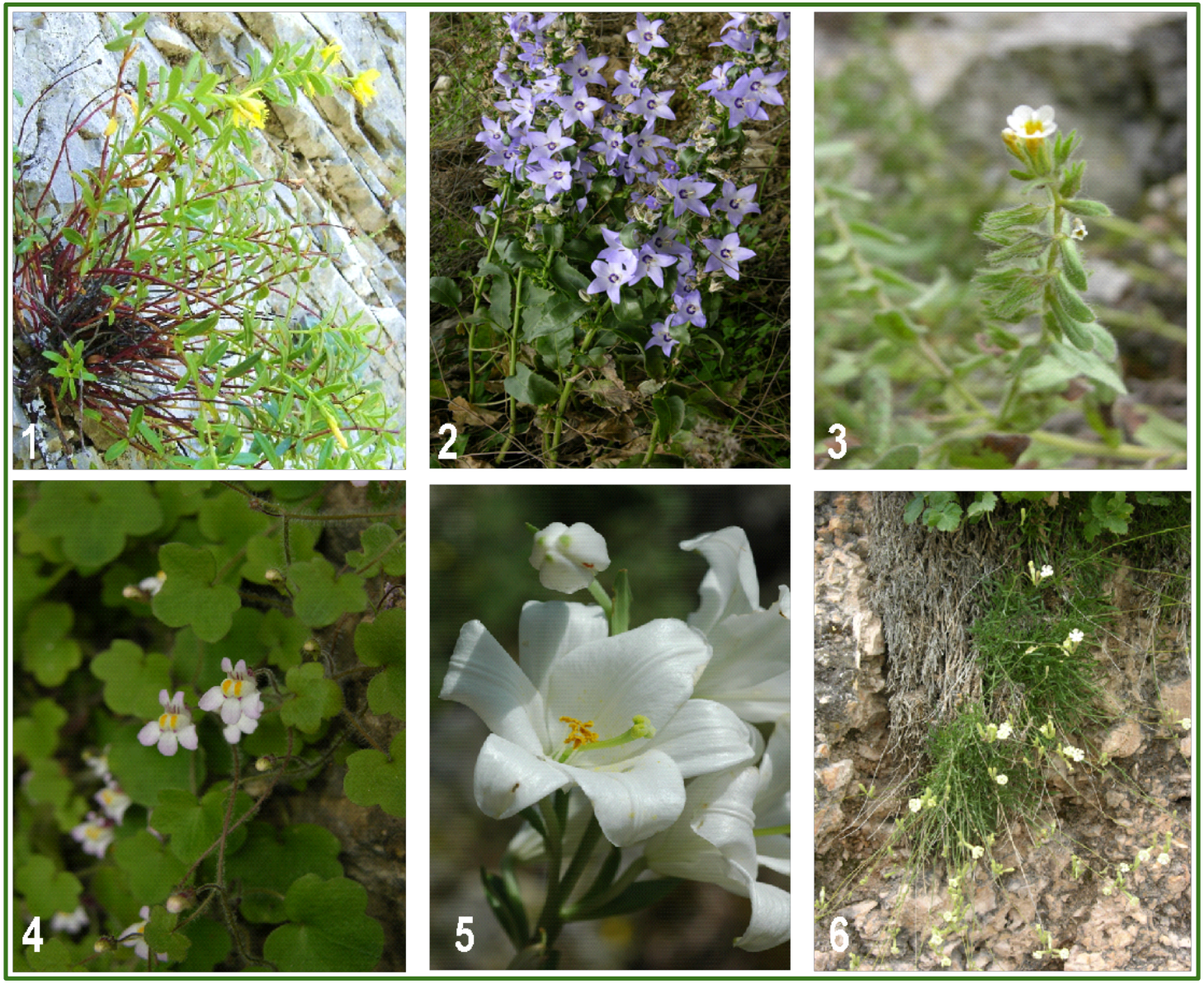

Figure 2.9: plants from the calcareous rocky slopes with chasmophytic vegetation: 1, Hypericum haplophylloides; 2, Campanula versicolor; 3, Alkanna corcyrensis; 4, Cymbalaria microcalyx subsp. microcalyx; 5, Lilium candidum; 6, Silene cephallenia. This habitat type occurs almost everywhere, along the river and its tributaries (© L. Shuka).

2.3 Medicinal and Aromatic Plants

Medicinal and aromatic plants (MAPs) are "botanical raw materials," which are the source of herbal medicines and pharmaceutical compounds (Export Import, 2016). Over the past decade, demand has been increasing not only for these medicines, but also for non-medicinal products such as culinary spices, and essential oils for cosmetic products (Export Impact, 2016). Some examples of these products are soaps and perfumes (Bovill, 1934). Since these products are commonly used, the demand for MAPs has increased each year (Export Impact, 2016).

This demand can be seen in importing countries (Figure 2.10), particularly in the US, which imports more than 70% of its sage from Albania (Shera, 2016). Much of this sage is sold to companies for the production of sausages (X. Hysenaj, personal communication, 2016).

In Albania, home-use of MAPs for traditional medicine is a common occurrence (P. Kumi, personal communication, Sept. 15, 2016). In rural regions especially, household members rely on traditional herbal medicines for most minor illnesses.

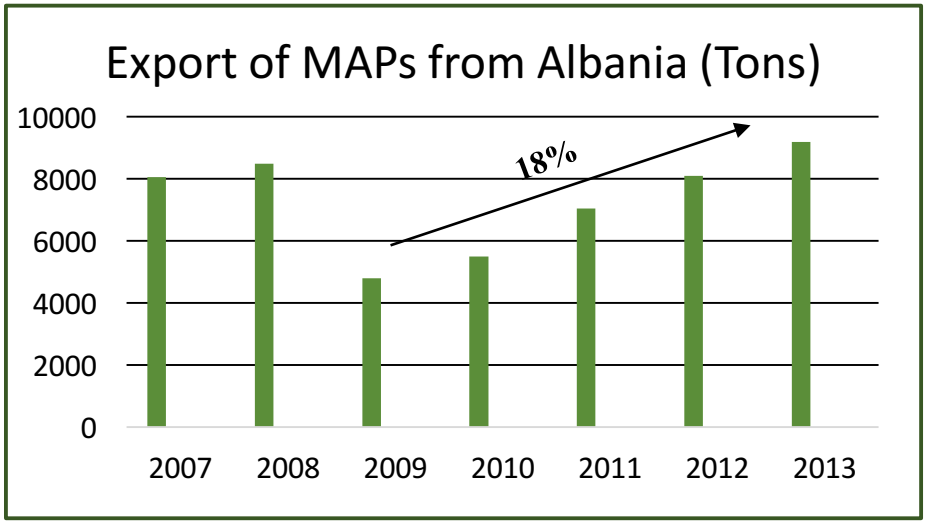

Figure 2.10: Export of MAPs from Albania (Paul, 2014)

For example, families often treat coughs with coltsfoot *(Tussilago farfara)* or use bilberry *(Vaccinium myrtillus)* for intestinal issues, and they cultivate frequently used species in their home gardens. (Pieroni, 2010).

2.4 Overview of the Economic Impact of MAPs in Albania

Economic Impact of MAPs in Albania

The Albanian MAPs trade plays a significant role in the international market, producing nearly 10% of Europe's medicinal plants by weight (ITC, 2015). The international market demands many different essential oils and MAPs, including sage, thyme, lavender, winter savory, juniper, and oregano (USAID, 2009). As seen below in Table 1, the top four importers of Albanian MAPs buy over 71% of the 28,675,000 USD in exports (ITC, 2015). Furthermore, recent investment in the Albanian MAPs industry by American companies suggests that both the market for Albanian MAPs and the role America plays in it is likely to expand over the

TABLE 1: MAP EXPORTS FROM ALBANIA TO MAJOR PURCHASING COUNTRIES (ITC)

Countries	Exported Value (USD thousand)	Exported Quantity (Tons)	Share in Albania's Exports (%)
Germany	8,018	3,302	28
USA	7,640	2,537	26.6
Turkey	3,206	1,537	11.2
France	1,606	752	5.6

next decade (Shera, 2016). On a smaller scale, it is estimated that between 20% and 29% of rural Albanian households are involved in the trade or collection of MAPs (USAID, 2009); (Imami *et al.,* 2015). This income is very important to many families, and can constitute almost 35% of a household's income (Agroweb, 2016); (Furth, 2015).

Structural Overview of the MAPs Industry

The MAPs supply chain begins with the local harvesters responsible for collecting cultivated or wild plants. Independent district level collectors buy MAPs from harvesters, and sell them on to processors and packagers (Figure 2.11). Some district level collectors have facilities to dry and process MAPs before selling them to larger processors. District level collectors without facilities usually source plants from several different districts, exploiting long-standing relationships with harvesters and cultivators (Imami *et al.,* 2015). Most district level collectors do not have contracts, because most provide product to production companies only when there is a demand for it. On average, district regional collectors receive a capacity of 20-100 tons of MAPs annually (Imami *et al.,* 2015). Although the majority of MAPs pass through the hands of collectors, due to the increased demand for MAPs in recent years, some processing companies are increasingly traveling to remote villages to buy MAPs directly from harvesters (USAID, 2009).

The collectors sell to three different markets: packagers, medium processors and large processors (Figure 2.11). There are only two domestic packagers of MAPs in Albania, and both sell primarily to drug stores and supermarkets (Imami *et al.,* 2015). Processing technologies vary among all sizes of exporters, with larger companies not necessarily having better equipment. The main difference is export volume, with medium companies exporting between 1000 and 1200 tons per year to small foreign customers, while large companies exporting up to 2300 tons a year and have the leverage and organization to deal with major international companies such as McCormick's (Paul, 2014); (Imami *et al.,* 2015).

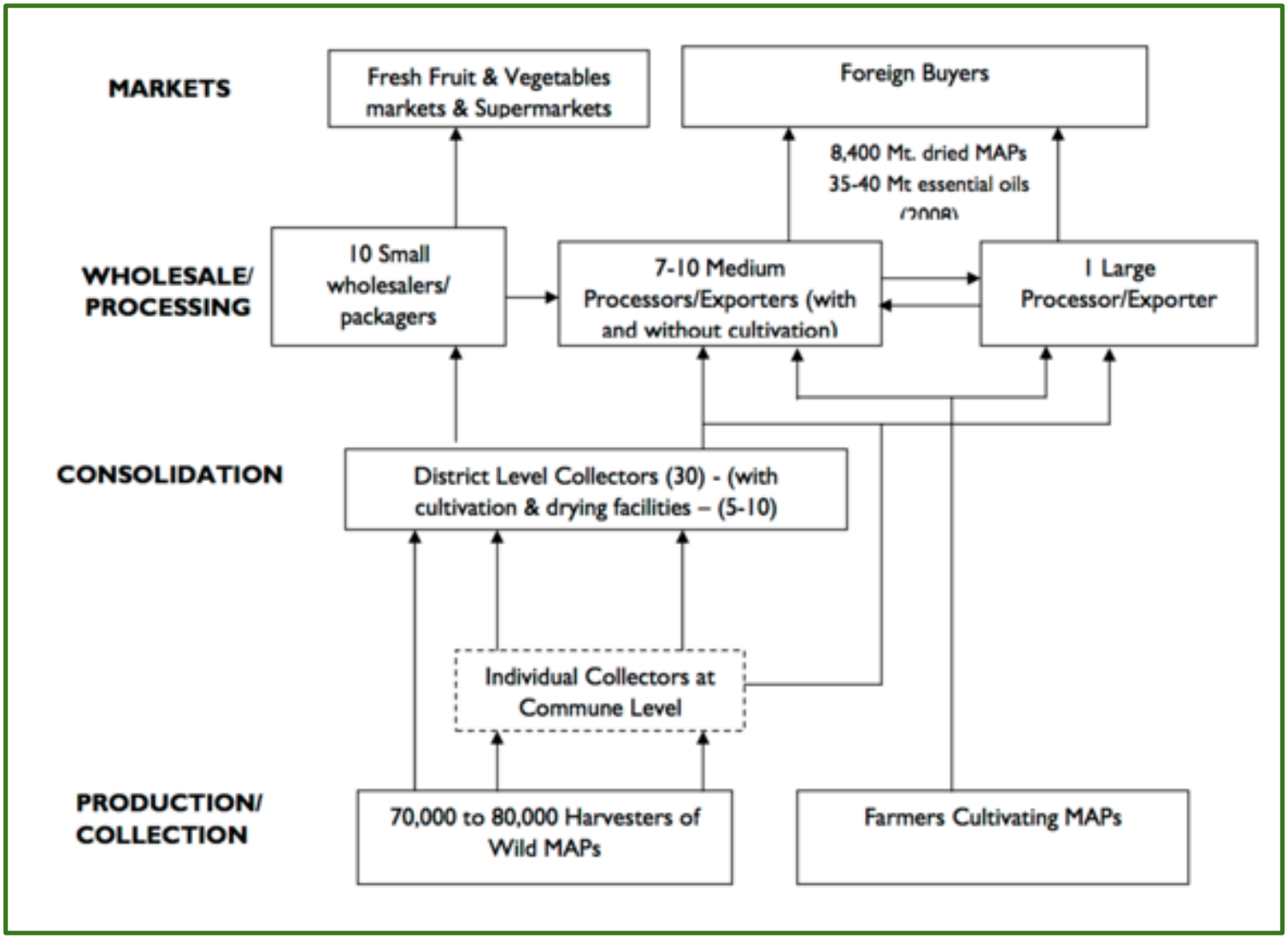

Figure 2.11: Flowchart of the Supply Chain (USAID 2009)

2.5 MAPs Trade and Sustainability in the Vjosa Valley

Product Quality

Some common harvesting practices can increase harvester revenue, but result in a lower quality product. For example, harvesting sage before it is ripe not only damages the growth of the plant, but also creates an inferior product (USAID, 2009). Other improper harvesting methods such as uprooting plants or cutting off entire stalks when only leaves are needed harm the plant's ability to regenerate and can lead to unwanted components in the final plant product (USAID, 2009); (Imami *et al.,* 2015). Common factors that lead to poor quality include improper handling and processing practices, especially on the supply end, where plants are often sun dried on top of plastic sheets or rocks, leading to a large loss of volatile compounds (USAID, 2009).

These improper practices contrast with guidelines from both the World Health Organization and the European Herb Growers Association which recommend that medicinal plants be collected during the appropriate season so that the source material is as strong as possible, and that portions of the plant not used in the final product, such as stalks or roots, not be harvested (2003); (2010). It is also recommended that the harvesters be trained in the proper post-harvesting procedures, such as keeping the plant material out of direct sunlight unless best practices for that plant call for it (World Health Organization, 2003).

This recommendation is followed by several processing companies, who provide training to harvesters to ensure that collected plants are of good quality (L. Strumi, personal communication, Nov. 08, 2016). For example, Gjedra SH.P.K., a medium production company in Berat, provides harvesters with a pamphlet of guidelines on proper harvesting and preprocessing techniques, as well as conducting training in person when needed. These guidelines ensure a high quality organic product is produced. Many production companies have their organic product certified. Albinspekt is the only Albanian organic certification body, and conducts random inspections and analysis to ensure that its clients products meet accepted standards (Albinspekt, 2011). Having this organic certification can attract new business and lead to increased demand for Albanian MAPs (L. Strumi, personal communication, Nov. 08, 2016)

Unsustainable Harvesting

As pressure to meet international demand for MAPs grows, concerns have emerged about the long term sustainability of current harvesting methods. This pressure has led to a focus on quantity, which has affected the biodiversity and health of plant populations (USAID, 2009). The Ministry of the Environment in Albania has listed several economically important plant species such as sage *(Salvia officinalis)* and winter savory *(Satureja montana)* as threatened, based on their current level of exploitation (Ministria e Mjedisit, 2013). USAID says that these "problems of sustainability in wild MAPs harvesting are causing a reduction of supply" (2009). One of the main threats to sustainability is improper harvesting, which not only impacts the ability of the plants to regrow for future harvesting, but can also lead to a lower quality product (Imami *et al.,* 2015).

Much improper harvesting is driven by the proliferation of unlicensed collectors, who operate outside the oversight of the National Licensing Center and the Ministry of Environment, Forestry, and Water administration (USAID, 2009). Both the State Inspectorate of Environment and Forests as well as each Regional Directorate, are responsible for protecting natural medicinal plants (Law No. 10120, 2009). They are charged with adopting and enforcing rules regarding how and when it is acceptable to collect medicinal plants. For example, collecting plants requires a contract with the Department of Public Health or a local government; it is forbidden to collect endangered plants or to collect plants in a manner that threatens the existence of the species (Law No. 10120, 2009). However, the Regional Environmental Center concluded in their assessment that this MAP legislation has not been effectively implemented and enforced, leading to a loss in plant distribution (2015).

Due to this threat from over harvesting, developing and maintaining more sustainable harvesting practices is becoming increasingly important (Schippman *et al.*, 2006). One way of producing MAPs more sustainably is through cultivation, though this will sometimes result in an end product of lower quality (USAID, 2009). For example, a majority of cultivated sage in Albania is propagated from a strain that produces more biomass, but has a lower quality and oil content (X. Hysenaj, personal communication, Nov. 4, 2016). Due to this lower quality and cultural preference, some practitioners of traditional medicine will only use wild-collected MAPs (Schippmann et al 2006). As wild plants can be harvested by anyone, even those that do not own land, the majority of MAPs come from the wild. AlbKalustyan and its associates are working to decrease this dependence on wild plants and grow the potential of commercially cultivated MAPs by breeding an improved cultivar for commercial growth (X. Hysenaj, personal communication, Nov. 4, 2016).

2.6 Hydropower Plant Development in the Vjosa Watershed

The MAPs trade along the Vjosa river may have to adapt in the near future, due to the impending construction of dams in the region. There are currently plans to construct a 33 hydropower plants along the Vjosa river and its tributaries (A. Miho, personal communication, Nov. 30, 2016). Professor Miho from the University of Tirana expressed concern about the impact these dams would have on the Vjosa River with the construction of these dams:

> "The two dams in Pocemi and Kalivaci dams will destroy one of the ecologically most valuable river stretches, characterized by gravel islands and alluvial forests. They will destroy the free flowing character of Vjosa river, one of the most striking feature of the river. Its stable and continuous freshwater ecosystem, which is the basis of its biodiversity, will be lost forever." (A. Miho, personal communication, Nov. 30, 2016).

The free-flowing, natural state of the Vjosa river could be important to the MAPs trade since the traded plants in the region could be advertised as having come from a place untouched

by industry. Maintaining the biodiversity in the region is also important, as the reason why the MAPs trade is so successful in the Vjosa watershed is because of the unique diversity of the region. Figures 2.12 and 2.13 show some locations of planned dams and dam construction sites.

2.7 Role of EcoAlbania

Our sponsor, EcoAlbania, is a non-governmental environmental group, created by professors from the University of Tirana and the Albanian "Save the Blue Heart of Europe" team. It is dedicated to protecting natural ecosystems and increasing public awareness of environmental issues. Its interest in this project is connected to the proposed hydropower projects in the Vjosa region and how dams could significantly impact the biodiversity of the Vjosa River watershed, including MAPs (Neslen, 2015). This region is especially important since the river is described as a scientific "blank page" and offers a rare glance at an ecosystem relatively untouched by industry (EcoAlbania, 2015).

EcoAlbania wants to know more about the plants in this ecosystem and to what extent they might be threatened by proposed construction. Part of this interest stems from how these plants are important to communities, both socially and economically. By collecting information about these plants and how local communities use them in diverse settings, EcoAlbania hopes to to build awareness of the need to protect both biodiversity and long standing rural traditions around MAPs. In the following chapter, we will discuss how we designed our study to aid our sponsors.

Figure 2.12:HPP Pressure in Vjosa Basin: Abandoned Works in Kalivaci, Vjosa River (MJEDISISOT.info/index.php/component/tags/tag/236-lumi-vjosa)

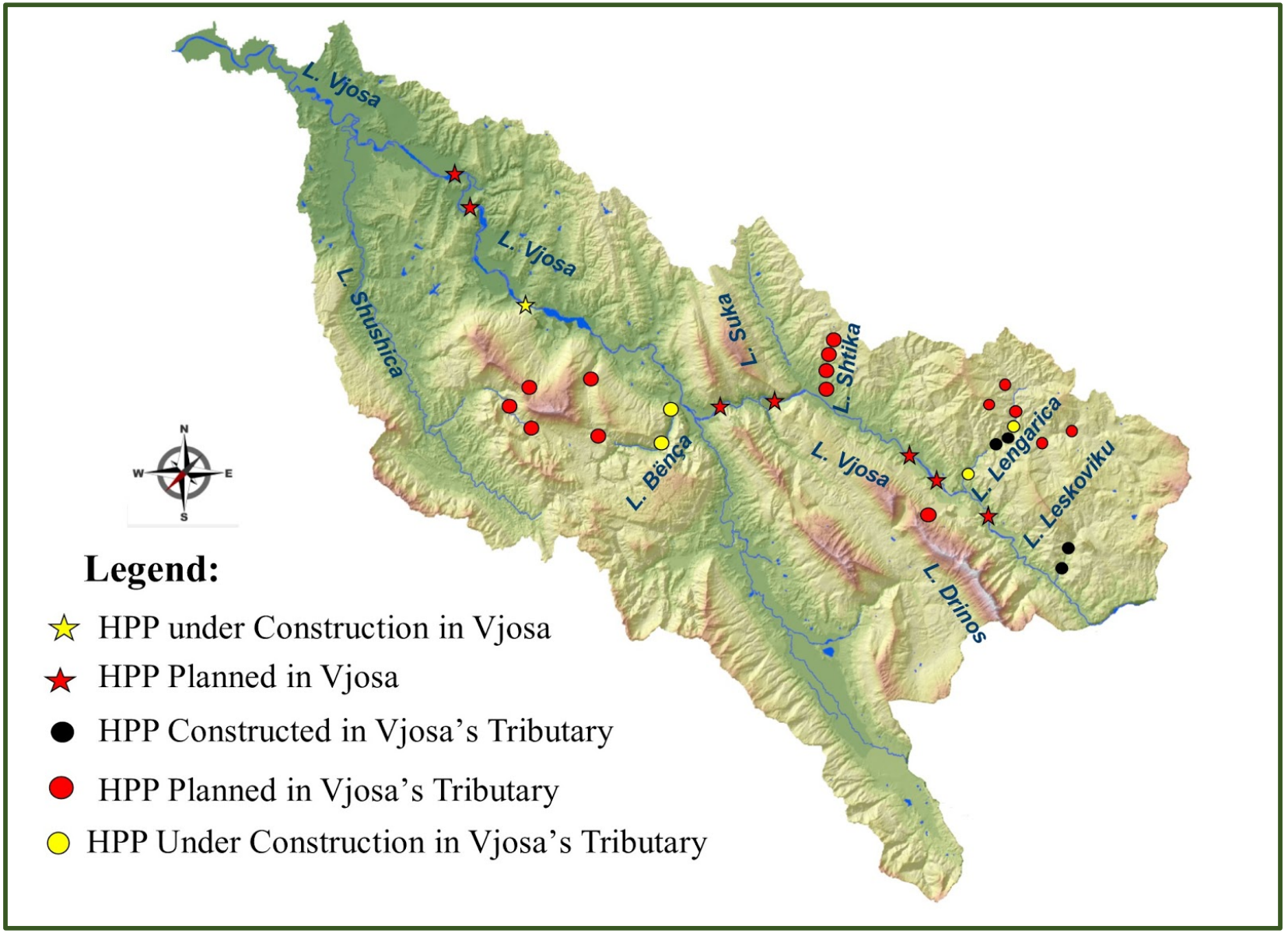

Figure 2.13: The Planned HPPs on the Vjosa River (Schwarz, 2012; EURONATURE & RIVERWATCH 2013)

Chapter 3: Methodology

Our goal was to identify opportunities to improve the sustainability of medicinal and aromatic plants harvesting and collection in the Vjosa catchment area and to explore the ramifications of the potential dam construction on the MAPs trade. Our sponsor does not have up-to-date information on the economics or sustainability of the MAPs trade, so they sought our help in exploring sustainable options for MAPs in the region. They can use our findings to influence the public opinion of the MAPs trade in the Vjosa, since this industry demonstrates the value of the region's biodiversity. To achieve this goal, we identified the following objectives:

1. Create a comprehensive inventory of medicinal and aromatic plant species in the Vjosa watershed.
2. Create an interactive map of Hydropower Plants within the Vjosa watershed.
3. Delineate the practices of people involved with the MAPs trade in the Vjosa watershed and identify measures to make the MAPs trade more sustainable.
4. Develop a short documentary that discusses the interplay between the dams, MAPs and rural communities to be used as a persuasion tool by EcoAlbania.

3.1 Creating a Comprehensive Inventory of Medicinal and Aromatic Plant Species in the Vjosa Watershed

Creating an Inventory of MAPs

The first step in identifying which medicinal and aromatic plants grow in the Vjosa watershed was to find and synthesize information from books, Masters and Ph.D theses, as well as pamphlets from production companies and collectors that can be found in Table 2..

Based on these sources, we created a spreadsheet of the Latin, Albanian and English name of each species and classifying them by type. The local conservation status according to the 2013 Red List of Albanian flora was included, and where possible, the locations where each species grows was also included. Professor Miho aided us by going through the Albanian language texts *Flora Eskursioniste e Shqipërisë* by Demiri M. (1983) and Flora e Shqipërisë; Botim i Akademisë së Shkencave to ascertain where the plants grow.

Identifying the Most Commonly Harvested and Traded MAPs

We chose to identify the most commonly harvested and traded MAPs because it was important to understand the key species in the region when creating our documentary and analyzing interviews. We began by looking through our interview transcripts to determine which plants were the most important for each production company and collector. Some plants were discussed at length during our interviews, and some of our interviewees even offered us economic data to assert that these plants were crucial for the success of their business.

TABLE 2: SOURCES USED FOR INVENTORY

Sources Referenced		
Albanian Name	**English Name**	**Author and Year Published**
Bimet Mjekesore ne Familje	Medicinal Plants in the Family	Kokalari et al., 1980
Si kurohen me bimë sëmundjet	Treating diseases with plants	Dankshi, 2012
Studim i diversitetit bimor ne rrethin e gjirokastres.	Study of plant diversity in the district of Gjirokaster	Malo S, 2010
Vlerësimi ekonomik dhe ekologjik i bimëve mjekësore dhe aromatike të shqipërisë në funksion të zhvillimit të ekonomisë rurale.	Economic and ecological evaluation of medicinal and aromatic plants of Albania for the development of rural economy	Pazari, 2014
Zona e mbrojtur Kardhiq-Rrëzomë (Probleme dhe mundësi zgjidhje).	Kardhiq-Rrëzomë Protected area, problems and solution opportunities	Shuka L, Draçi B, 2004
Bimët aromatike të Qarkut të Gjirokastrës	Aromatic plants in the district of Gjirokaster	Çela M, 2012
Studim për inventarizimin e bimëve mjekësore, etero-vajore dhe tanifere në RPSSH (dorëshkrim).	Inventory study of medicinal plants, etero-oil and tannin in RPSSH (manuscript).	IKPK, Stacioni i Pyjeve dhe Kulturave Etero-Vjaore, Tiranë, 1988
Flora Eskursioniste e Shqipërisë.	Excursionist Flora of Albania	Demiri M., 1983

3.2 Creating an Interactive Map of Hydropower Plants within the Vjosa Watershed

While a map with this information already existed, EcoAlbania wanted to be able to highlight different aspects of this data. Therefore, we created an interactive map of existing and proposed hydropower plants in the Vjosa watershed so that EcoAlbania could publish it on their website and illustrate this threat to a larger audience.

We were provided a spreadsheet containing the names of the hydropower plants, their construction status and their latitude and longitude. We decided to use *Google Earth* and *Google My Maps* to store the data digitally. Since these programs require latitude and longitude input in decimal degrees, the data was converted with a tool from the University of Minnesota (http://www.pgc.umn.edu/tools/conversion) and placed into a spreadsheet. Once imported to *Google My Maps*, we distinguished the different types of dams by using different styles of pins and creating a Map Legend. Finally, we highlighted the Vjosa River and its tributaries, as well as the different watersheds of Albania. Before tracing the borders of the regions, we overlaid a map of the major watersheds of Albania onto *Google Earth*. The image was cited by Save the Blue Heart of Europe, and found on Wikipedia. The overlay was done as accurately as possible given the limitations of our editing tools and differences in map projection. The Vjosa river and its tributaries were traced using the "draw path" feature on *Google Earth*. Both the watersheds layer and the Vjosa river layer were downloaded as .kml files and uploaded to *Google My Maps*, completing the map.

3.3 Delineate the Practices of People Involved with the MAPs Trade in the Vjosa Watershed and Identify Measures to make the MAPs trade more Sustainable

Our team conducted five interviews (Table 3), three of which were during our field study in the Vjosa watershed. The interviewees had different backgrounds, ranging from collectors with facilities to collectors without, and from medium to large production companies. The collectors were Agathokli Proko (Permet), Kamber Aldu (Tepelene), and Fejzi Mullaraj (Kelcyre). The two production companies we interviewed were in Berat and Maminas, Gjedra Processing Facility and AlbKalustyan Processing Facility, respectively.

The first interview we conducted was with the production company, AlbKalustyan Processing Facility, in Maminas accompanied by Professor Miho, Professor Shuka, and Gerta Bidoshi. AlbKalustyan Processing Facility is a large production company with multiple locations in Albania. It collects MAPs from the Vjosa watershed region and combined with their partnering companies, they produce 70% of world's sage. In this interview we wanted to identify the role that production companies play in the MAPs trade and the relationship between production companies and the collectors from the Vjosa watershed region. We focused on questions relating to the competition in the trade and the international market environment.

TABLE 3: INTERVIEW TIMELINE

Date	Location	Interviewee	Occupation	Translator
November 4, 2016	Maminas	Xhevit Hysenaj	Production Company: AlbKalustyan Processing Facility	Not needed
November 8, 2016	Berat	Linda Struni	Production Company: Gjedra Processing Facility	Linda Struni for head botanist
November 15, 2016*	Permet	Agathokli Proko	Collector	Eltoni
November 15, 2016*	Kelcyre	Fejzi Mullaraj	Collector	Eltoni
November 18, 2015*	Tepelene	Armando Aldu	Collector solely working for: AlbDucros	Alex

(*) Marks the interviews during our field study

To better understand the activities and perspectives of a smaller processors, we conducted an in-depth semi-structured interview with Gjedra Processing Facility, located in Berat. The company collects MAPs mainly from the Berat region, but has a strong presence in the Vjosa watershed region as well. We considered the following topics: quality of the plants, competition between production companies, and harvesting techniques.

From November 14th- 18th, we traveled to the Vjosa watershed region to visit Permet, Tepelene and Kelcyre, where we visited local markets, interviewed collectors and production companies and took footage of the region. We wanted to explore and to understand the integration and importance of the MAP industry in the everyday lives of Albanians in the Vjosa Valley. Our questions focused heavily on the quality of the plants and the interactions between harvesters, collectors and production companies, also asking their opinions on the impact of the potential dams on their trade. Initially our team had created the introduction and interview questions in English (Appendix B, D) and with the help of our sponsors, our questions were translated into Albanian (Appendix C,E).

In order to understand their role in the MAPs trade, we asked collectors questions such as: "How many harvesters do you currently work with?" and "What certifications about quality or harvesting methods are required for exporting your products to EU countries and other countries, such as the US?" The last question asked and videotaped at both of these interviews was "Do you feel that the proposed dam construction in the Vjosa catchment could affect your business? If so, how?" The answers and footage were kept, in order to be used in the short documentary. For production companies we focused on how they worked with local harvester and collectors.

We used semi-structured interviews because it is a qualitative method of discovering "*why* rather than *how many* or *how much*" (F.

Fylan, A Handbook of Research Methods for Clinical and Health Psychology, 2005). Semi-structured interviews are more relaxed than structured interviews and our team wanted the liberty to probe our interviewees or to change the questions if we felt that they had already given satisfactory information (F. Fylan, A Handbook of Research Methods for Clinical and Health Psychology, 2005).

To select these interviews, our sponsor provided us with an initial contact with AlbKalustyan. In this interview, we received several contacts in the Vjosa region, of which our sponsor assisted in establishing interviews. In our field study we expected to have language barriers, so we were also provided with a contact in each municipality that we visited to assist us in translation of interviews and transportation.
In order to work effectively with our translators, our team voiced our expectations for the interview beforehand and how we would like to probe the interviewee. We gave our non-English speaking interviewees the Albanian introduction and questions to minimize and potential miscommunication. If we felt it was necessary to skip around on the interview questions, we would express that to our translator. These interviews were recorded in a voice memo and later uploaded to the Google Drive, where we stored our project documents. After the interview, we transcribed it using the recording and analyzed it by picking out major themes that we observed and comparing these themes with current knowledge.

Figure 3.1: Collector Facility in Permet

The first interview was with Agathokli Proko, a collector with a facility located in Permet that trades with multiple production companies located all around Albania. The team was given a tour of his facility (Figure 3.1). The second interview was with Fejzi Mullaraj, a collector

located in Kelcyre. He does not have a facility, and goes from harvester to harvester based on supply and demand. Our translator, Eltoni, had difficulties understanding the interviewee because he tended to repeat himself and did not answer the questions. The final interview we conducted was with Kamber Aldu, located in Tepelene. Kamber Aldu is a collector only for AlbDucros, the largest production company in Albania.

3.4 Develop a short documentary

To help create public awareness about MAPs and the impact of dams on the Vjosa river, we decided, after discussion with our sponsor, to develop a seven-minute video documentary that would be linked to our sponsors website and potentially their Facebook page. Therefore, we expect our audience to be people on the internet who are already interested in the environment. Based on our interviews and field observations, we outlined our ideas for the structure of the video, which can be seen in Figure 3.2.

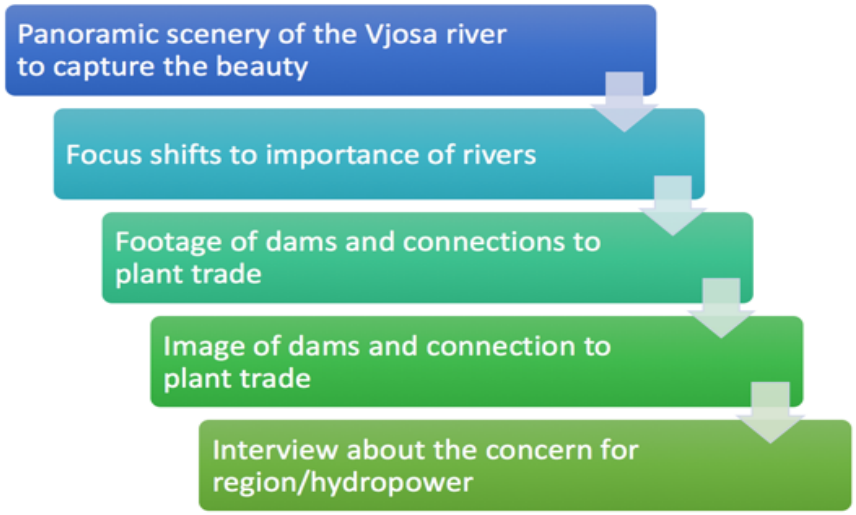

Figure 3.2: Flowchart of Documentary

We used a GoPro to film the documentary and logged each clip by giving it a descriptive title with a three letter code to represent the location. The clips were downloaded onto team members' laptops at the end of each day and renamed accordingly. We would then watch each clip and determine the times of each that were usable for the documentary.

We then developed a storyboard (Table 4), which outlines the times of each clip, the clip file being used and the associated section of the file, the music and any voice over that may play. After the creation of the storyboard, we edited the film using iMovie editing software and overlaid the scenes with music.

Part of our original plan was to add voice overs of interviews with people discussing their personal experiences with the Vjosa and the importance of it to Albania. To obtain these voice overs, we asked Olsi, Besjana and Professor Miho to allow us to interview them about their experiences in the Vjosa Valley and to talk about their own personal experiences.

TABLE 4: DOCUMENTARY STORYBOARD

Clip File	Music	Voice
EltonCarPER	Snow by Red Hot Chili Peppers (Jondai Remix)	-
Hike2PER		-
PanoramaTEP		-
CornLaundryTEP		-
BridgeTEP 6		-
MarketPER		-
MarketPER		-
SagePER 3		-
FacilityPER 1		-
FacilityPER 3		-
FacilityPER 4		-
FacilityPER 8		-
Facilty2PER		-
Dam Footage		-
Olsi Interview		Olsi

Chapter 4: Project Results

4.1 Medicinal and Aromatic Plants in the Vjosa Watershed

MAPs Inventory

We developed an inventory of medicinal and aromatic plants in the Vjosa watershed, as shown in Appendix G. The Vjosa watershed is home to almost 400 species of MAPs. From the literature that Professor Miho translated for us, we were able to add the specific municipalities of the Vjosa watershed that each plant can be found in. We interviewed collectors and production companies to determine exactly which plants they collect from the region. From our interviews and our previous research, we have repeatedly found sage to be one of the most significant plants in the region, and in all of Albania. Every collector and processor we visited thoroughly emphasized their sage products, such as dried sage and essential sage oils. Figure 4.1 shows a sage plant, which is one of most important and grown plant in the MAPs trade within the Vjosa region. Other plants that were also discussed frequently in our interviews as important species, that also appeared in our inventory, include oregano, juniper and lavender.

Figure 4.1: Sage

4.2 Interactive Map of Hydropower Plants within the Vjosa Watershed

This map featuring the Vjosa was created on *Google My Maps*, which is an interactive online mapping software. It offers features that allow the viewer to zoom in and out, as well as click and select certain items to look at more in depth. Our map distinguishes the dams and their varying stages of development along the Vjosa and Aoos rivers. Additionally, our map showcases the different watersheds by highlighting them in various colors. Our map will be used by our sponsor for informational purposes and possibly even uploaded to their website. Although our sponsor initially wanted all of the Albanian rivers and tributaries to be highlighted, it was not possible due to lack of time. The map legend and the final map can be seen in Figure 4.2. To visit the interactive map online, the link is: goo.gl/EJkXjf

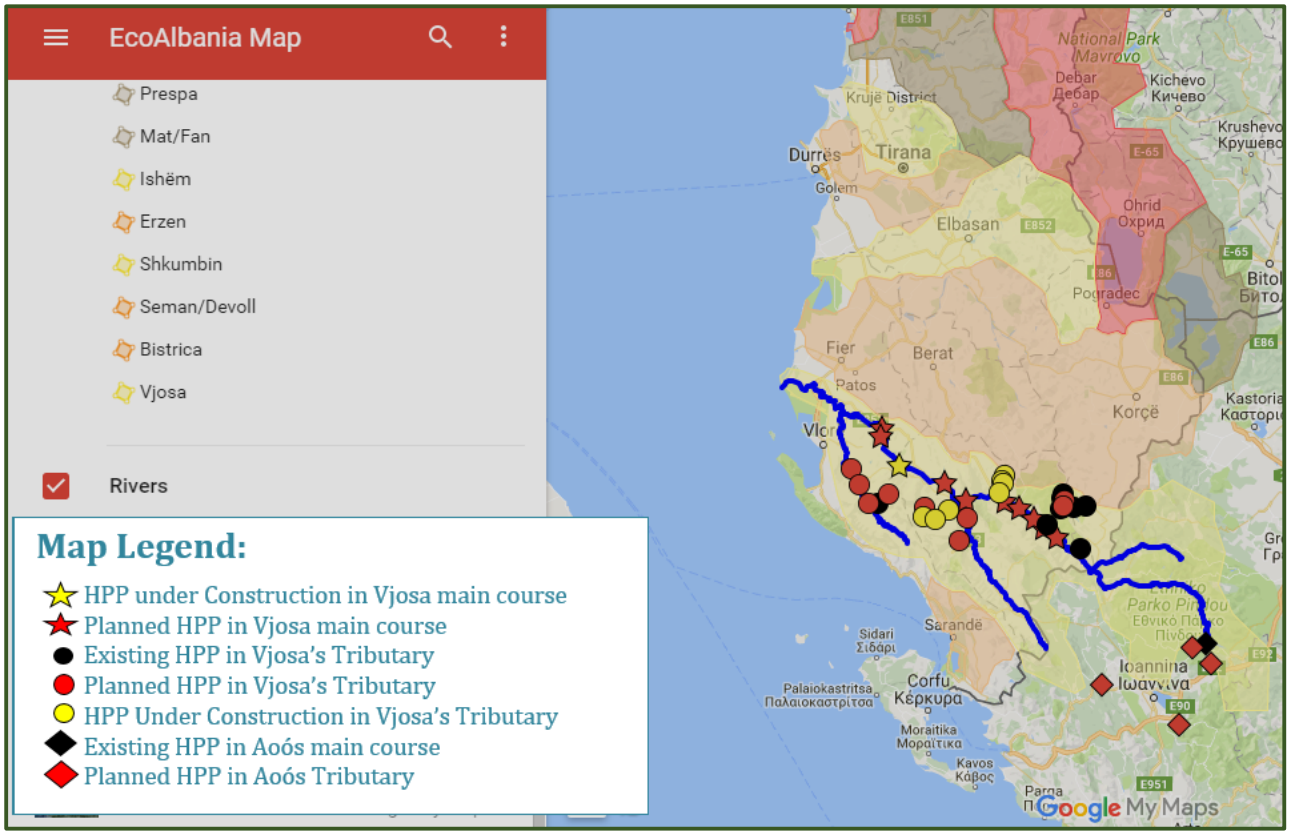

Figure 4.2: Final Interactive Map

4.3 Practices and Perspectives of Persons and Organizations Involved with the Medicinal and Aromatic Plant Trade in the Vjosa Watershed

Local Harvesters

Without access to communal facilities for storage and drying, harvesters typically depend on collectors. As one interviewee put it: "They [the harvesters] have no means of taking it to the next step. He [the collector] buys it from them and puts everything together. He extracts everything and sells it to the exporter. He goes to like 5 to 6 main companies" (A. Proko, personal communication, Nov. 15 2016). This finding is supported by Imami *et al.*, who claim, "Regional collectors are intermediary actors between farmers and processors. Though they do not have any real processing lines, they perform some simple operations that may be considered first processing, including drying, cleaning, storage etc. Farmers do not perform these operations, because they do not possess the needed facilities nor knowledge" (2015, pp. 159). Despite having limited facilities, harvesters sell MAPs on their own at local markets (Figure 4.3). It is yet another way harvesters can boost their family incomes.

Figure 4.3: Products for sale at a local market in Permet

Many harvesters come from poor families without opportunities to leave their homes to seek more enticing opportunities in cities (L. Strumi, personal communication, Nov. 6, 2016). Another collector we interviewed discussed how young people often do not care about the MAPs trade, since they move to the cities to pursue other opportunities, if their family can afford it. (A. Proko, personal communication, Nov. 15, 2016). This shows that people aren't interested in becoming harvesters, rather, they collect plants to provide supplementary income to their main agricultural occupations. Harvesters can also be given some guidance for harvesting from their respective production companies. We learned that harvesters are sometimes visited and taught the best harvesting practices to use (L. Strumi, personal communication, Nov. 6, 2016). This is done by one company we interviewed, Gjedra, in an attempt to make the industry more sustainable and improve the overall quality of MAPs sent to larger processors.

Regional Collectors

Collectors play a crucial part in the MAPs supply chain, linking harvesters with processing companies, but few have contracts with processing companies. One collector gave us a detailed account of his business dealings, emphasizing that he doesn't have any contracts with harvesters because he doesn't have a contract with companies (A. Proko, personal communication, Nov. 15 2016). The large companies usually have contracts with the international markets and will contact the collector when they need specific plants due to his experience with diverse harvesters and his knowledge about how to obtain a wide variety of plants. (A. Proko, personal communication, Nov. 15 2016). Trust and experience are important factors in the trade. Companies will not rely on collectors when they need certain hard to find plants if they do not have good basis of trust and a track record. For instance, Fejzi Mullaraj trades with Gjedra on the basis of phone calls, without written contracts. He will typically pick up the product from the harvester and bring it directly to the company (F. Mullaraj, personal communication, Nov. 15, 2016). The facilities of multiple collectors are shown in Figure 4.4.

As our background literature suggests, the fact that the collectors do not have contracts with production companies or harvesters runs counter to the organic certification process. In order to be declared organic, a product must be traceable back to its source (USAID 2009). If collectors were to have contracts with certified organic harvesters, they could then provide assurances to the production companies that the MAPs they deliver are organic. This focus on quality and organic certification could lead to a premium in the market and hence higher prices for both collectors and harvesters and potentially less damaging harvesting practices.

Figure 4.4: Plants drying rack in Permet (right), Grinding Machine in Tepelene (middle), Drying Room in Tepelene (left)

But often MAPs sent to production companies are commingled, that is a mix of organic and cultivated plants that fetch a lower price in export markets. In our interview with a collector from Kelcyre, he discussed how production companies tend to trust his product more so than some other collectors as he does not mix the wild harvested plant with the cultivated product (F. Mullaraj, personal communication, Nov. 15 2016). This is due to traceability. A third party company called AlbInspekt, which is financed by certification fees, has the resources to put inspectors in the field to certify that harvesting and processing practices meets organic standards (AlbInspekt, 2014). In doing so, the company enables MAPs production companies to trace the provenance of their products To many companies, such as Gjedra, organic certification is vital for their brand name. If the company knows which MAPs of theirs are wild-harvested, and they can prove it, they are more likely to obtain organic certification.

Gjedra is at the forefront of efforts to improve the quality of Albanian MAPs. The larger problem of traceability stems from changes in the MAPS trade since the end of communism, During the communist period, the government acted as both a collector and a production company and after the end of the regime in 1991, many Albanians who had previously been involved with the MAPs trade, whether working as collectors or in some peripheral capacity such as accounting, became collectors (A. Proko, personal communication, Nov. 15 2016). Although many of the same people were working in the trade, the loss of organization and close oversight meant that the source of plants is no longer tracked as well, especially once they pass through multiple hands. With the privatization of the MAPs trade in the early 1990's, the number of harvesters declined from 70,000 to 20,000, as part of large movement of people from the rural areas to cities and abroad (McGrath, P., n.d.). This has caused revenue from the MAPs trade to decrease significantly, from roughly $50 million per year to $30 million per year (X.Hysenaj, personal communication, Nov.4, 2016); (Paul, 2014). Currently the Albanian MAPs are priced very low for several reasons (X. Hysenaj, personal communication, Nov. 4, 2016). According to a report by USAID, the Albanian MAPs are low in price due to poor harvesting and post-harvesting practices (2009). If companies can improve their overall quality and traceability of their products, they can achieve organic status (USAID 2009). This would allow the production companies to charge more money by advertising their product to a higher end market (USAID 2009). The Albanian MAPs trade, after adjusting the quality and traceability of their product, could work on their branding to distinguish their products from the competing Balkan and Mediterranean countries. The Vjosa region is uniquely natural, and has the potential to develop an organic brand that boasts its uniqueness.

Production Companies

Production companies process the plants by removing any woody stems, dirt and metals. The plants are then sold or processed as essentials oils for export. The plant products that these companies produce are typically sold to larger international companies to produce spices and other herb products, and essential oils are typically sold to

Figure 4.5: Interview with a large production company

companies to produce materials for aromatherapy and cosmetics. One of these companies can be seen in Figure 4.5.

From the interview with Gjedra, a medium sized production company, much was learned about the types of products they produce, their markets, and even the investments they have made in their facility. Even though they are only a medium sized company, they produce a wide range of products, from bulk quantities of cultivated MAPs to organic, wild-harvested MAPs (L. Strumi, personal communication, Nov. 6, 2016). When asked about the future of the company, Linda Strumi from Gjedra answered "Maybe we think that they will ask for more organic products, because we see now that a lot of new companies ask." (personal communication, Nov. 6, 2016). Overall, Gjedra seemed to be positive that business would continue to grow, particularly in the area of organic products. This is indicative that the market as a whole is shifting more towards higher quality products, as the customers are the ones showing interest and seeking out the organic products.

Due to the expressed interests of customers, Gjedra has been making an effort to invest in higher quality products. For example, Gjedra invested in a new processing line in 2014, boasting that it is the best in Albania for creating a "clean" product (L. Strumi, personal communication, Nov. 6, 2016). If Gjedra is experiencing this sort of demand and accommodating it, it is also likely that other companies in Albania that receive plants from the Vjosa watershed are also experiencing same demand from their consumers.

However, Gjedra is still experiencing challenges in their pursuit for higher quality. Weather is a significant challenge that Gjedra faces, as the quantity of plants they receive is dependent upon the amount of rain the region receives (L. Strumi, personal communication, Nov. 6, 2016). In addition to quality, the supply also affects the price. This

is why Gjedra also stresses the importance of proper harvesting, as we have mentioned previously. If harvesters do not leave at least 30% of the plant, the supply of the plant will decrease in the following year because the plant will not be able to propagate further (L. Strumi, personal communication, Nov. 6, 2016). To compete in a market that stresses the importance of quality, issues like this cannot be ignored.

Endangered Plants

Out of the almost 400 species of MAPs found within the Vjosa watershed, forty-seven are endangered and threatened to various degrees, while many of these species are protected, they are harvested and sold, and can be found in both supermarkets and street markets. For instance, caj mali, or "mountain tea," is a protected and vulnerable species, but it is still commonly sold. According to one collector, most of the time, people will pretend or allude to how they cultivate the plants themselves, but the laws are hardly enforced anyway (A. Proko, personal communication, Nov. 15, 2016). This lack of adherence to laws regarding protected species illustrates the severity of the situation regarding status of the endangered plants and threatens the biodiversity of the region. Table 5 shows the conservation status of some of the most commonly harvested and sold species.

TABLE 5: ENDANGERED LEVEL OF COMMON SPECIES

Latin Name	English Name	Albanian Name	District Grown	Endangered Level
Salvia officinalis	Sage	Sherebela	Gjirokaster Tepelene, Permet, Vlore	VU A1b (Vulnerable)
Orchis spp.	Orchid	Salep	Gjirokaster, Permet, Tepelene, Vlore	VU A1b (Vulnerable)
Sideritis raeseri	Mountain tea/ starwort	Caj Mali	Gjirokaster (Kurvelesh, Çajup, Murganë), Permet, Tepelene, Vlore	EN Alc (Endangered)
Juglans regia	English walnut	Arra	Fier, Gjirokaster, Permet, Tepelene, Vlore, cultivated	EN A1b (Endangered)

Sustainable Harvesting

For MAPs to be certified as organic, harvesters follow guidelines for harvesting, drying and storing plants which meet the quality standards. These standards are described in a pamphlet created by Gjedra, a processor in Berat, and distributed to their collectors (Appendix A), and summarized below in Figure 4.6. This pamphlet focuses on quality control and sustainable harvesting methods for wild plants, such as only harvesting 5% of all roots and tubers and less than 60% of leaves from plants. Organic certification, by AlbInspekt, is recognized in the export market as a quality mark and such products realize higher prices. Since it is important to maintain this certification, some of the rules that Gjedra has are not obvious, such as

prohibiting collection of herbs near where pesticides have been sprayed on other plants. Although most of these herbs likely have no pesticides on them, if some of them are contaminated it could spoil an entire batch of organic product, so the company errs on the side of caution.

To improve quality, Gjedra sends staff to villages where they work with harvesters on best practices for harvesting and preprocessing (L.Strumi, personal communication, Nov. 6, 2016). For example, while most people would realize that storing plants in a bag that originally contained sugar is okay and using a bag that had pesticides is not, many would not think about thoroughly cleaning their tools before harvesting. If this is not done, cross contamination between species or organic product level could easily occur. Other rules to ensure top quality plants, dew and other moisture should be avoided as this could lead to mold and mildew growing on the product. Collecting cultivated plants or those in residential areas is not allowed, even though many of these areas do not use pesticides and are therefore not a threat to an organic product. This is because a large number of cultivated plants come from inferior foreign stock that, while providing a higher yield, sacrifices quality and oil content. Finally, Gjedra has determined harvesting guidelines through the experience of industry professionals, which, when followed, ensure that some plants are left untouched and the ones harvested from retain enough biomass and important parts to survive and reproduce. This leads to a sustainable harvest and will allow them to continue producing their high quality MAPs for years to come. All of this information was taken from Appendix A and summarized in figure 4.6.

Significance of Dams on MAP Collection and Rural Livelihood

When we asked Mr. Proko about the impact of potential dams on his business, he told us "If these dams were built, the villages would be forced to move. In the past, they were higher in the mountains and in the few years they have come down to the river bed." (A. Proko, personal communication, Nov. 15, 2016). In other words, Mr. Proko's concern is that if a dam was constructed so that a village was in the flood zone, the villagers would be displaced and need to move to alternate locations. If the villagers have to go out of their way to collect the plants, MAPs related businesses and the villagers' social networks could be affected. As one collector put it, "the plants are a large part of these families' incomes (A. Proko, personal communication, Nov. 15, 2016). But according to A. Proko, the MAPs income is seasonal because "many of them [harvesting families] have cows and sheep. They could be shepherds. It depends on the season. (...) This is a seasonal job" (personal communication, Nov. 15, 2016). If dam construction forces these rural families to move away from the plants they collect, it is inconclusive as to what effect it would have on the MAPs trade as a whole.

Figure 4.6: Summary of Gjedra Harvesting Guidelines (Gjedra)

4.4 Develop a short documentary

One of the main deliverables of this project was to produce a short documentary to be used to raise awareness about the importance of the Vjosa River and the MAPs trade to rural inhabitants of the Vjosa watershed. During our field work in the Vjosa region visiting Permet, Tepelene and Kelcyre, our team began to consider the themes of a documentary by close observation of the landscape, the river, the villages, as well as through discussion with persons involved in the MAPs trade and with researchers who have spent years studying the biodiversity and hydrology of the watershed.

Our first theme highlighted the aesthetic potential of river and showcases the potential the region has for tourism. When we initially arrived in the region, we were astounded by the beauty of the scenery and felt that it could play a crucial role in the ability of our documentary to be persuasive (Figure 4.7).

Figure 4.7: Scenic view of the Vjosa in Tepelene

Another aspect that we wanted to focus on was the significance of the river to the rural community members. When we were in Tepelene, we visited a local person who utilized the river in a very unique manner, by using the flow of the river to power a corn mill and a handmade laundry machine in his house. To address the importance of the MAPs trade to the Vjosa region we captured footage of a field of cultivated sage, street markets in Permet and a collection facility in Permet to attempt to have the viewer visualize all of the steps of the MAPs supply chain. While showing those clips in the documentary, we determined that the best way to convey our message of the importance of the MAPs trade was by using text at key points to describe the trade, use statistics and facts to build our argument and ultimately make the claim that the MAPs trade is crucial to those in the region.

The final and most significant issue we focused on in our documentary related directly to our goal and our sponsor's overall purpose. While we did not have the opportunity to visit the dams directly, we did discuss the potential impact of the construction of the dams on the MAPs trade with the collectors we interviewed, who saw the potential impact of the dams not simply on the MAPs trade, but on the lives of the individuals in the regions themselves.

Chapter 5: Conclusions and Recommendations

From our interviews with production companies who export MAPs to the EU and the USA to our discussions with collectors in the Vjosa region, the issue of how to make MAPs harvesting more sustainable was a major concern. It is a complex issue: harvesters often feel the need to harvest a higher quantity because of the growing demands of the market, collectors are not typically in a position to monitor harvesting practices, and production companies have a difficult time tracking their products back to the source to prove they are organic.

Starting with production companies, we recommend that they share their vision for higher quality products with the collectors that work with them, incentivizing them to want to provide the company with a higher quality and more sustainable product. Additionally, we could suggest that production companies invest in the future of organic products, by upgrading collection facilities and production lines to obtain the best quality products. This would show other stakeholders within their trade that they are committed to a higher quality. These incentives and upgrades would result in a significant amount of financial investment initially, but will benefit the company and MAPs trade in general in the long term, as it will create a more sustainable and secure business.

We suggest that collectors produce and distribute leaflets to the harvesters from whom they buy their plants, since they work more closely with them. If they don't have the means to do that, collectors should at least make an effort to understand how the harvesting practices are being used on the plants that they buy. This would ensure that the stock of high quality medicinal and aromatic plants would be less likely to dwindle due to poor harvesting practices. Furthermore, collectors should raise the payments for harvesters that produce higher quality plants. This incentive would ensure that higher quality plants are a priority from the beginning of the supply chain.

In order to increase opportunities for production companies to sell to higher end international markets, we recommend that the Ministry of Agriculture, Rural Development and Water Resources, as well as the municipalities of the Vjosa region develop a brand and marketing strategy that focuses on product quality and its relation to the biodiversity of the Vjosa region. In an interview with Gjedra, the brand development of MAPs can be noticed when Ms. Strumi said, "Even when we sell them as conventional, they know that they come from the mountains. This is why we have demands for our products" (personal communication, Nov. 6, 2016). Already, Albanian MAPs have a global reputation for their quality, but could further establish this with a concerted effort between the national and local governments and with the production companies in the MAPs trade. Albanian MAP companies also could implement "quality based pricing" once they attain organic status. When the companies charge more money for their product, they can provide the previously discussed financial

incentive to the collectors and harvesters to maintain a higher quality of MAPs (Paul 2014). A higher profit margin would allow for better organic collection facilities, and a better system for the traceability of MAPs (USAID 2009). However, this could not work for all medicinal and aromatic plants that these companies produce. For example, there are some MAPs, like the one used in the food industry, that require higher quantity. For these, quality is not as important. But for specialty MAPs, like the ones used in the traditional herbal medicine and essential oils, prices could be raised with organic certification.

Moving forward, future research should be directed at determining the motivations of harvesters. This study was limited in its ability to analyze the direct perspectives of local harvesters; therefore we recommend that any future studies in this area should focus on this level of the supply chain. Research would need to focus on understanding the harvesting methods currently in place, from the perspective of the harvesters themselves. It would also be interesting to see if harvesters could produce a higher revenue selling directly to tourists drawn to the beautiful Vjosa ecosystem, compared to the revenue that they would receive from the suggested incentives for keeping their products within the MAPs trade.

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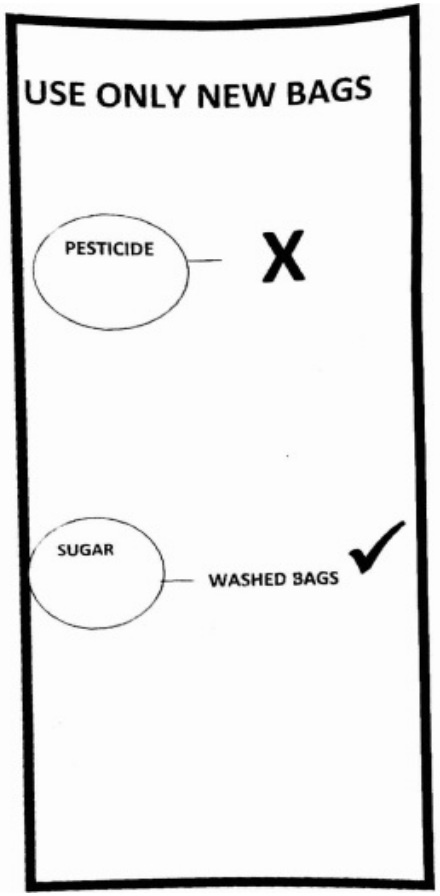
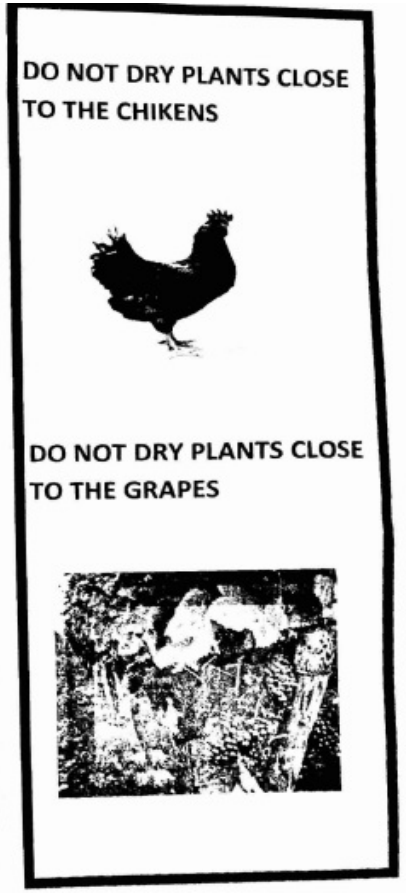
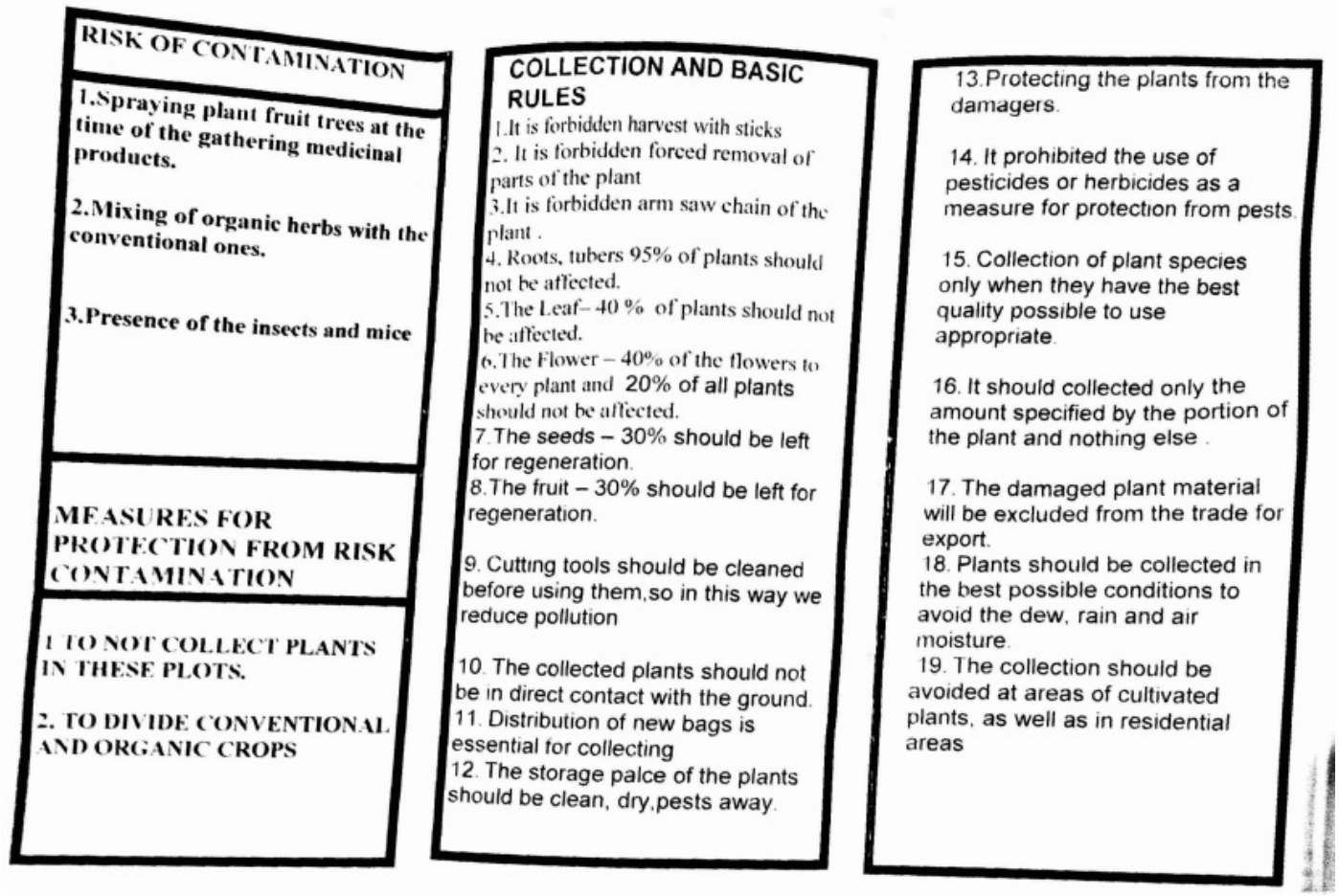
Appendices

Appendix A: Gjedra Harvesting Guidelines





Appendix A: Gjedra Harvesting Guidelines (Continued)



RISK OF CONTAMINATION

1.Spraying plant fruit trees at the time of the gathering medicinal products.

2.Mixing of organic herbs with the conventional ones.

3.Presence of the insects and mice

MEASURES FOR PROTECTION FROM RISK CONTAMINATION

1. TO NOT COLLECT PLANTS IN THESE PLOTS.

2. TO DIVIDE CONVENTIONAL AND ORGANIC CROPS

COLLECTION AND BASIC RULES

1.It is forbidden harvest with sticks
2. It is forbidden forced removal of parts of the plant
3.It is forbidden arm saw chain of the plant .
4. Roots, tubers 95% of plants should not be affected.
5.The Leaf– 40 % of plants should not be affected.
6.The Flower – 40% of the flowers to every plant and 20% of all plants should not be affected.
7.The seeds – 30% should be left for regeneration.
8.The fruit – 30% should be left for regeneration.

9. Cutting tools should be cleaned before using them,so in this way we reduce pollution

10. The collected plants should not be in direct contact with the ground.
11. Distribution of new bags is essential for collecting
12. The storage palce of the plants should be clean, dry,pests away.

13.Protecting the plants from the damagers.

14. It prohibited the use of pesticides or herbicides as a measure for protection from pests.

15. Collection of plant species only when they have the best quality possible to use appropriate.

16. It should collected only the amount specified by the portion of the plant and nothing else .

17. The damaged plant material will be excluded from the trade for export.
18. Plants should be collected in the best possible conditions to avoid the dew, rain and air moisture.
19. The collection should be avoided at areas of cultivated plants, as well as in residential areas

Appendix B: Collector Questions (English)

Regional Collector Questionnaire

NAME LOCATION

INTRODUCTION

We are a team from Worcester Polytechnic Institute in America. We are in Albania for two months doing research on the project "Investigating Medicinal and Aromatic Plants in the Vjosa Watershed Region of Albania", with our sponsor, EcoAlbania EcoAlbania is an environmental organization based in Tirana that was founded to protect natural ecosystems and stop environmental destruction in Albania. Our sponsor would like to learn more about the distribution of medicinal and aromatic plants in the Vjosa watershed, and how these plants could be harvested and cultivated to create more sustainable, economic opportunities for people living in this region. We have just arrived in Tirana and have a lot to learn about medicinal and aromatic plants in Albania.

GOAL

Our goal for this conversation is to learn more about how your company works with local harvesters and collectors, your views about how MAPs harvestin and collecting can become more sustainable, and what trends you see for the future of the MAPs trade. We have some questions prepared that we would like to ask you, and would like to record this conversation so we can refer to it later. We would also like to use quotes from this interview in our final report and other materia we will produce.

QUESTIONS

1. How did you get into this business?
2. What sort of products do you buy and sell?
3. How has your product line changed over the last five years?
4. Who are your biggest customers?
5. How do you expect demand to change in the future?
6. How would you meet increased demand?
7. What makes Albanian MAPs attractive in the international market place?
8. What countries are competing with Albania for the international market?
9. What certifications about quality or tradition harvesting methods are required for exporting your products to EU countries and other countries such as the U
10. How do you assess the quality of the MAPs before purchasing?
11. If so, what are key factors for evaluating quality?
12. How many harvesters do you currently work with? How would you describe the persons who harvest plants? Men, women, children, etc
13. Do you sign contracts with the harvesters to provide you a certain quantity of MAPs or do you pay them when they bring you MAPs on a more informal basis?
14. How are prices determined for MAPs?
15. Do you tend to buy from people who harvest plants from the wild or from people who cultivate plants more?
    a. How do you think a change to primarily cultivation of MAPs will affect your industry?
16. What steps could be taken to make MAPs harvesting more sustainable in the future?

Appendix C: Collector Questions (Shqip)

Regional Collector Questionnaire (Shqip)

EMËR VEND

PREZANTIMI

Ne jemi një ekip nga Instituti Worcester Politeknik në Amerikë. Ne do te jemi në Shqipëri për dy muaj për të bërë kërkime me mbështetësin tonë, EcoAlba për projektin "Studimi i Bimëve Mjeksore dhe Aromatike në rajonin e luginës së Vjosës në Shqipëri". EcoAlbania është një organizatë mjedisore me bazë në Tira që është themeluar për të mbrojtur ekosistemet natyrore dhe ndaluar shkatërrimin e mjedisit në Shqipëri. Mbështetësit tanë do të donin të mësonin më shumë lidhje me shpërndarjen e bimëve mjekësore dhe aromatike në A ka ndryshuar sistemi në pesë vitet e fundit? Nëse po, në çfarë mënyrash? Pellgun ujëmbledhës Vjosës, dhe se si këto bimë mund të mblidhen dhe kultivohen për të krijuar mundësi ekonomike më të qëndrueshme, për njerëzit që jetojnë në këtë rajon. Ne sa kemi ardhur në Tiranë dhe kemi shumë për të mësuar rreth bimëve mjekësore dhe aromatike në Shqipëri.

QËLLIM

Qëllimi ynë për këtë projekt është që të ofrojë një pasqyrë të të vendndodhjes së saktë të specieve të BAM në pellgun ujëmbledhës të Vjosës në mënyrë të mund të identifikohen zonat kryesore. Qëllimi i kësaj bisede është për të mësuar më shumë mbi punën tuaj me mbledhësit dhe grumbulluesit, mbi vizionin tua se si mund të bëhet mbledhja dhe grumbullimi e bimëve aromatike në mënyrë të qëndrushme, dhe cili është vizioni juaj mbi të ardhmen e tregut të këtyre bimëv Kemi përgatitur disa pyetje të cilat do të donim t'ju bënim. Gjithashtu do të donim ta regjistronim këtë bisedë në mënyrë që të mund t'i referohemi më vonë. Ne dëshirojmë të përdorim pjesë nga kjo intervistë në raportin tonë përfundimtar, si dhe materiale të tjera që do të ketë.

PYETIET

1. Si jeni përfshirë në këtë biznes?
2. Cilat lloje bimësh shisni dhe blini?
3. Si ka ndryshuar linja e produkteve në pesë vitet e fundit?
4. Cilët janë klientët tuaj më të rëndësishëm/mëdhenj?
5. Si e parashikoni ndryshimin e kërkesës në të ardhmen?
6. Si do e përqasnit rritjen e kërkesës?
7. Çfarë i bën bimët mjekësore dhe aromatike shqiptare tërheqëse në tregun ndërkombëtar?
8. Cilat shtete e konkurojnë Shqipërinë në tregun ndërkombëtar?
9. Çfarë çertifikimesh mbi cilësinë apo metodat tradicionale të mbledhjes kërkohen për të eksportuar produktet tuaja në shtetet e BE dhe shtete e tjera si SHBA?
10. Si e vlerësoni cilësinë e bimëve mjekësore dhe aromatike para se t'i shisni?
11. Cilët janë faktorët kryesorë për vlerësimin e cilësisë?
12. Me sa mbledhës punoni aktualisht? Si do t'i përshkruanit personat që i mbledhin bimët? Burra. gra, fëmijë, etj.
13. A firmosni kontrata me mbedhësit për t'ju furnizuar me një sasi të caktuar bimësh apo i paguani ata kur ju sjellin bimët në mënyrë jo formale?
14. Si janë përcaktuar çmimet për bimët mjekësore dhe aromatike?
15. A jeni të prirur të blini bimë nga ata që i mbledhin në natyrë apo më shumë nga ata që i kultivojnë këto bimë?
    a. Si mendoni se ndryshimi në kultivimin e bimëve do të ndikojë në industrinë tuaj?
16. Çfarë hapash mund të ndërmerren për të bërë mbledhjen e bimëve mjekësore dhe aromatike më të qëndrueshme?

Appendix D: Production Company Questions (English)

Production Company Questionnaire

NAME COMPAY NAME LOCATION

INTRODUCTION

We are a team from Worcester Polytechnic Institute in America. We are in Albania for two months doing research on the project "Investigating Medicinal and Aromatic Plants in the Vjosa Watershed Region of Albania", with our sponsor, EcoAlbania. EcoAlbania is an environmental organization based in Tirana that was founded to protect natural ecosystems and stop environmental destruction in Albania. Our sponsor would like to learn more about the distribution of medicinal and aromatic plants in the Vjosa watershed, and how these plants could be harvested and cultivated to create more sustainable, economic opportunities for people living in this region. We have just arrived in Tirana and have a lot to learn about medicinal and aromatic plants in Albania.

GOAL

Our goal for this conversation is to learn more about how your company works with local harvesters and collectors, your views about how MAPs harvestin and collecting can become more sustainable, and what trends you see for the future of the MAPs trade. We have some questions prepared that we would like to ask you, and would like to record this conversation so we can refer to it later. We would also like to use quotes from this interview in our final report and other materia we will produce.

QUESTIONS

1. Which country is your biggest buyer?
2. Can you give us an overview of how you work with local harvesters and collectors to purchase MAPs?
3. What kinds of MAPs do you purchase?
4. How many different collectors/harvester do you buy from?
5. How do you determine which regional collectors you buy from?
6. Can you help us understand how you make purchases during a calendar year?
7. Has the system changed in the past five years? If so, in what ways.
8. What guidelines does your company use to decide which collectors/harvesters you buy from (quality, guaranteed quantity, etc)?
9. What MAPs based products do you produce?
10. How have your production levels varied for each of these products over the past 5 to 10 years?
11. Who are your primary markets?
12. What challenges have you faced with respect to marketing Albanian MAPs?
13. How much competition do you have with other countries in the MAPs trade? quantity, quality, competition with other countries, etc
14. Roughly, 80% of sage used in the USA is comes from Albania, but few if any Americans know this fact. How important would it be to create a stronger national brand for Albanian MAPs?
15. What changes would you like to see to MAPs harvesting and collecting to increase the quality of the products and the economic benefits to rural communit in the Vjosa region?
16. Do you feel that the proposed dam construction in the Vjosa catchment could affect your business? If so, how?

Appendix E: Production Company Questions (Shqip)

Production Company Questionnaire (Shqip)

EMËR | EMRI I KOMPANISE | VEND

PREZANTIMI

Ne jemi një ekip nga Instituti Worcester Politeknik në Amerikë. Ne do te jemi në Shqipëri për dy muaj për të bërë kërkime me mbështetësin tonë, EcoAlba për projektin "Studimi i Bimëve Mjeksore dhe Aromatike në rajonin e luginës së Vjosës në Shqipëri". EcoAlbania është një organizatë mjedisore me bazë në Tira që është themeluar për të mbrojtur ekosistemet natyrore dhe ndaluar shkatërrimin e mjedisit në Shqipëri. Mbështetësit tanë do të donin të mësonin më shumë në lid me shpërndarjen e bimëve mjekësore dhe aromatike në A ka ndryshuar sistemi në pesë vitet e fundit? Nëse po, në çfarë mënyrash? Pellgun ujëmbledhës të Vjosës, se si këto bimë mund të mblidhen dhe kultivohen për të krijuar mundësi ekonomike më të qëndrueshme, për njerëzit që jetojnë në këtë rajon. Ne sapo kemi ardhur Tiranë dhe kemi shumë për të mësuar rreth bimëve mjekësore dhe aromatike në Shqipëri.

QËLLIM

Qëllimi ynë për këtë projekt është që të ofrojë një pasqyrë të të vendndodhjes së saktë të specieve të BAM në pellgun ujëmbledhës të Vjosës në mënyrë që mund të identifikohen zonat kryesore. Qëllimi i kësaj bisede është për të mësuar më shumë mbi punën tuaj me mbledhësit dhe grumbulluesit, mbi vizionin tuaj se s mund të bëhet mbledhja dhe grumbullimi e bimëve aromatike në mënyrë të qëndrushme, dhe cili është vizioni juaj mbi të ardhmen e tregut të këtyre bimëve. Kemi përgatitur disa pyetje të cilat do të donim t'ju bënim. Gjithashtu do të donim ta regjistronim këtë bisedë në mënyrë që të mund t'i referohemi më vonë. Ne dëshirojn të përdorim pjesë nga kjo intervistë në raportin tonë përfundimtar, si dhe materiale të tjera që do të ketë.

PYETIET

1. Cili vend është blerësi juaj më i madh?
2. A mund të na jepni një pasqyrë të asaj se si ju punoni me grumbulluesit dhe mbledhësit lokalë, për të blerë bimët mjekësore dhe aromatike?
3. Çfarë lloj bimësh mjekësore dhe aromatike tregtoni?
4. Nga sa mbledhës / grumbullues blini?
5. Si e përcaktoni se nga cilët mbledhës rajonalë do të blini?
6. A mund të na ndihmoni të kuptojmë se si i bëni blerjet gjatë një viti kalendarik?
7. A ka ndryshuar sistemi në pesë vitet e fundit? Nëse po, në çfarë mënyrash?
8. Çfarë udhëzimesh përdor kompania juaj për të vendosur se nga cilët mbledhës/grumbullues të blejë (cilësinë, sasinë e garantuar, etj)?
9. Çfarë bimësh mjekësore dhe aromatike bazë prodhoni/tregtoni?
10. Si kanë ndryshuar nivelet tuaja të prodhimit për secilin nga këto produkte gjatë 5-10 viteve të fundit?
11. Kush janë tregjet tuaja kryesore?
12. Me cfarë sfidash jeni përballur gjatë tregtimit të Bimëve Mjekësore dhe Aromtike shqiptare?
13. Sa konkurrencë keni me vende të tjera në tregtinë e bimëve mjekësore dhe aromatike? Sasia, cilësia, konkurrenca me vendet e tjera, etj.
14. Afërsisht, 80% e sherebelës që përdoret në SHBA vjen nga Shqipëria, por pak ose aspak nga amerikanët, e dinë këtë fakt. Sa e rëndësishme do të ishte krijimi i një marke kombëtare më të fortë për bimët mjekësore dhe aromatike shqiptare?
15. Çfarë ndryshimesh do të dëshironit të shihni në mbledhjen dhe grumbullimin e bimëve mjekësore dhe aromatike në mënyrë që të rritet cilësia e produkteve dhe të ardhurave ekonomike për komunitetin rural të rajonit të Vjosës?
16. A mendoni se propozimi për ndërtimin e digave në ujëmbledhësin e Vjosës mund të ndikojnë në biznesin tuaj? Nëse po, si?

Appendix F: HPP Coordinates

HPP-s In Vjosa-Aoós River Basin | **Summary** | **Online Map**

No	HPP name	Status	Tributary Name	Company Name	Location	Country
1	Badëlonja	Planned HPP	Vjose	Concession NOT Given	40°12'8.26"N 20°23'40.17"E	Albania
2	Barmash	Existing HPP	Çarshova	"Ballkan Green Energy"	40°16'16.15"N 20°34'9.74"E	Albania
3	Bence e Siperme (Nivice)	Under Construction HPP	Bence	"Radici Energie" sh.p.k	40°14'12.32"N 19°54'7.69"E	Albania
4	Bence e Siperme (Salari)	Planned HPP	Bence	"Radici Energie" sh.p.k	40°15'56.46"N 19°54'25.10"E	Albania
5	Bence-Tepelene	Under Construction HPP	Bence	"Ferrar" sh.p.k	40°15'36.48"N 20° 0'22.35"E	Albania
6	Brataj	Planned HPP	Shushica	Concession NOT Given	40°16'49.15"N 19°40'28.42"E	Albania
7	Dragoti	Planned HPP	Vjose	Concession NOT Given	40°17'32.76"N 20° 4'45.13"E	Albania
8	Gostivisht	Existing HPP	Langarica	"Energia Pulita" sh.p.k	40°18'35.28"N 20°28'37.13"E	Albania
9	Grabova	Planned HPP	Vjose	Concession NOT Given	40°17'13.59"N 20°14'13.37"E	Albania
10	Greveniti	Planned HPP	Arkudorevma	Concession NOT Given	39°49'35.78"N 21° 0'32.27"E	Greece
11	Kalamas	Planned HPP	Arkudorevma	Concession NOT Given	39°42'31.06"N 20°38'11.54"E	Greece
12	Kalivaçi	Under Construction HPP	Vjose	"Kalivaç Energy"	40°23'58.77"N 19°48'1.43"E	Albania
13	Kaludhi	Planned HPP	Vjose	Concession NOT Given	40°10'34.24"N 20°26'56.05"E	Albania
14	Karbonara	Planned HPP	Vjose	Concession NOT Given	40°31'11.23"N 19°43'49.58"E	Albania
15	Kosina	Planned HPP	Vjose	Concession NOT Given	40°15'58.89"N 20°17'47.17"E	Albania
16	Kota	Planned HPP	Shushica	Concession NOT Given	40°23'14.21"N 19°36'11.11"E	Albania
17	Langarice	Planned HPP	Langarica	"Hasi Energy" sh.p.k	40°17'18.10"N 20°29'3.27"E	Albania
18	Langarice	Planned HPP	Langarica	"Energia Pulita" sh.p.k	40°16'20.10"N 20°28'46.81"E	Albania
19	Langarice 1	Existing HPP	Langarica	"Hasi Energy" sh.p.k	40°15'57.28"N 20°28'37.34"E	Albania
20	Langarice 2	Existing HPP	Langarica	"Hasi Energy" sh.p.k	40°15'38.80"N 20°28'4.30"E	Albania
21	Lengarica 3	Existing HPP	Langarica	"Langarica & Energy"	40°12'44.50"N 20°24'51.95"E	Albania
22	Memaliaj	Planned HPP	Vjose	Concession NOT Given	40°20'54.43"N 19°59'17.52"E	Albania
23	Metsovikos	Planned HPP	Arkudorevma	Concession NOT Given	39°46'28.29"N 21° 5'27.19"E	Greece
24	Pamvotida	Planned HPP	Arkudorevma	Concession NOT Given	39°34'48.56"N 20°57'30.31"E	Greece
25	Përmet	Planned HPP	Vjose	Concession NOT Given	40°13'58.19"N 20°21'34.27"E	Albania
26	Picar 1	Planned HPP	Drinos	"Peshku Picar 1" sh.p.k	40° 9'49.39"N 20° 3'6.99"E	Albania
27	Pigai	Existing HPP	Aoos	State owned	39°50'11.87"N 21° 3'58.78"E	Greece
28	Poçem	Planned HPP	Vjose	Concession NOT Given	40°29'34.48"N 19°43'41.29"E	Albania
29	Progonat-Lekdush	Under Construction HPP	Bence	"Radici Energie" sh.p.k	40°13'39.83"N 19°57'9.26"E	Albania
30	Radove	Existing HPP	Çarshova	"Tulla T" sh.p.k	40° 8'14.49"N 20°33'5.78"E	Albania
31	Rajan	Existing HPP	Çarshova	"Ballkan Green Energy"	40°15'59.53"N 20°31'18.07"E	Albania
32	Smokthine	Existing HPP	Shushica	"Ballkan Green Energy"	40°16'49.07"N 19°42'44.57"E	Albania
33	Smokthine	Planned HPP	Shushica	"Albania Green Energy"	40°18'28.80"N 19°45'28.02"E	Albania
34	Shtika 1	Under Construction HPP	Shtika	"Qeramika e Jugut"	40°21'55.99"N 20°14'8.78"E	Albania
35	Shtika 2	Under Construction HPP	Shtika	"Qeramika e Jugut"	40°21'4.27"N 20°13'41.70"E	Albania
36	Shtika 3	Under Construction HPP	Shtika	"Qeramika e Jugut"	40°20'30.70"N 20°13'42.93"E	Albania
37	Shtika 4	Under Construction HPP	Shtika	"Qeramika e Jugut"	40°18'44.15"N 20°12'56.90"E	Albania
38	Ura e Dashit	Existing HPP	Langarica	"Energia Pulita" sh.p.k	40°17'42.84"N 20°28'17.65"E	Albania
39	Ura e Gjormit	Planned HPP	Shushica	Concession NOT Given	40°20'18.48"N 19°38'17.95"E	Albania
40	Ura e Subashit upstream	Planned HPP	Drinos	Concession NOT Given	40°12'31.79"N 20° 5'24.40"E	Albania

Appendix G: MAPs Inventory

	Emri shkencor	Emri shqip	Emri anglisht	Vendi ku permendet - rrethi	Eger - cultivuar - huaj	Mblidhet sot dhe tregtohet	Lista e kuqe	Burimi i informimit
Nr.	*Scientific name*	Albanian name	English name	Districts Found	wild - cultivated – alien	Parts Sold	Red List	Information source
	Likene // Lichens							
LI 1	*Lichen on Fagus*	Liken ahu	Beech lichens	Permet	Wild			IKPK 1988
LI 2	*Lichen on Quercus*	Liken dushku	Oak lichens	Gjirokaster, Vlore, Tepelene	Wild			IKPK 1989
LI 3	*Lichen on Carpinus*	Liken shkoze	Hornbeams lichens	Gjirokaster, Permet, Tepelene	Wild			IKPK 1990
	Kerpudha // Fungi							
FU 1	*Claviceps purpurea on Secale cereale*	Klogjeli i thekrit	Rye ergot fungus	Permet	Wild			IKPK 1988
	Fierna // Ferns							
FE 1	*Adiantum capillus-veneris*	Fieri i krojeve	Southern maidenhair fern				VU A1b	Shuka pers. comm.; Dankshi 2012
FE 2	*Asplenium ceterach (Ceterach officinarum)*	Fierguri // Gjarper mjekesor	Rustyback	Gjirokaster (Kardhiq, Drino, Sotirë)	Wild	Leaf		Shuka & Draçi, 2004; Malo, 2010; Kokalari et al, 1980; IKPK 1988
FE 3	*Dryopteris filix-mas*	Fier mashkull	Male fern	Gjirokaster (Sotirë)	Wild		LR cd	Malo, 2010; Kokalari et al., 1980; Dankshi 2012; IKPK 1988

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FE 4	*Equisetum arvense*	Këputja e arave, Bishtkali	Field horsetail	Fier, Gjirokaster (Drino, Sotirë, Kardhiq), Permet, Tepelene, Vlore	Wild	Herb		Malo, 2010; Shuka & Draçi, 2004; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi 2009; Çela, 2012; IKPK 1988; Gjedra L.t.d.
FE 5	*Polypodium vulgare*	Polipoda	Common polypody	Gjirokaster, Vlore	Wild			Kokalari et al. 1980; Dankshi 2012; IKPK 1988
FE 6	*Pteridium aquilinum*	Fier shqipja	Common bracken // eagle fern	Gjirokastra (Drino, Pogon, Kurvelesh)	Wild			Malo, 2010; naturalmedicinalherbs.net/herbs/p/pteridium-aquilinum=bracken.php
	Gymnosperms // Conifers							
GY 1	*Abies borisii-regis*	Bredhi i Maqedonise	Bulgarian fir	Gjirokaster (Kardhiq, Sotire), Permet (Hotove), Vlore	Wild		VU A2b	Zeneli et al. 2004; IKPK 1988
GY 2	*Cupressus sempervirens*	Selvia	Mediterranean cypress	Fier, Gjirokaster (Drino, Kardhiq), Vlora (Narta)	wild, cultivated, alien		VU A1b	Malo, 2010; Miho et al. 2013; Dankshi 2012; Kokalari et al. 1980; IKPK 1988
GY 3	*Juniperus communis*	Dëllënja e zezë	Common juniper	Drino, Kardhiq, Pogon, Mali i Pusit, Kurvelesh, Fier, Permet, Vlore.	Wild	Fruit	VU A1b	Malo, 2010; Kokalari et al., 1980; Pazari, 2014; Dankshi, 2009; IKPK 1988; Gjedra L.t.d.
GY 4	*Juniperus oxycedrus*	Dëllënja e kuqe	Prickly juniper	Çajup, Murganë, Kardhiq, Fier, Gjirokaster, Permet, Tepelene, Vlore	Wild	Fruit	VU A1b	Malo, 2010; Pazari, 2014; Shuka & Draçi, 2004; IKPK 1988
GY 5	*Pinus halepensis*	Pisha e eger	Aleppo pine	Fier, Gjirokaster, Tepelene, Vlore	Wild			Miho et al. 2013; IKPK 1988

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GY 6	*Pinus heldreichii (P. leucodermis)*	Rrobull, Hartine	Bosnian pine	Vlore	Wild		VU D2	IKPK 1989
GY 7	*Pinus pinea*	Pisha e bute, vgjea	stone pine	Fier	Wild		VU A2c	Miho et al. 2013; IKPK 1990
	Angiosperms // Eudicots and others (not Monocots)							
EN 1	*Acacia dealbata*	Mimoza	mimosa		wild, cultivated, alien (invasive)			Shuka pers. comm.; Dankshi, 2009;
EN 2	*Acantholimon androsaceum*	Akantolimoni	Prickly thrift	Gjirokaster (Çajup)	Wild			Malo, 2010; www.remedia-homeopathy.com/!data/remedia_homeopathy.pdf
EN 3	*Acer pseudoplatanus*	Panja e malit	sycamore maple	Gjirokaster	Wild			IKPK 1988
EN 4	*Achillea clypeolata*	Barpezmi	Moonshine Yarrow	Gjirokaster (Kurvelesh)	Wild			Malo, 2010; Pazari 2014; Çela, 2012;
EN 5	*Achillea coarctata*	Barpezmi	Yarrow	Gjirokaster (Kardhiq)	Wild			Shuka & Draçi, 2004; http://findmeacure.com/2016/08/19/achillea-coarctata/
EN 6	*Achillea millefolium*	Bishtamithi, Mijëfletëshi	Yarrow	Gjirokaster (Kurvelesh, Çajup, Murganë, Kardhiq), Tepelene, Permet; Vlore	wild	Flower		Malo, 2010; Kokalari et al. 1980; Pazari, 2014; Shuka & Draçi, 2004; Dankshi, 2009; Çela, 2012; IKPK 1988; Gjedra L.t.d.
EN 7	*Achillea nobilis*	Barpezmi	noble yarrow	Gjirokaster (Mali i Picarit, Maja e Pusit)	wild			Malo, 2010; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3232110/

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EN 8	*Aesculus hippocastanum*	Geshtënja e kalit, geshtenja e eger	European horse-chestnut	Gjirokaster (Kurvelesh, Maja e Pusit, Sotirë, Kardhiq), Permet	wild	Leaf	CR A1a	Malo, 2010; Shuka & Draçi, 2004; Kokalari et al. 1980; IKPK 1988
EN 9	*Agrimonia eupatoria*	Rrodhëza // Podiqja	common agrimony	Gjirokaster (Drino, Sotire), Fier, Permet, Tepelene	wild		EN	Malo, 2010; PM-Vjosa-Narta 2004; Miho et al., 2013; Kokalari et al., 1980; Dankshi 2009; 2012; IKPK 1988
EN 10	*Agrostemma githago*	Kënkoll	common corn-cockle		wild			Shuka, pers. comm; Pazari, 2014
EN 11	*Ajuga reptans*	Ajuga zvarranike	Bugle		wild			Shuka, pers. comm; http://www.botanical.com/botanical/mgmh/b/buglec82.html
EN 12	*Ailanthus altissima*	Aliantus	Tree of Heaven	Ornamental tree	wild, cultivated, alien (invasive)			Miho pers. comm.; http://www.naturalmedicinalherbs.net/herbs/a/ailanthus-altissima=tree-of-heaven.php
EN 13	*Alisma plantago-aquatica*	Këlkoja e ujit	Common water-plantain (mad-dog weed)	Gjirokaster (Drino, Lugina e Kardhiqit)	wild			Malo, 2010; PM-Vjosa-Narta 2004;
EN 14	*Alkanna tinctoria*	Alkanangjyrues e	dyer's alkanet	Vlore, Fier	wild			PM-Vjosa-Narta 2004; IKPK 1988
EN 15	*Alliaria petiolata (A. officinalis)*	Bar hudhre	Garlic Mustard	Gjirokaster (Drino, Sotire)	wild			Malo, 2010; Pazari 2014
EN 16	*Alnus glutinosa*	Verriu i zi	Common alder	Gjirokaster, Vjosa delta (Fier & Vlora)	wild		VU	PM-Vjosa-Narta 2004; Miho et al., 2013; Kokalari et al. 1980; IKPK 1988
EN 17	*Althaea officinalis (Malva officinalis)*	Mellaga e bardhe	Marsh mallow	Fier, Gjirokaster (Drino, Kardhiq), Tepelene, Permet	wild	Flower, Root		Malo, 2010; PM-Vjosa-Narta 2004; Dankshi 2009; 2012; Kokalari et al. 1980; Çela, 2012, IKPK 1988; Gjedra L.t.d.

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EN 18	*Ammi majus*	Ami i madh	Queen Anne & rsquos lace	Gjirokster (Drino, Kardhiq)	wild			Malo, 2010
EN 19	*Amygdalus communis*	Bajamja	Sweet Almond	Cultivated	cultivated			http://botanical.com/botanical/mgmh/a/almon026.html
EN 20	*Anchusa officinalis*	Gjuhë lopa mjekësore	Common bugloss	Gjirokaster (Pogon, Murganë, Odrie)	wild			Malo, 2010
EN 21	*Anethum graveolens*	Kopra	Dill	Cultivated	wild			Shuka pers. comm.; Dankshi 2012
EN 22	*Angelica archangelica*	Angjelika e vertete	Norwegian angelica	Wild	wild			Shuka pers. comm.; Dankshi 2012
EN 23	*Angelica sylvestris*	Angjelika pyjore	wild angelica	Gjirokaster (Pyllo, Mali i Gjere)	wild			Malo, 2010; Demiri, 1983; https://en.wikipedia.org/wiki/Angelica_sylvestris#Uses
EN 24	*Anthemis cotula*	Maraqi	stinking chamomile	Wild, cultivaed	wild			Shuka & Draçi, 2004; Demiri, 1983
EN 25	*Anthemis nobilis*	Kamomili romak	Roman chamomile	Wild	wild			Shuka, pers. comm.; Dankshi 2012
EN 26	*Apium graveolens*	Selino	Celery	Wild	wild, cultivated			Shuka, pers. comm.; Dankshi 2009
EN 27	*Arabidopisis thaliana*	Arabidrops thaliana	Rockcress	wild	wild			Shuka, pers. comm.; Pazari 2014
EN 28	*Arbutus andrachne*	Mëllagjer, shtopje, kukumaçe	Strawberry tree	Upper valley of Vjosa	wild		VU A2b	Shuka, pers. comm.;
EN 29	*Arbutus unedo*	Mareja	Strawberry tree	Fier, Gjirokaster (Sotirë, Lunxheri, Zhulat, Kardhiq), Tepelene, Permet, Vlore	wild	Leaf		Malo, 2010; Kokalari et al. 1980; Dankshi, 2012; Shuka & Draçi, 2004; Çela, 2012; IKPK 1988

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EN 30	*Arcitum lappa (A. major)*	Rrodhe e madhe	Greater Burdock	Gjirokaster (Pogon, Kurvelesh), Tepelene, Permet	wild	Root		Kokalari et al. 1980; Pazari, 2014; Malo, 2010; Dankshi 2009; 2012; IKPK 1988; Çela, 2012;
EN 31	*Aristolochia elongata*	Petrik, Fikujku, Kulper	Birthwort	Gjirokaster (Zhej), Permet?, Vlore?)	wild			Malo 2010; Kokalari et al. 1980; Pazari, 2014; IKPK 1988
EN 32	*Aristolochia lutea*	Petrik, Fikujku, Kulper	Birthwort	Gjirokaster (Pogon), Permet?, Vlore	wild			Malo 2010; Kokalari et al. 1980; Pazari, 2014; IKPK 1989
EN 33	*Artemisia absinthium*	Pelini	wormwood	Gjirokaster (Kurvelesh, Maja e Pusit, Kardhiq, Nemeçke, Çajup)	wild			Malo, 2010; Pazari, 2014; Kokalari et al., 1980; Shuka & Draçi, 2004; IKPK 1988; Gjedra L.t.d.
EN 34	*Artemisia coerulescens*	Pelini i bruzte	Sagebrush	Vjosa delta (Vlora and Fieri)	wild			Miho et al., 2013; https://www.ncbi.nlm.nih.gov/pubmed/17404981
EN 35	*Artemisia herba-alba (A. alba)*	Pelini i bardhe	white wormwood	Permet, Kelcyre	wild	Herb		Demiri, 1983
EN 36	*Artemisia vulgaris*	Pelini i rendome, pelini i zi	Mugwort // common wormwood	Fier, Gjirokaster, Permet, Tepelene, Kurvelesh.	wild	Herb		Malo, 2010; Kokalari et al., 1980; Pazari, 2014; Dankshi, 2012; IKPK 1988; Gjedra L.t.d.
EN 37	*Asperula odorata*	Njegjira me ere	Sweetscented bedstraw		wild			Shuka, pers. comm.; Dankshi 2012;
EN 38	*Atropa bella-donna*	Helmarina	Deadly nightshade	Gjirokaster (Pogon, Murganë, Odrie)	wild		CR B2c	Malo, 2010; Kokalari et al. 1980; IKPK 1988; Gjedra L.t.d.
EN 39	*Barbarea longirostris*	Barbarea sqepgjate	winter cress or yellow rocket	Gjirokaster (Mali i Gjere)	wild		IUCN, DD	Malo, 2010; Demiri 1983

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EN 40	*Bassia prostrata (Kochia prostrata)*	Fshes e eger	forage kochia	Fier	wild			IKPK 1988
EN 41	*Begonia spp.*	Begonia	Begonia	Few species used as ornamental	cultivated (ornamental)			https://sq.wikipedia.org/wiki/Lista_e_bim%C3%Abve
EN 42	*Bellis perennis*	Luledele, luleshqerre	Common daisy	Fier, Gjirokastër, Tepelene, Permet, Vlore	wild, cultivated (ornamental)	Flower, Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi, 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 43	*Bidens tripartita*	Dydhembeshi trepjesesh	Three-lobe beggarticks	Gjirokaster (Pogon, Picar)	wild			Malo, 2010; Kokalari et al. 1980
EN 44	*Blackstonia perfoliata (Chlora perfoliata)*	Blekstonia, Klara	yellow-wort	Gjirokaster	wild			IKPK 1988
EN 45	*Borago officinalis*	Shaja mjekesore	Starflower		wild			Kokalari et al. 1980; Dankshi, 2009; 2012
EN 46	*Brassica nigra (Sinapis nigra)*	Sinapi i zi	Black Mustard	Fier, Gjiroakster, Permet	wild	Seed		Kokalari et al. 1980; IKPK 1989
EN 47	*Brassica oleracea*	Lakra, Brokoli	Kale, Broccoli	Cultivated	cultivated (vegetable)			Kokalari et al. 1980; Dankshi 2009
EN 48	*Bryonia dioica*	Stërkungulli dioik	English mandrake // red bryony	Gjirokaster (Sotirë, Çajup, Zhulat), Vlore	wild			Malo, 2010; Kokalari et al. 1980; IKPK 1988; Gjedra L.t.d.
EN 49	*Bupleurum falcatum*	Brinjakuau trajtëkose	Sickle-leaved hare’s ear	Gjirokaster (Mali i Gjerë, Pyllo, Murganë)	wild			Malo, 2010
EN 50	*Buxus sempervirens*	Bushi	boxwood	Gjirokaster (Skotini); Vlore	wild			Malo, 2010; Kokalari et al. 1980; IKPK 1988
EN 51	*Cakile maritima*	Brokër	European searocket	Vjosa delta (Vlora and Fieri)	wild			Shuka, pers. comm.; Pazari 2014
EN 52	*Galegae officinalis*	Galega	Galega		wild			Shuka, pers. comm.; Gjedra L.t.d.

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EN 53	*Calendula officinalis*	Kalendula // Kumaku	English marigold	Wild & cultivated	wild & cultivated (ornamental)			Kokalari et al. 1980
EN 54	*Calistegia sepium*	Geshtalla e gjerdheve	bindweed	In torrents	wild			Shuka, pers. comm.; Dankshi 2012
EN 55	*Cannabis sativa*	Kanabis // Kerpi	Marijuana	Illegaly cultivated in the remote areas of the zone (Gjirokastra, Permeti, Vlora, Tepelena, Ballshi, Fieri)	illegally cultivated			https://en.wikipedia.org/wiki/Cannabis_sativa
EN 56	*Capparis spinosa*	Kaparinë	caper bush	Vjosa delta (Vlora and Fieri)	wild		VU A1b	Shuka, pers. com.; Pazari, 2014
EN 57	*Capsella bursa-pastoris*	Shtrapëri; Trasta e bariut; Qesja e bariut	Shepherds purse	Drino, Pogon, Kurvelesh, Gjirokaster, Permet, Tepelene, Vlore	wild	Herb		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980; Pazari, 2014; Dankshi, 2009; 2012; Çela, 2012; IKPK 1988; Gjedra L.t.d.
EN 58	*Capsicum annuum*	Speci djeges	Pepper	Cultivated in all the zone	cultivated (vegetable)			Kokalari et al. 1980; Dankshi 2009
EN 59	*Capsicum frutescens*	Speci djeges	chili pepper	Cultivated in gardens	cultivated (spice)			Shuka pers. comm.; Dankshi 2009
EN 60	*Cardamine prantensis*	Kardamin ë (Gozhël)		Gjirokaster (Odrie, Pogon, Picar)	wild			Malo, 2014; Pazari, 2014
EN 61	*Carlina acanthifolia*	Ushonjëz		Gjirokaster (Çajup, Pyllo, Bureto)	wild			Malo, 2014; Pazari, 2014
EN 62	*Castanea sativa*	Gështënja	Sweet chestnut	Gjirokaster, Permet, Tepelene, Kardhiq	wild, cultivated (fruits)			Malo, 2010; Kokalari et al. 1980; IKPK 1988; Gjedra L.t.d.

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EN 63	*Centaurea cyanus*	Kokoçeli ngjyrë qielli	cornflower	Gjirokaster (Drino, Nemeçkë, Sotirë), Tepelene, Permet, Fier	wild, cultivated	Herb		Malo, 2010; Kokalari et al., 1980; Çela, 2012; IKPK 1988; Gjedra L.t.d.;
EN 64	*Centaurea solstitialis*	Kocirami	yellow star-thistle	Fier, Gjirokaster, Vlore, Cultivated	wild, cultivated			IKPK 1988
EN 65	*Centaurium erythraea*	Bari i etheve // Kinefusha	European centaury	Gjirokaster (Drino, Virua)	wild	Herb		Malo, 2010; Kokalari et al., 1980; Gjedra L.t.d.
EN 66	*Centaurium pulchellum*	Kina e fushës	lesser centaury	Fier, Gjirokaster, Tepelene, Permet, Vlore	wild	Flower, Herb		IKPK 1988; Çela, 2012
EN 67	*Centaurium umbellatum*	Kina e fushës		Fier, Gjirokaster, Tepelene, Permet, Vlore	wild	Flower, Herb		PM-Vjosa-Narta 2004; IKPK 1988
EN 68	*Cerasus avium*	Qershia e eger	wild cherry	Gjirokaster, Permet, Tepelene, Vlore	wild			Kokalari et al. 1981; IKPK 1988
EN 69	*Cerasus vulgaris*	Vishnja	Sour cherry	cultivated	Cultivated (fruits)			Shuka pers. comm.; Kokalari et al. 1980;
EN 70	*Chelidonium majus*	Tembelgjaku	greater celandine		wild			Shuka, pers. com.; Kokalari et al. 1980; Pazari, 2014
EN 71	*Chenopodium vulvaria*	Minuer	Stinking goosefoot		wild			Shuka, pers. com.; Pazari, 2014
EN 72	*Cichorium intybus*	Cikore	Common chicory	Fier, Gjirokaster, Tepelene, Permet, Vlore	wild	Flower, Leaf		PM-Vjosa-Narta 2004; Kokalari et al., 1980; Pazari 2014; Dankshi, 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.

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EN 73	*Cirsium arvense*	Gjembi i arave	Creeping thistle	Gjirokaster (Pogon, Sotirë, Kardhiq, Picar)	wild			Malo, 2010; http://www.naturalmedicinalherbs.net/herbs/c/cirsium-arvense=creeping-thistle.php
EN 74	*Cistus incanus*	Menishtja	Rockrose		wild			Shuka, pers. com.; Dankshi 2009; Gjedra L.t.d.
EN 75	*Citrus × aurantium*	Nerenxa	Bitter orange	Vlore, cultivated	cultivated (fruits)			Dankshi 2009; 2012; Kokalari et al. 1980; IKPK 1988
EN 76	*Citrus × sinensis*	Portokalli	Orange	Cultivated	cultivated (fruits)	Cortex		Dankshi 2009;
EN 77	*Citrus limonum*	Limoni	Lemon	Vlore, cultivated	cultivated (fruits)			Kokalari et al. 1980; IKPK 1988
EN 78	*Clematis vitalba*	Kulpër	Old man's beard		wild			PM-Vjosa-Narta 2004; Pazari, 2014
EN 79	*Clinopodium nepeta (Calamintha officinalis var. nepeta)*	Kalaminta	lesser calamint	Permet	wild			IKPK 1988
EN 80	*Conium maculatum*	Kukuta	Hemlock		wild			Demiri, 1983; https://en.wikipedia.org/wiki/Conium_maculatum
EN 81	*Consolida regalis (Delphinium consolida)*	Gjuhënusja e formuar	Forking Larkspur	Gjirokaster (Drino, Kardhiq), Fier, Permet, Tepelene, Vlore	wild			Malo, 2010; Pazari, 2014; IKPK 1988; Gjedra L.t.d.
EN 82	*Convulvulus sepium*	Bershelliza, Gështalla e gjerdheve	Hedge bindweed // heavenly trumpets	Gjirokaster (Kurvelesh, Pogon, Sotirë, Sopot)	wild			Malo, 2010; Kokalari et al. 1980
EN 83	*Coriandrum sativum*	Koriandri	coriander // cilantro	Gjirokaster (Drino, Sotirë), Permet	cultivated			Malo, 2010; Kokalari et al., 1980; IKPK 1988

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EN 84	*Cornus mass*	Thana	Cornelian cherry	Gjirokaster, Tepelene, Permet, Vlore	wild	Fruit		PM-Vjosa-Narta 2004; Çela, 2012, IKPK 1988
EN 85	*Corylus avellana*	Lajthia	Common hazel	Fier, Gjirokaster (Drino, Kardhiq), Permet, Tepelene	wild (rare) and cultivated.	Leaf		Malo, 2010; Kokalari et al., 1980; Dankshi, 2012; IKPK 1988; Gjedra L.t.d.
EN 86	*Cotinus coggygria*	Cemerdelli	European smoketree	Fier, Gjirokaster, Permet, Tepelene	wild			IKPK 1988
EN 87	*Crataegus monogyna*	Murrizi një bërthamëz	Common hawthorn	Fier, Gjirokaster, Tepelene, Permet, Vlore	wild	Flower, Fruit, Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980; Dankshi 2009; 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.;
EN 88	*Crataegus oxyacantha*	Murrizi dy bërthamor	Common hawthorn	Permet	wild	Flower, Fruit, Leaf		PM-Vjosa-Narta 2004; IKPK 1988
EN 89	*Cucurbita maxima*	Kungulli	cultivated squash	Tepelene, Vlore	cultivated			IKPK 1988
EN 90	*Cucurbita pepo*	Kungulli	field pumpkin	Gjirokaster, Tepelene, Vlore	cultivated			Kokalari et al. 1980; IKPK 1988
EN 91	*Cyclamen hederifolium (C. neapolitanum)*	Bukë Derri	sowbread	Kurvelesh.	cultivated			Malo, 2010
EN 92	*Cydonia oblonga*	Ftoi	Quince	Tepelene, cultivated	cultivated			Kokalari et al. 1980; IKPK 1988
EN 93	*Cynara scolymus*	Angjinarja	Artichoke		cultivated			Shuka pers. comm.; Dankshi 2012; Kokalari et al. 1980
EN 94	*Cynoglossum officinale*	Gjuheqeni mjekesor	houndstongue		wild			Shuka pers. comm.; Dankshi 2012
EN 95	*Daphne oleoides*	Xërxele	Daphne	Gjirokaster (Kurvelesh, Murganë, Pyllo)	wild			Malo, 2010

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EN 96	*Datura stramonium*	Tatulla	Jimsonweed	Fier, Gjirokaster, Tepelene, Permet, Vlore	wild	Leaf		Malo 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; IKPK 1988; Çela, 2012;
EN 97	*Daucus carota*	Karota e eger	Queen annes lace	Gjirokaster, wild & cultivated	Wild, cultivated (vegetable)			Malo, 2010; Kokalari et al. 1980; IKPK 1988
EN 98	*Delphinium peregrinum*	Gjuhënusja	Larkspur	Gjirokaster (Kurvelesh, Pyllo)	wild			Malo, 2014; Pazari, 2014; Gjedra L.t.d.
EN 99	*Digitalis grandiflora*	Luletogzi lulemadh	yellow foxglove	Tepelene	wild			IKPK 1988
EN 100	*Digitalis lanata*	Luletogzi leshtor // Lulefilxhani	Foxglove	Gjirokaster (Drino, Sotire), Fier, Permet, Vlore	wild		LR cd	Malo, 2010; Kokalari et al. 1980; IKPK 1988
EN 101	*Diospyros kaki*	Hurma	Persimmon		cultivated (fruits), alien			https://en.wikipedia.org/wiki/Diospyros_kaki
EN 102	*Diplotaxis tenuifolia*	Diplotaks	perennial wall-rocket	Gjirokaster (Virua)	wild			Malo, 2010; Pazari, 2014
EN 103	*Dipsacus sylvestris*	Berunza	wild teasel	Gjirokaster (Drino, Sotire, Pogon)	wild			Malo, 2010; Dankshi 2012
EN 104	*Dittrichia viscosa (Inula viscosa)*	Plenera	Inula	Fier, Gjirokaster	wild			Miho et al. 2013; IKPK 1988
EN 105	*Dysphania botrys (Chenopodium botrys)*	Minuer	Jerusalem oak goosefoot		wild			Shuka, pers. com.; Pazari, 2014
EN 106	*Ecballium elaterium*	Pjepri i egër	Squirting cucumber	Gjirokaster (Pogon, Murganë, Odrie)	wild			Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980
EN 107	*Echium italicum*	Ushqerza e Italisë	Italian vipers bugloss	Gjirokaster (Drino, Kardhiq)	wild			Malo, 2010
EN 108	*Echium vulgare*	Ushqereza e rendome	Echium vulgare		wild			Shuka pers. comm.; Dankshi 2012

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EN 109	*Ephedra distachya*	Gjunjëz	Ephedra	Vjosa delta (Vlora and Fieri)	wild			Miho et al. 2013; https://en.wikipedia.org/wiki/Ephedra_distachya
EN 110	*Erica arborea*	Shqopa	giant heather	Fier, Gjirokaster, Permet, Tepelene, Vlore	wild	Root		Çela, 2012; IKPK 1988
EN 111	*Erucastrum nasturtiifolium*	Erukastër	dogmustard		wild			Pazari, 2014
EN 112	*Eryngium campestre*	Gjembardhi i fushave // Gjembardha	Field eryngo	Gjirokaster (Drino, Sotirë)	wild			Malo, 2010; Kokalari et al. 1080; Dankshi 2012; IKPK 1988
EN 113	*Eucalyptus globulus*	Eukalipti	eucalyptus	Gjirokaster (Gjirokaster, Tepelene, Permet)	cultivated (ornamental), alien	Leaf		Dankshi 2009; 2012; Çela, 2012; IKPK 1988; Gjedra L.t.d.
EN 114	*Eupatorium cannabinum*	Eupator	hemp-agrimony		wild			Pazari, 2014
EN 115	*Euphorbia amygdaloida*	Rrielli si bajame	Wood spurge	Gjirokaster (Kurvelesh, Mali i Gjerë)	wild			Malo, 2010; Dankshi 2009;
EN 116	*Euphorbia cyparissias*	Rrielli selvi	Cypress spurge	Gjirokaster (Kurvelesh, Maja e Pusit)	wild			Malo, 2010; Dankshi 2009;
EN 117	*Euphorbia myrsinites*	Euforbia mersinë	myrtle // blue spurge	Gjirokaster (Kurvelesh), Fier, Permet, Vlore	wild			Malo, 2010; Dankshi 2009;
EN 118	*Ficus carica*	Fiku	Common fig	Wild & cultivated	wild, cultivated (fruits)			Kokalari et al. 1980; Pazari, 2014
EN 119	*Filago vulgaris (F. germanica)*	Filagë	common cudweed		wild			Pazari, 2014
EN 120	*Foeniculum vulgare*	Kopra e rëndomtë (finoku)	fennel	Gjirokaster (Drino, Kardhiq), Fier	wild			Malo, 2010; Kokalari et al., 1890; Dankshi 2009; IKPK 1988

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EN 121	*Fragaria vesca*	Luleshtrydhja	Wild strawberry	Gjirokaster (Drino, Sotirë), Permet, Tepelene	wild, cultivated (fruits)			Malo, 2010; Kokalari et al. 1980; Dankshi 2009; 2012; IKPK 1988; Gjedra L.t.d.
EN 122	*Frangula alnus*	Drunakuqi	Alder buckthorn	Gjirokster	wild			Kokalari et al. 1980; IKPK 1988
EN 123	*Fraxinus excelsior*	Frasheri	European ash	Gjirokaster, Permet	wild, cultivated (ornamental)	Leaf	CR A1b	Kokalari et al. 1980; Dankshi, 2012; IKPK 1988
EN 124	*Fraxinus ornus*	Frasheri i bardhe	Ash	Gjirokaster (Drino, Kardhiq), Tepelene, Permet, Vlore	wild, cultivated (ornamental)	Leaf		Malo, 2010; Kokalari et al. 1980; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 125	*Fumaria officinalis*	Fomi mjekesor	Common fumitory		wild	Leaf		Kokalari et al. 1980; Pazari, 2014; Demiri, 1983; Dankshi, 2012;
EN 126	*Galanthus reginae-olgae*	Galanthusi qumështor, Boçëbora e mbretëreshës Ollgë	Autumn snowdrop	Picar	wild		CR B1	Malo, 2010
EN 127	*Galega officinalis*	Qerbashi mjekësor	Goats-rue, french lilac, italian fitch	Gjirokaster (Drino, Kardhiq), Tepelene	wild			Malo, 2010; Çela, 2012 ; Kokalari et al., 1980; IKPK 1988
EN 128	*Galium aparine*	Bar urovi	cleavers		wild			Shuka pers. comm.; Dankshi, 2009
EN 129	*Galium verum*	Ngjitësja e vërtetë	Yellow bedstraw	Gjirokaster (Kurvelesh, Pyllo)	wild			Malo, 2010
EN 130	*Gentiana lutea*	Sanëz, bar zemre, ksanë, veshsutë	Bitter root // Yellow gentian	Gjirokaster (Mali i Gjerë, Pyllo, Murganë)	wild		EN A1b	Malo, 2010; Kokalari et al., 1980; Pazari 2014; Dankshi 2009; 2012; IKPK 1988; Gjedra L.t.d.

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EN 131	*Geranium molle*	Kamarosha butloshe	Dovesfoot geranium	Gjirokaster (Lugina e Drinos, Sotirë)	wild			Malo, 2010
EN 132	*Geranium robertianum*	Kamarosha e robertit	Herb-Robert	Gjirokaster (Nemeçke, Drino)	wild			Malo, 2010; Dankshi 2012
EN 133	*Geum urbanum*	Melakja	Herb bennett	Ne vende te fresketa me hije	wild			Shuka pers. comm.; Kokalari et al. 1980; Dankshi 2012
EN 134	*Glechoma hederacea*	Glekoma ne forme urthi	Ground-ivy		wild			Shuka pers. comm.; Dankshi 2012
EN 135	*Gratiola officinalis*	Gratiola	gratiole		wild			PM-Vjosa-Narta 2004; http://www.henriettes-herb.com/eclectic/kings/gratiola.html
EN 136	*Gymnospermium maloi*	Lule helmi	Gymnospermium	Gjirokaster (Mali i Picarit)	wild		CR B1	Malo, 2010
EN 137	*Hedera helix*	Urthi	Ivy	Gjirokaster (Drino, Sotirë), Tepelene, Vlore	wild, cultivated (ornamental)	Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980; Dankshi 2012; IKPK 1988; Gjedra L.t.d.
EN 138	*Helianthus annuus (H. ornamentalis)*	Luledielli	Common sunflower	Gjirokaster, Tepelene, Permet, Vlore	wild, cultivated (ornamental, oil)	Flower		Kokalari et al. 1980; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 139	*Helleborus odorus*	Shpendra	Hellebore	Gjirokaster (Pogon, Odrie, Sotire, Kurvelesh)	wild	Fruit		Malo, 2010; Kokalari et al. 1980
EN 140	*Helychrisum plicatum*	Akce	Everlasting	Gjirokaster (Çajup, Nemeçke, Picar), Permet, Tepelene	wild	Flower	EN A1b	Malo, 2010; Kokalari et al. 1980; IKPK 1988
EN 141	*Heracleum sphondylium*	Heraklea rrotulluese	Hogweed	Gjirokaster (Pyllo, Mali Gjere)	wild			Malo, 2010; Dankshi 2012

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EN 142	*Herniaria glabra*	Herniare	Smooth rupturewort		wild			Kokalari et al. 1980; Pazari, 2014
EN 143	*Herniaria hirsuta*	Herniare	Hairy rupturewort		wild			Shuka pers. comm.; Kokalari et al. 1980
EN 144	*Hieracium pilosella*	Kemashen me qime	Mouse-ear hawkweed	Gjirokaster (Nemeçke, Çajup)	wild			Malo, 2010; Kokalari et al. 1980
EN 145	*Humulus lupulus*	Sumbullar (dredhës)	Common hop	Gjirokaster, wild & cultivated	wild, cultivated			Kokalari et al. 1980; Pazari, 2014; Dankshi, 2009; 2012; IKPK 1988
EN 146	*Hyoscyamus niger*	Matergona	Black henbane		wild		VU A1b	Shuka pers. comm.; Kokalari et al. 1980
EN 147	*Hypercum rumeliacum*	Lulebasani i Rumelisë	St. johns wort	Gjirokaster (Mali i Pusit, Kurvelesh, Sotirë)	wild			Malo, 2010
EN 148	*Hypericum perforatum*	Lulebasani	St. johns wort	Fire, Gjirokaster (Mali i Gjerë, Pyllo, Murganë, Drino, Bureto), Tepelene, Permet, Vlore	wild	Flower, Herb	EN A1b	Malo, 2010; PM-Vjosa-Narta 2004; Miho et al., 2013; Kokalari et al., 1980; Dankshi, 2009; 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 149	*Hypericum spruneri*	Lulebasani i Sprunerit	Hypericum	Gjirokaster (Mali I Pusit, Kurvelesh, Sotirë)	wild			Malo, 2010
EN 150	*Hyssopus officinalis*	Hisop	Hyssop		wild			Shuka pers. comm.; Dankshi 2009; 2012
EN 151	*Inula germanica*	Plenër	German inula	Gjirokaster (Pyllo, Mali Gjere)	wild			Malo, 2010; Pazari, 2014
EN 152	*Inula helenium*	Plenër	Elecampane		wild			Pazari, 2014
EN 153	*Isatis tinctoria*	Istais ngjyruese	Asp of Jerusalem	Gjirokaster (Sotire, Pogon, Picar)	wild			Malo, 2010; Pazari, 2014

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EN 154	*Juglans regia*	Arra	English walnut	Fier, Gjirokaster, Permet, Tepelene, Vlore, cultivated	cultivated (fruits)	Leaf, Cortex	EN A1b	Miho et al., 2013; Dankshi 2012; Kokalari et al., 1980; Dankshi, 2009; 2012; IKPK 1988; Gjedra L.t.d.
EN 155	*Lamium purpureum*	Hisellbuta	red dead-nettle		wild			PM-Vjosa-Narta 2004; https://en.wikipedia.org/wiki/Lamium_purpureum
EN 156	*Laurus nobilis*	Dafina	Bay laurel	Fier, Gjirokaster (Kurvelesh, Çajup, Murganë), Tepelene, Permet, Vlore	wild, cultivated (ornamental)	Leaf	EN A1b	Malo, 2010; PM-Vjosa-Narta 2004; Miho et al. 2013; Kokalari et al., 1980; Pazari, 2014; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 157	*Lavandula angustifolia (L. officinalis, L. Vera)*	Lavanda // Livandoja	English Lavender	Fier, Gjirokaster, Vlore, Cultivated	cultivated			Kokalari et al. 1980; Dankshi, 2009; IKPK 1988; Gjedra L.t.d.
EN 158	*Leonurus cardiaca*	Leonuri i zemres // Bishtluani	Common motherwort	Gjirokaster	wild			Kokalari et al. 1980; Dankshi, 2009; 2012; IKPK 1988
EN 159	*Lepidium campestre*	Djegës	Field pepperwort or field pepperweed	Gjirokaster (Nemeçke)	wild			Malo, 2010; Pazari, 2014
EN 160	*Lepidium graminifolium*	Djegës	grassleaf pepperweed		wild			Pazari, 2014
EN 161	*Lepidium latifolium*	Djegës	pepperweed		wild			Pazari, 2014
EN 162	*Limonium vulgare*	Fshes e rendomte	Sea Lavender	Vjos delta (Vlora & Fieri)	wild			Demiri 1983; http://www.naturalmedicinalherbs.net/herbs/l/limonium-vulgare=sea-lavender.php
EN 163	*Linum usutatussimum*	Liri	Flax		wild			Kokalari et al. 1980; Dankshi, 2009
EN 164	*Lithospermum officinale*	Kokerruja mjekesore	Common gromwell		wild			Shuka pers. comm.; Dankshi 2012

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EN 165	*Lonicera caprifolium*	Dorezonja	Italian woodbine		wild, cultivated (ornamental)			Shuka pers. comm.; Dankshi 2009; 2012
EN 166	*Loranthus europaeus*	Veshtulla	mistletoes	Permet (Hotove)	wild			Shuka pers. comm.;
EN 167	*Lotus corniculatus*	Thuepula	common bird's-foot trefoil	Gjirokaster (Picar, Odrie)	wild			Malo, 2010; PM-Vjosa-Narta 2004; Dankshi 2012
EN 168	*Lycopus europaeus*	Likopesi	Gypsywort		wild			Shuka pers. comm.; Kokalari et al. 1980
EN 169	*Lysimachia nummularia*	Bargjergji	Creeping jenny	Gjirokaster (Kardhiq)	wild			Malo, 2010
EN 170	*Lythrum salicaria*	Bargjaku	purple loosestrife		wild			Kokalari et al., 1980; Dankshi 2012; Gjedra L.t.d.
EN 171	*Malus pumila (M. domestica)*	Molla e bute	apple tree		wild, cultivated (fruits)	Fruit		Demiri 1983; https://en.wikipedia.org/wiki/Apple
EN 172	*Malus sylvestris*	Molla e eger	European crab apple	Gjirokaster, Tepelene, Permet; Vlore	wild	Fruit		IKPK 1988
EN 173	*Malva silvestris*	Mellaga e egër	Common Mallow	Fier, Gjirokaster (Drino, Kurvelesh), Tepelene, Permet; Vlore	wild	Flower, Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980; Pazari 2014; Dankshi 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 174	*Marrubium vulgare*	Kapinoku	White horehound	Gjirokaster (Kurvelesh, Pogon), Vlore	wild	Herb		Malo, 2010; Kokalari et al. 1980; Dankshi 2012; IKPK 1988; Gjedra L.t.d.
EN 175	*Matricaria chamomilla*	Kamomili	chamomille	Fier, Gjirokaster (Drino, Sotirë) Tepelene, Permet	wild, cultivated (medicinal)	Flower		Malo, 2010; Kokalari et al. 1981; Dankshi, 2009; 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.;

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EN 176	*Melilotus officinalis*	Grunamadhi, Makthi mjekësor, Jonxha e egër	Yellow sweet clover // common melilot	Gjirokaster (Kurvelesh, Çajup, Drino) Tepelene, Permet	wild	Herb		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi, 2012; Çela, 2012; IKPK 1988; Gjedra L.t.d.
EN 177	*Melissa officinalis*	Milica mjekësore // Bar blete	Lemon balm (balm mint)	Kurvelesh, Pogon, Sotirë, Sopot, Permet, Tepelene, Vlore.	wild	Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Pazari, 2014; Dankshi, 2009; 2012; IKPK 1988; Gjedra L.t.d.
EN 178	*Mentha × piperita (M. balsamea)*	Mendra e bute, Dhjozma, Nenexhiku	Peppermint	cultivated	cultivated (spicy)			PM-Vjosa-Narta 2004; Kokalari et al., 1980; Pazari 2014; Dankshi, 2009; Gjedra L.t.d.
EN 179	*Mentha aquatica*	Mente e ujit	water mint	Gjirokaster	wild			IKPK 1988
EN 180	*Mentha longifolia*	Mendra gjethegjate	Horse Mint	Fier, Gjirokaster, Permet, Tepelene, Vlore	wild			IKPK 1988
EN 181	*Mentha pulegium*	Mendra pulegë	Pennyroyal	Gjirokaster (Drino, Sotire, Pogon), Tepelene, Permet, Fier	wild	Herb		Malo, 2010; Dankshi 2009; 2012; Çela, 2012; IKPK 1988
EN 182	*Morus alba*	Mani i bardhe	White mulberry	cultivated	cultivated (fruits)			Kokalari et al. 1980; Pazari, 2015; Dankshi, 2009;
EN 183	*Morus nigra*	Mani i Zi	Black mulberry	cultivated	cultivated (fruits)			Kokalari et al. 1980; Pazari, 2014; Dankshi, 2009; 2012
EN 184	*Myrtus communis*	Mërsina	Common myrtle	Fier, Kurvelesh, Gjirokaster, Tepelene, Permet, Vlore	wild	Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Miho et al. 2013; Kokalari et al. 1980; Dankshi, 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.

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EN 185	*Nasturtium officinale*	Shelp // Purqarku	Watercress	Gjirokaster (Odrie, Sotire, Picar)	wild			Malo, 2010; Kokalari et al. 1980; Pazarai, 2014
EN 186	*Nepeta cataria*	Nepeta katare	catnip		wild			Dankshi, 2012
EN 187	*Nerium oleander*	Leandri	Nerium	Vlore, cultivated	cultivated (ornamental)		VU D1	Kokalari et al. 1980; IKPK 1988
EN 188	*Nicotiana tabacum*	Duhani	Tobacco		cultivated (tobacco). Ethnomedicinal uses.			https://en.wikipedia.org/wiki/Nicotiana_tabacum
EN 189	*Nigella arvensis*	Nigelë	Nigella	Gjirokaster (Drino, Kardhiq)	wild			Malo, 2010; Pazari, 2014
EN 190	*Ocimum basilicum*	Borziloku	Basil	Fier, Gjirokaster, Tepelene, Vlore, cultivated	cultivated (ornamental)			Pazari 2014; Kokalari et al. 1980; Dankshi, 2009; 2012; IKPK 1988
EN 191	*Ocimum gratissimum*	Borziloku me emgenol	clove basil	Permet	cultivated (ornamental)			IKPK 1988
EN 192	*Olea europaea*	Ulliri	Olive	Fier, Gjirokaster, Permet, Tepelene, Vlore	cultivated (fruits, oil)			Kokalari et al. 1980; Dankshi 2012; IKPK 1988; Gjedra L.t.d.
EN 193	*Ononis spinosa*	Kulmathi me gjemba, Gjuhënusja	Spiny restharrow	Gjirokaster (Pogon, Sotirë, Kardhiq), Tepelene, Permet, Vlore	wild	Root		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980; Dankshi, 2012; Çela, 2012; IKPK 1988; Gjedra L.t.d.
EN 194	*Onosma arenaria*	Çikla e ranishteve	Onosma	Gjirokaster (Pogon, Murganë, Odrie)	wild			Malo, 2010; http://www.sciencedirect.com/science/article/pii/S0305197802001771
EN 195	*Origanum majorana (Majorana hortensis)*	Manxurana	sweet marjoram	Cultivated as ornamental	cultivated (spice)			Miho pers. comm.; Kokalari et al. 1980; Dankshi 2012

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EN 196	*Origanum vulgare*	Rigoni i kuq	Red oregano	Gjirokaster, Tepelene, Permet	wild, cultivated (rare) (spice)	Herb	EN A1b	Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980; Dankshi 2012; Çela, 2012; IKPK 1988; Gjedra L.t.d.
EN 197	*Origanum vulgare subsp. viridulum (Origanum vulgare var. viride)*	Rigoni i bardhe	White oregano	Fier, Gjirokaster, Permet, Tepelene, Vlore	wild, cultivated (rare) (spice)	Herb	EN A1b	http://www.theplantlist.org/tpl1.1/record/kew-143964; IKPK 1988; Çelo, 2012
EN 198	*Paliurus spina-christi (Paliurus aculeatus)*	Driza	Jerusalem thorn	Fuer, Gjirokaster, Tepelene, Permet, Vlore	wild	Fruit		Dankshi 2012; Çela, 2012; IKPK 1988
EN 199	*Papaver rhoeas*	Lulkuqja	Red poppy	Fier, Gjirokaster (Drino, Sotire, Murganë ,Odrie), Tepelene, Permet, Vlore	wild	Flower		Malo, 2010; PM-Vjosa-Narta 2004; Pazari 2014; Dankshi, 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 200	*Papaver somniferum*	Paparuni // Opiumi	Opium poppy	Ocasionally grown in gardens as ornamental or medicinal plant	cultivated (ornamental or medicinal) (alien). Ethnomedicinal uses.			Miho pers. comm.; https://en.wikipedia.org/wiki/Papaver_somniferum
EN 201	*Parietaria officinalis*	Parjetaria mjekesore	Eastern pellitory-of-the-wall		wild			Pazari, 2014; Kokalari et al. 1980; Gjedra L.t.d.
EN 202	*Paulownia tomentosa*	Paulonia	Foxglove Tree	Deciduous tree, cultivated for its vigorous new growth every year	cultivated (wood) (alien)			Miho pers. comm.; http://www.naturalmedicinalherbs.net/herbs/p/paulownia-tomentosa=foxglove-tree.php; http://PaulowniaHysa.com

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EN 203	*Persicaria bistorta (Polygonum bistorta)*	Nejca e perdredhur	Bistort		wild			Kokalari et al., 1980; Dankshi 2012; Pazari, 2014;
EN 204	*Persicaria hydropiper (Polygonum hydropiper)*	Nejca si piper uji (Thartickë)	Water pepper	Gjirokaster (Drino, Kardhiq), Fier	wild			Malo, 2010; Kokalari et al. 1980; Pazari, 2014; IKPK 1988
EN 205	*Petasites hybridus (Petasites officinalis)*	Llopoi	butterbur	Gjirokaster	wild			Kokalari et al. 1980; IKPK 1988
EN 206	*Petroselinum crispum (P. hortense)*	Majdanozi	Parsley	Fier, Gjirokaster, Permet, Tepelene, Vlore, cultivated	cultivated (spice, vegetable)			Miho pers. comm.; Kokalari et al. 1980
EN 207	*Phaseolus vulgaris*	Fasulia	Common Bean	Fier, Gjirokaster, Permet, Tepelene, Vlore, cultivated	cultivated (fruits)	Cortex		Kokalari et al. 1980; Dankshi 2012; IKPK 1988; Gjedra L.t.d.
EN 208	*Phytolacca americana*	Shpender e bardhe	pokeweed		cultivated (ornamental), alien			Demiri 1983; Dankshi, 2009
EN 209	*Pimpinella anisum*	Anasoni	anise		wild, cultivated			Kokalari et al. 1980
EN 210	*Pistacia lentiscus*	Xina	mastic	Fier, Tepelene, Vlore	wild			PM-Vjosa-Narta 2004; Miho et al. 2013; Pazari 2014; IKPK 1988
EN 211	*Pistacia terebinthus*	Qelbesi	terebinth	Fier, Gjirokaster, Permet, Tepelene, Vlore	wild			IKPK 1988
EN 212	*Plantago lanceolata*	Gjethedelli	Ribwort plantain	Fier, Gjirokaster, Tepelene, Permet	wild	Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Dankshi 2009; 2012; Kokalari et al. 1980; IKPK 1988; Çela, 2012

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EN 213	*Plantago major*	Gjethedelli il madh	Broadleaf plantain	Fier, Gjirokaster, Tepelene, Permet, Vlore	wild	Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi, 2009; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 214	*Plantago media*	Gjethedelli	hoary plantain	Fier, Gjirokaster (Nemeçke, Çajup), Tepelene	wild	Leaf		Malo, 2010; Kokalari et al. 1980; Dankshi, 2009; IKPK 1988
EN 215	*Polygala vulgaris*	Poligala e rëndomtë	Common milkwort	Gjirokaster (Kurvelesh, Maja e Pusit)	wild			Malo, 2010
EN 216	*Polygonum aviculare*	Nejcë, Bar pate	Common knotgrass	Gjirokaster (Drino, Kardhiq), Fier, Tepelene, Permet	wild	Herb		Malo, 2010; Dankshi 2012; IKPK 1988; Pazari, 2014
EN 217	*Populus alba*	Plepi i bardhe	White Poplar	Gjirokastra (Drino), Fieri & Vlora (Vjosa valley)	wild, cultivated		VU A2b	Malo, 2010; Miho et al. 2013; http://naturalmedicinalherbs.net/herbs/p/populus-alba=white-poplar.php
EN 218	*Populus nigra*	Plepi i zi	black poplar	Gjirokaster (Drino), Tepelene	wild, cultivated (ornamental, fences)			Malo, 2010; Kokalari et al. 1980; Dankshi 2012; IKPK 1988
EN 219	*Portulaca oleracea*	Burdullak	Common purslane	Gjirokaster (Drino)	wild			Malo, 2010; Pazari 2014
EN 220	*Primula veris (P. officinalis)*	Aguliçja	Cowslip primrose	Gjirokaster (Drino, Pogon, Kurvelesh), Vlore	wild	Flower		Kokalari et al. 1980; Malo, 2010; Pazari 2014; Dankshi, 2009; IKPK 1988; Gjedra L.t.d.
EN 221	*Primula vulgaris (P. grandiflora)*	Agulice pa kercell	primrose	Tepelene	wild			IKPK 1989
EN 222	*Prunella vulgaris*	Prunela e rëndomtë	Common self-heal	Gjirokaster (Mali i Gjerë, Pyllo, Murganë)	wild			Malo, 2010; PM-Vjosa-Narta 2004;

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EN 223	*Prunus cerasus*	Vishnja	Sour cherry	cultivated	cultivated (fruits)			Shuka pers. comm.; Dankshi 2009; 2012
EN 224	*Prunus persica*	Pjeshka	Peach	cultivated (fruits)	cultivated (fruits)			Shuka pers. comm.; Dankshi 2009; 2012
EN 225	*Prunus spinosa*	Kulumbria	Blackthorn	Gjirokaster (Kurvelesh), Fier, Permet, Vlore	wild	Flower, Fruit		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi, 2009; 2012; IKPK 1988; IKPK 1988; Gjedra L.t.d.
EN 226	*Pulmonaria officinalis*	Lulelepuri	lungwort	Fier, Permet, Tepelene, Vlore	wild			IKPK 1988
EN 227	*Punica granatum*	Shega	Pomegranate	Gjirokaster, Vlore, cultivated	cultivated (fruits, ornamental)			PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi, 2012; IKPK 1988
EN 228	*Pyrus malus*	Molla e eger	wild apple		wild			Shuka pers. comm.; Gjedra L.t.d.
EN 229	*Quercus macrolepis (Q. aegilops)*	Valanidhi	Valonia oak	Tepelene (Kalivaç)	wild			IKPK 1988
EN 230	*Quercus petrea*	Bunga	Sessile Oak	Gjirokaster (Zagorie, Pogon)	wild			Malo, 2010; Kokalari et al. 1980
EN 231	*Quercus robur*	Rrenja	English oak	Vjosa delta (Vlora and Fieri)	wild		VU A1b	Miho et al., 2013; Kokalari et al. 1980; Dankshi 2012
EN 232	*Ranunculus acris*	Zhabina e zakonshme	Catnip	Gjirokaster (Çajup, Bureto)	wild			Malo, 2010; Pazari, 2014
EN 233	*Ranunculus bulbosus*	Zhabina qepore	St. Anthony's turnip		wild			Pazari, 2014
EN 234	*Ranunculus repens*	Zhabina rreshqanore	creeping buttercup	Gjirokaster (Drino, Kardhiq)	wild			Malo, 2010; Pazari, 2014
EN 235	*Raphanus raphanistrum*	Rrepa e egër	Wild radish // jointed charlock	Gjirokaster (Kardhiq)	wild			Malo, 2010; Pazari, 2014
EN 236	*Raphanus sativus*	Rrepa	Radish	cultivated	cultivated (vegetable)			Kokalari et al. 1980; Pazari, 2014
EN 237	*Reseda luteola*	Shukull (Gruzë)	dyer's rocket		wild			Shuka pers. comm.; Pazari, 2014

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EN 238	*Rhamnus frangula*	Pjerreza dliruese	alder buckthorn		wild			Shuka pers. comm.; Kokalari et al. 1980; Dankshi, 2012
EN 239	*Rhus coriaria*	Shqeme	Sicilian sumac	Permet, Tepelene	wild			Shuka pers. comm.; IKPK 1988
EN 240	*Robinia pseudo-acacia*	Akacia	acacia	Fier, Gjirokaster, Permet, Tepelene, Vlore	cultivated (ornamental, fences) (aliene)	Flower		Çela, 2012; IKPK 1988, Gjedra L.t.d.
EN 241	*Rosa canina*	Trendafili i eger	Rosehips	Gjirokaster (Drino, Kardhiq, Çajup, Kurvelesh, Pogon), Fier, Permet, Tepelene, Vlore	wild	Fruit		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi, 2012; IKPK 1988; Gjedra L.t.d.
EN 242	*Rosa gallica*	Trendafili i frances	Rosa gallica		wild			Shuka pers. comm.; Dankshi 2012
EN 243	*Rosmarinus officinalis*	Rozmarina	rosemary	Fier, Gjirokaster, Permet, Tepelene, Vlore, cultivated	cultivated (ornamental)	Leaf		Malo, 2010; Kokalari et al., 1980; Dankshi, 2009; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 244	*Rubus fruticosus*	Manaferra	Blackberry	Fier, Gjirokaster, Tepelene, Permet; Vlore	wild	Leaf		Kokalari et al. 1980; IKPK 1988; Çela, 2012; IKPK 1988; Gjedra L.t.d.;
EN 245	*Rubus idaeus*	Mjedra	Red raspberry	Gjirokaster (Çajup, Drino)	wild			Malo, 2010; Dankshi, 2009; 2012; Gjedra L.t.d.
EN 246	*Rubus ulmifolius*	Manaferra	wild blackberry	Gjirokaster (Drino, Kardhiq)	wild	Leaf		Malo, 2010; Kokalari et al. 1980
EN 247	*Rumex acetosella*	Lëpjeta e thartë	sheeps // red sorrel	Gjirokaster (Mali i Gjerë, Pyllo, Murganë)	wild			Malo, 2010; Dankshi, 2012
EN 248	*Rumex crispus*	Lëpjetë	curly dock	Gjirokaster (Drino, Kardhiq)	wild			Malo, 2010; Pazari, 2014
EN 249	*Rumex pulcher*	Lëpjetë	fiddle dock	Vojsa delta	wild			PM-Vjosa-Narta 2004;

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EN 250	*Ruscus aculeatus*	Rrhushkulli	Butcher's-broom	Gjirokaster (Picar, Odrie)	wild			Malo, 2010; Dankshi 2012; Gjedra L.t.d.
EN 251	*Salix alba*	Shelgu i bardhe	willow	Gjirokaster (Drino), Fier, Tepelene, Vlore	wild			Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi, 2009; 2012; IKPK 1988
EN 252	*Salix eleagnos*							
EN 253	*Salix fragilis*	Shelgu	Crack willow	Gjirokaster (Drino, Kurvelesh, Sotire)	wild		VU A1b	Malo, 2010; Kokalari et al. 1980
EN 254	*Salix myrsinifolia (S. incana)*	Shelgu industrial	Balck willow	Permet, Vlore	wild			IKPK 1988
EN 255	*Salix ssp*	Shelgje te tjera	other willows	Permet, Tepelene, Vlore, Fier	wild	Cortex		Miho et al. 2013; IKPK 1990
EN 256	*Salvia officinalis*	Sherebela (e zakonshme)	sage	Gjirokaster (Kurvelesh, Pogon, Sotirë, Sopot), Tepelene, Permet, Vlore	wild, cultivated (medicianl)	Herb	VU A1b	Malo, 2010; Kokalari et al., 1980; Pazari, 2014; Dankshi, 2009; 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 257	*Salvia scalera*	Shengjini	scaleria sage	Gjirokaster, Permet, Vlore	wild	Herb		Dankshi, 2009; IKPK 1988; Gjedra L.t.d.
EN 258	*Sambucus ebulus*	Shpendra // Qingla	Danewort	Gjirokaster (Drino, Sotire, Pogon), Tepelene, Vlore	wild	Fruit		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; IKPK 1988
EN 259	*Sambucus nigra*	Qingla e zezë // shtogu	elderberry	Gjirokaster (Mali i Gjerë, Pyllo, Murganë, Drino, Nemëçkë), Tepelene, Permet; Vlore	wild	Flower, Fruit	VU A1b	Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980; Dankshi, 2009; 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.;
EN 260	*Sanguisorba officinalis*	Lulebostani	great burnet	Gjirokaster	wild			IKPK 1988

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EN 261	*Saponaria officinalis*	Sapunqyqe // Shkumbakja // Barshkumesit	crow soap	Gjirokaster	wild, cultivated			Kokalari et al., 1980; Dankshi 2012; Pazari, 2014; IKPK 1988
EN 262	*Satureja hortensis*	Trumza // Shtermeni	Summer savory		wild			Shuka pers. comm.; Dankshi 2012
EN 263	*Satureja montana*	Trumza // Shtermeni	Winter Savory	Gjirokaster (Çajup, Murgane, Pyllo, Kurvelesh, Bureto), Fier, Tepelene, Vlore	wild		VU A1c	Malo, 2010; Kokalari et al., 1980; Pazari 2014; IKPK 1988; Gjedra L.t.d.
EN 264	*Scrophularia nodosa*	Breshkeza e fikut	figworts		wild			Shuka pers. comm.; Dankshi, 2009
EN 265	*Sedum acre*	Rryshqyqja e athët	Goldmoss stonecrop // wallpepper	Gjirokaster (Maja e Pusit)	wild			Malo, 2010; Pazari, 2014
EN 266	*Sedum reflexum (S. rupestre)*	Rrushqyqe	reflexed stonecrop		wild			Shuka pers. comm.; Pazari, 2014
EN 267	*Sedum telephium (Hylotelephium telephium)*	Rrushqyqe	orpine	Gjirokaster (Kardhiq)	wild			Shuka pers. comm.; Pazari, 2014
EN 268	*Sempervivum tectorum*	Barveshi	common houseleek	Tepelene, Vlore	wild			IKPK 1988
EN 269	*Senecio vulgaris*	Pulithi // Bari gardalinave	Groundsel // Old-man-in-the-Spring		wild			Shuka pers. comm.; Kokalari et al., 1980; Dankshi, 2012
EN 270	*Sideritis raeseri*	Çaji i malit	Mountain tea // starwort	Gjirokaster (Kurvelesh, Çajup, Murganë), Permet, Tepelene, Vlore	wild	Herb	EN A1c	Malo, 2010; Kokalari et al., 1980; IKPK 1988; Gjedra L.t.d.
EN 271	*Silene gallica*	Klokëz	common catchfly		wild			Shuka pers. comm.; Pazari, 2014
EN 272	*Silybum marianum*	Gjembgomari	milk thistle	Fier, Gjirokaster,	wild	Seed		IKPK 1988

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				Permet, Tepelene, Vlore				
EN 273	*Sinapis alba*	Sinapi i bardhe	White mustard	Gjirokaster	wild			IKPK 1988
EN 274	*Sisymbrium officinale*	Cucubinë (rrëpirë, llapasanë)	Hedge mustard		wild			Pazari 2014
EN 275	*Solanum lycopersicum*	Domatja	Tomato		cultivated (food)			Shuka pers. comm.; Dankshi, 2009
EN 276	*Solanum nigrum*	Idhnaqi izi	Black nightshade	Gjirokaster (Kardhiq)	wild			Malo, 2010
EN 277	*Solidago virgaurea*	Solidagia shuferarte	European goldenrod		wild			Kokalari et al. 1980; Pazari, 2014
EN 278	*Sonchus arvensis*	Rrëshyelli i arave	Field sowthistle	Gjirokaster (Pogon, Sotirë, Kardhiq)	wild			Malo, 2010
EN 279	*Sonchus oleraceus*	Rrëshyelli i perimeve	Common sowthistle	Gjirokaster (Drinos, Sotirë)	wild			Malo, 2010; PM-Vjosa-Narta 2004;
EN 280	*Sorbus aucuparia*	Vadhja e egër	rowan	Gjirokaster (Pogon)	wild			Malo, 2010; Kokalari et al., 1980;
EN 281	*Spartium junceum*	Gjineshtra	Spanish broom	Gjirokaster (Drinos), Fier, Tepelene, Permet, Vlore	wild	Flower		Malo, 2010; PM-Vjosa-Narta 2004; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 282	*Spergularia rubra*	Spergulare e kuqe	Spergularia rubra		wild			Pazari, 2014
EN 283	*Stachys officinalis*	Sarusha mjekesore	common hedgenettle	Gjirokaster (Murgane, Bureto)	wild			Malo, 2010; Dankshi 2012
EN 284	*Symphytum officinale*	Kufilma mjekësore	Common comfrey		wild		VU A1b	Shuka pers. comm.; Kokalari et al. 1980
EN 285	*Tanacetum cinerariifolium (Piretrum cinerarifolium)*	Barpleshti		Tepelene	wild			IKPK 1988
EN 286	*Tanacetum parthenium*	Lule vjeshte	feverfew		wild			Shuka pers. comm.; Dankshi, 2009

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EN 287	*Tanacetum vulgare*	Karajpeli	Tansy	Gjirokaster	wild			Malo, 2010; Kokalari et al. 1980; Dankshi, 2012; IKPK 1988; Gjedra L.t.d.
EN 288	*Taraxacum officinale*	Luleshurdha // Radhiqe	Common dandelion		wild			Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Pazari, 2014; Dankshi, 2009; Gjedra L.t.d.
EN 289	*Teucrium chamaedrys*	Arrsi, Mountain Germander	Wall germander	Gjirokaster (Çajup, Kurvelesh), Fier, Permet, Tepelene, Vlore	wild	Herb		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; IKPK 1988
EN 290	*Teucrium montanum*	Bar majaselli	Mountain Germander	Gjirokaster (Çajup)	wild			Malo, 2010
EN 291	*Teucrium polium*	Bar majaselli	Felty germander	Gjirokaster (Çajup, Kurvelesh), Fier, Permet, Tepelene, Vlore	wild	Herb		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; IKPK 1988
EN 292	*Thalictrum flavum*	Pipanollë		Gjirokaster (Çajup, Kurvelesh), Fier, Permet, Tepelene, Vlore	wild			Shuka pers. comm.; Pazari, 2014
EN 293	*Thymus capitatus*	Trumez	thymes		wild			Shuka pers. comm.; Dankshi, 2009; Gjedra L.t.d.
EN 294	*Thymus hirsutus*	Lisra qimeashpër // Trumez	thymes	Gjirokaster (Kurvelesh, Maja e Pusit)	wild	Herb		Malo, 2010; Dankshi, 2009;
EN 295	*Thymus longicauilis*	Lisra qime ashpër // Trumez	thymes	Gjirokaster (Kurvelesh, Murganë)	wild	Herb		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al., 1980; Dankshi, 2009;
EN 296	*Thymus moesiacus*	Trumez	thymes	Gjirokaster (Kurvelesh), Fier, Permet, Vlore	wild	Herb		Malo, 2010; Dankshi, 2009;

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EN 297	*Thymus precox*	Trumez	thymes	Gjirokaster (Nemeçke, Murgane)	wild	Herb		Malo, 2010; Dankshi, 2009;
EN 298	*Thymus serpyllum*	Zhumbrica	Breckland thyme	Gjirokaster, Tepelene, Permet; Vlore	wild	Herb		Kokalari et al. 1980; Dankshi, 2009; Çela, 2012; IKPK 1988; Gjedra L.t.d.
EN 299	*Thymus vulgaris*	Timusi	common thyme	Permet, Tepelene, Vlore	wild	Herb		IKPK 1988
EN 300	*Tilia parviflora (T. cordata)*	Bliri	Small-leaved lime	Gjirokaster (Kardhiq)	wild		CR B2d	Shuka pers. comm.; Demiri 2013; Anonimous 1988-2000; Kokalari et al. 1980
EN 301	*Tilia platyphyllos (T. officinarum)*	Bliri gjethegjerë, bliri i bardhe	Largeleaf linden	Gjirokaster (Murganë, Pyllo, Kurvelesh)	wild, cultivated (ornamental)	Flower, leaf	CR A1c	Malo, 2010; Demiri 2013; Anonimous 1988-2000; Kokalari et al. 1980
EN 302	*Tilia tomentosa (T. argentea)*	Bliri i kuq, bliri pushlor	linden	Fier, Gjirokaster, Permet, Tepelene, Vlore	wild, cultivated (ornamental)	Flower, leaf		Demiri 2013; Anonimous 1988-2000; Kokalari et al. 1980; IKPK 1988; Gjedra L.t.d.
EN 303	*Torilis nodosa*	Torilis	Knotted hedgeparsley	Gjirokaster (Murganë, Kurvelesh)	wild			Malo, 2010; Kokalari et al. 1980
EN 304	*Trifolium arvense*	Terfili i bardhe	hare's-foot clover	Gjirokaster, Permet, Tepelene, Vlore	wild	Flower		IKPK 1988
EN 305	*Trifolium pratense*	Tërfili i livadheve, Terfili i kuq	Red clover	Gjirokaster (Drinos, Çajup, Kurvelesh), Tepelene, Permet.	wild	Flower		Malo, 2010; PM-Vjosa-Narta 2004; Çela, 2012; Dankshi, 2009; IKPK 1988; Gjedra L.t.d.
EN 306	*Trifolium repens*	Tërfili zvarritës	White clover	Gjirokaster (Kurvelesh, Cajup, Murganë), Tepelene, Permet.	wild	Flower		Malo, 2010; PM-Vjosa-Narta 2004; Çela, 2012

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EN 307	*Trigonella foenum-graecum*	Trigonella e mesme, Trendelina	Fenugreek	Gjirokaster (Sotire, Pogon, Odrie)	wild			Malo, 2010; Dankshi, 2009;
EN 308	*Tussilago farfara*	Thundër mushka	coltsfoot	Fier, Gjirokaster (Drinos, Sotirë, Çajup, Kurvelesh), Tepelene, Permet, Vlore	wild	Flower, Leaf		Malo, 2010; PM-Vjosa-Narta 2004; Pazari, 2014; Kokalari et al. 1980; Dankshi, 2009; 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.;
EN 309	*Ulmus minor (Ulmus campestris)*	Vidhi i vogel	Field elm	Gjirokaster (Pogon, Kurvelesh, Sotire); Vjosa riverbanks	wild		VU A2b	Malo, 2010; PM-Vjosa-Narta 2004; Miho et al., 2013; Kokalari et al. 1980; Dankshi 2012
EN 310	*Umbilicus rupestris*	Gjasëll	Penny-pies		wild			Pazari, 2014
EN 311	*Urtica dioica*	Hithra	Common nettle	Fier, Gjirokaster, Tepelene, Permet, Vlore	wild	Leaf, Herb, Root		Malo, 2010; PM-Vjosa-Narta 2004; Pazari, 2014; Dankshi, 2009; 2012; IKPK 1988; Çela, 2012; Gjedra L.t.d.
EN 312	*Valeriana officinalis*	Valerjana mjekësore	valerian	Kurvelesh, Gjirokaster	wild		VU A1c	Malo, 2010; Kokalari et al., 1980; Dankshi, 2012; IKPK 1988
EN 313	*Verbascum phlomoides*	Netulla në formë floisi	Woody // orange mullein	Fier, Gjirokaster (Çajup, Sotirë, Kardhiq)	wild	Flower, Leaf		Malo, 2010; Kokalari et al. 1980; Dankshi, 2009; IKPK 1988
EN 314	*Verbascum thapsiforme*	Netulla	great mullein	Gjirokaster (Pogon, Odri, Sotire), Tepelene, Permet, Vlore	wild	Flower, Leaf		Malo, 2010; Kokalari et al. 1980; Çela, 2012; Dankshi, 2009; IKPK 1988; Gjedra L.t.d.
EN 315	*Verbena officinalis*	Bari i shpretkes	Common vervain	Fier, Gjirokaster, Tepelene	wild	Herb		PM-Vjosa-Narta 2004; Kokalari et al. 1980; Dankshi, 2009; 2012; IKPK 1988; Gjedra L.t.d.

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EN 316	*Veronica officinalis*	Veronika mjekesore	heath speedwell		wild			Shuka pers. comm.; Dankshi 2012
EN 317	*Vicia sativa*	Koçkulla	Common vetch	Gjirokaster (Libohovë, Lunxhëri, Drino, Pogon, Kardhiq)	wild			Malo, 2010
EN 318	*Vinca major*	Metriku	Bigleaf periwinkle		wild			Shuka pers. comm.; Kokalari et al. 1980
EN 319	*Vincetoxicum hirundinaria (Cynanchum vincetoxicum)*	Qenmbytesja	White swallow-wort	Gjirokaster	wild			IKPK 1988
EN 320	*Viola odorata*	Manushaqja ose vjollca	Sweet violet	Gjirokaster, Permet, Tepelene, Vlore	wild			Kokalari et al., 1980; Pazari 2014; Dankshi, 2009; IKPK 1988; Gjedra L.t.d.
EN 321	*Viola epirota*	Manushaqe	Johnny Jump up	Gjirokaster (Kurvelesh, Murgane, Nemeçke), Vlore	wild			Malo, 2010; Kokalari et al., 1980; Dankshi, 2009; 2012; IKPK 1988
EN 322	*Viscum album*	Veshtulla	European mistletoe	Gjirokaster, Permet, Tepelene, Vlore	wild	Herb	VU A1c	Kokalari et al. 1980; Pazari, 2014; IKPK 1988; Gjedra L.t.d.
EN 323	*Vitex agnus-castus*	Konopica	vitex	Fier, Permet, Tepelene, Vlore (Vose, Narte)	wild	Fruit		PM-Vjosa-Narta 2004; Miho et al., 2013; IKPK 1988; Gjedra L.t.d.
EN 324	*Vitis sylvestris*	Hardhia e eger	Wild vine		wild			PM-Vjosa-Narta 2004;
EN 325	*Vitis vinifera*	Hardhia	Common grape vine	Gjirokaster, Permet, Tepelene, Vlore, cultivated	cultivated (fruits)			Dankshi 2012; IKPK 1988
EN 326	*Xanthium spinosum*	Sybardha	Spiny cockleburr // prickly burweed	Gjirokaster (Drino, Kardhiq, Pogon, Kurvelesh)	wild			Malo, 2010; PM-Vjosa-Narta 2004;

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EN 327	*Xanthium strumarium*	Rrodhja	Cocklebur	Vjosa delta (Vlora and Fieri)	wild			PM-Vjosa-Narta 2004; Miho et al. 2013; http://www.naturalmedicinalherbs.net/herbs/x/xanthium-strumarium=cocklebur.php
	Angiosperms // Monocots							
MO 1	*Allium cepa*	Qepë	onion	Cultivted as vegetable.	cultivated (vegetable)			Kokalari et al. 1980; Pazari, 2014
MO 2	*Allium porrum*	Preshi, Prasi	leeks	Cultivted as vegetable.	cultivated (vegetable)			Kokalari et al. 1980; Pazari, 2014
MO 3	*Allium sativum*	Hudhra	garlic	Cultivted as vegetable.	cultivated (vegetable)			Kokalari et al. 1980; Pazari, 2014; Dankshi, 2009
MO 4	*Anacamptis morio*	Salepi	Green-winged orchid	Vjosa delta	wild		EN A1b	Kokalari et al. 1980; Miho et al. 2013
MO 5	*Anacamptis pyramidalis*	Salepi	pyramidal orchid	Gjirokaster (Kardhiq, Pogon), Vjosa delta	wild		EN A1b	Malo, 2010; Shuka & Draçi, 2004; Miho et al. 2013
MO 6	*Arum italicum*	Këlkaza e Italisë	Italian arum	Gjirokster (Drino, Odrie, Kurvelesh)	wild			Malo, 2010
MO 7	*Arum maculatuam*	Këlkaza	snakeshead	Gjirokaster (Kardhiq)	wild			Shuka & Draçi, 2004
MO 8	*Asparagus officinalis*	Shpargu	Asparagu		Cultivated (vegetable)			Shuka pers. comm.; Dankshi 2009; 2012
MO 9	*Asphodelus albus*	Badhra e bardhë	White asphodel	Gjirokster (Drino, Sotirë, Çajup, Murganë, Picar, Bureto, Zagorie)	wild			Malo, 2010; http://www.naturalmedicinalherbs.net/herbs/a/asphodelus-albus=asphodel.php
MO 10	*Asphodelus aestivus*	Badhra verore	summer asphodel	Vlore, Fier	wild			Miho et al., 2013; http://www.naturalmedicinalherbs.net/herbs/a/asphodelus-aestivus.php

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MO 11	*Avena sativa*	Tershera	Oat	Gjirokster (Picar, Odrie)	cultivated (forage)			Malo, 2010; Kokalari et al. 1980; Dankshi 2009
MO 12	*Colchicum autumnale*	Xhërrokull vjeshtor	Autumn crocus, Meadow saffron or Naked lady	Gjirokaster (Kurvelesh, Nemeçke), Fier, Permet, Tepelene, Vlore	wild		EN A1b	Malo, 2010; Pazari, 2014; Kokalari et al., 1980; IKPK 1988
MO 13	*Cynodon dactylon*	Krisja, Grami	Scutch grass	Fieri, Gjirokastra, Tepelena, Permeti, Vlore	wild	Ryzome		Malo, 2010; PM-Vjosa-Narta 2004; Kokalari et al. 1980; Çela, 2012; IKPK 1988; Gjedra L.t.d.
MO 14	*Dactylorhiza saccifera*	Salep gishtor	wild ochrid	(Gjirokaster (Kardhiq, Skerfice)				Malo 2010
MO 15	*Elymus repens (Agropyrum repens)*	Grami zvarranik	couch grass		wild			Shuka pers. comm.; Dankshi 2012
MO 16	*Hordeum vulgare*	Elbi	Barley	cultivated	cultivated (cereal)			Shuka pers. comm.; Kokalari et al. 1980
MO 17	*Iris germanica*	Shpatoria	Iris	Gjirokaster (Nemeçkë), Fier, Permet	cultivated (ornamental)	Root		Malo, 2010; Kokalari et al. 1980; Pazari, 2014; IKPK 1988; Gjedra L.t.d.
MO 18	*Iris pallida*	Shpatoria	Iris	Gjirokaster, Tepelene	cultivated (ornamental)			Pazari, 2014; IKPK 1988; Gjedra L.t.d.
MO 19	*Lilium candidum*	Zambaku	Madonna lily		wild			Shuka pers. comm.; Dankshi 2012
MO 20	*Orchis spp.*	Salepi	Orchid	Gjirokaster, Permet, Tepelene, Vlore	wild	Bulb	VU A1b	Miho et al., 2013; IKPK 1988
MO 21	*Orchis italica*	Salepi	Orchid	Gjirokaster (Skerfice, Odrie)	wild			Malo, 2010; Kokalari et al. 1980; Pazari, 2014
MO 22	*Orchis maculata*	Salepi	Orchid	Gjirokaster (Sotire, Odrie, Pogon)	wild			Malo, 2010; Pazari, 2014
MO 23	*Orchis morio*	Salepi	Orchid	Gjirokaster (Virua, Odrie, Pogon)	wild			Malo, 2010; Kokalari et al., 1980; Pazari, 2014

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MO 24	*Orchis papilionacea*	Salepi	Orchid	Gjirokaster (Andon Poçi)	wild			Malo, 2010
MO 25	*Orchis pauciflora*	Salepi	Orchid	Gjirokaster (Sotire, Çajup, Pogon)	wild			Malo, 2010
MO 26	*Orchis provincialis*	Salepi	Orchid	Gjirokaster (Sotire, Odrie, Pogon)	wild		LR cd	Malo, 2010
MO 27	*Orchis purpurea*	Salepi	Orchid	Gjirokaster (Çajup)	wild			Malo, 2010
MO 28	*Orchis quadripunctata*	Salepi	Orchid	Gjirokaster (Skerfice, Odrie)	wild			Malo, 2010
MO 29	*Orchis tridentata*	Salepi	Orchid	Gjirokaster (Sotire, Odrie, Pogon)	wild			Malo, 2010
MO 30	*Orchis ustulata*	Salepi	Orchid	Gjirokaster (Skerfice, Odrie)	wild			Malo, 2010
MO 31	*Platanthera bifolia*	Salep	Rein orchids	Gjirokaster (Virua, Odrie, Pogon	wild			Malo, 2010; Kokalari et al. 1980
MO 32	*Platanthera chlorantha*	Salep	greater butterfly-orchid	Gjirokaster Sotire, Odrie, Pogon	wild			Malo, 2010; Kokalari et al. 1981
MO 33	*Drimia maritima (Urginea maritima; Scilla maritima)*	Bockë (qepë deti)	Sea squill		wild			Miho et al., 2013; Pazari 2014; Kokalari et al., 1980
MO 34	*Veratrum album*	Shtara e bardhë	White hellebore	Gjirokaster (Mali i Gjerë, Pyllo, Murganë)	wild			Malo, 2010; Pazari, 2014; Kokalari et al., 1980
MO 35	*Zea mays*	Misri	Corn silk	Fier, Gjirokaster, Permet, Tepelene, Vlore, cultivated	cultivated (ceral)			Kokalari et al. 1980; Dankshi 2012; IKPK 1988; Gjedra L.t.d.
379						94	46	