

## DIVERSITY AND MARKETING POTENTIAL OF NON-WOOD FOREST PRODUCTS IN BERTEA LOCALITY (PRAHOVA COUNTY)

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### Abstract

In Europe, in the last two-three decades, the sector of non-wood forest products (NWFPs) received a special attention, thanks to their multiple uses. The most famous and used NWFPs in Romania which are harvested from the spontaneous flora are represented by the edible mushrooms and truffles, aromatic and medicinal plants, and forest fruits. Across the country, there are districts with high potential in harvesting these forest products, Prahova County being one of them. According to current legislation, the county is divided into two municipalities, twelve towns and ninety communes, including Bertea. The purpose of this research was to assess the potential of harvesting and marketing of the NWFPs in Bertea. A questionnaire with eleven questions was applied in the timeframe between 20<sup>th</sup> of April and 20<sup>th</sup> of May 2018 and one hundred households were the subject of the survey. The main way of procuring NWFPs is through harvesting by a family member, only a few people buying these products from local markets. The marketing of the NWFPs in Bertea is almost none, most of the people using the NWFPs for familial purposes and in small quantities. The majority of the interviewed people don't think that the marketing of the NWFPs should be promoted or collaboration between local stakeholders should be established.

**Key words:** Bertea, forest fruits, marketing, NWFPs, Prahova

## INTRODUCTION

In Europe, in the last two-three decades, the marketing and trade of non-wood forest products (NWFPs), also known as non-timber forest products (NTFPs) [3] or green products [8], gain more interest [13].

In Romania, the most famous and used NWFPs which are harvested from the spontaneous flora are represented by the edible mushrooms and truffles, aromatic and medicinal plants, and forest fruits [5]. According to a recent study, the most appreciated forest fruits by the Romanian students are the raspberries, followed by walnuts, common hazels, wild strawberries and blueberries [9]. Forest fruits are valuable especially for their several antioxidants and active properties that are beneficial to human health [1], [4], [10].

Romania has also high interest in picking edible mushrooms, honey fungus [*Armillaria mellea* (Vahl) P. Kumm.], penny bun (*Boletus edulis* Bull.), and chanterelle (*Cantharellus*

*cibarius* Fr.), being the most common species [16].

Regarding the game species, even if Romania has a great potential in harvesting and marketing of the game products, the yearly income obtained by the forest districts from these products is almost insignificant, being less than 1% [6].

Thanks to its great diversity regarding the forest composition and the land forms, Prahova County has a great potential for businesses targeting NWFPs [7]. According to the National Forest Administration - Romsilva annual report, in 2017, Prahova Forestry Directorate delivered 122.7 tons of forest fruits and 30.7 tons of medicinal plants [14].

From an administrative perspective, the county is divided into two municipalities, twelve towns and ninety communes, the names of thirty of them being related with the common names of certain forest tree species [15].

Bertea is one of the ninety communes from Prahova County. Its neighbors are Valea Doftanei (North-West), Ștefănești (East), Aluniș

(South) and Brebu (South-West) localities, respectively (Figure 1). It is a scattered commune, which recorded in the last three decades a significant population decrease, from 3,777 inhabitants (in 1985) down to 3,490, in 2002, and 3,239, in 2011, respectively [11], [12]. In the last twenty years, a similar trend was also recorded in the case of the arable lands [2].



Fig. 1. Location of Bertea Commune

Source:

[https://commons.wikimedia.org/wiki/File:Bertea\\_jud\\_Prahova.png](https://commons.wikimedia.org/wiki/File:Bertea_jud_Prahova.png)

The forest fund within the administrative borders of Bertea accounts for 1,876 hectares, out of which 1,232 hectares are state-owned, being managed by Slănic Forest District, a territorial unit of Prahova Forestry Directorate [12]. Common beech (*Fagus sylvatica* L.) and silver birch (*Betula pendula* Roth.) are the most common hardwood species, accounting for 67% and 7% of the total forest area managed by Slănic Forest District, respectively. The coniferous species are represented by Norway spruce [*Picea abies* (L.) H. Karst.; 17%] and silver fir (*Abies alba* Mill.; 4%). The remaining 5% consist in other hardwood species [12].

The purpose of this research was to highlight the importance of harvesting/picking and marketing of the specific NWFPs in Bertea locality.

## MATERIALS AND METHODS

The main instrument used for assessing the importance of harvesting/picking and trade of the NWFPs in Bertea consisted in a questionnaire with 11 questions, as follows:

**Q1.** What are the main ways of procuring NWFPs by your family?

- (a) A family member collects them from the forest;
- (b) I buy them locally;
- (c) Other method (please specify which).

**Q2.** Which are the main types of NWFPs that you harvest and/or buy?

Specify, please, also the main species for each category, as follow:

- (a) Medicinal plants;
- (b) Forest fruits;
- (c) Edible mushrooms;
- (d) Other categories (please specify which).

**Q3.** What quantities of non-timber forest products do you (or your family) purchase and/or harvest every year?

Specify, please, the quantities for every species/type of NWFPs/product.

**Q4.** What is the price you pay per one kilogram/piece?

Specify, please, prices and quantities for every species/type of NWFPs/product.

**Q5.** For what purpose do you harvest/purchase non-timber forest products?

- (a) Family consumption;
- (b) Income generation through sale;
- (c) Other purpose (please specify which).

**Q6.** If you have chosen option (b) to question no. 5, in what form do you sell the non-timber forest products?

Please specify the forms, under which you sell, for every species/product, where applicable:

- (a) Fresh, immediately after harvest;
- (b) Processed/prepared (please specify in what form; e.g. frozen, processed as juices, jams, etc.).

**Q7.** If you personally harvest NWFPs, which areas do you often visit?

**Q8.** According to your experience, these products should be strongly promoted in Bertea? If so, could you motivate your answer by presenting an effective way of promotion?

**Q9.** Do you frequently use these forest products in your diet? If so, what do you prefer (examples)?

- (a) Mushrooms;
- (b) Forest fruits;
- (c) Medicinal and aromatic herbs.

**Q10.** Do you think there should be a shop with products specific to this segment in Berteia (Yes or No)?

**Q11.** Do you think it would be more appropriate to have collaboration between the main commercial entities already established in Berteia and the local people who are harvesting certain NWFPs (Yes or No)?

The questionnaire was applied in the timeframe 20<sup>th</sup> of April 2018 and 20<sup>th</sup> of May 2018. The distribution of the chosen households took into account the main streets within the locality (Figure 2).

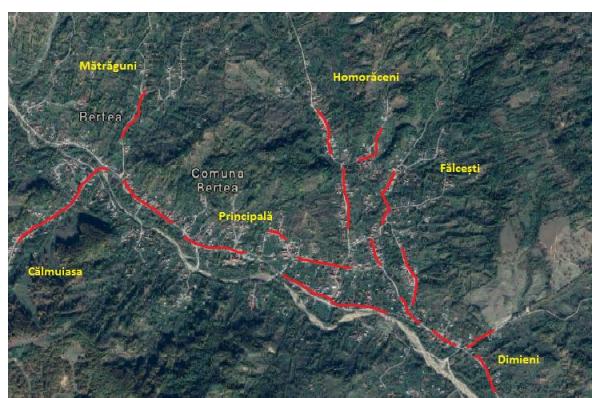


Fig. 2. Distribution of the main streets in Berteia  
 Source: Google Maps, <https://www.google.com/maps>

## RESULTS AND DISCUSSIONS

One hundred people (one per household) participated in the survey and their answers are centralized in the followings.

As regards the way of procuring the NWFPs (Q1), 85% of the respondents specified that the harvest was made by a family member, 10% of the people said that they were buying them from local people and 5% bought them from the market.

The main categories of NWFPs that are harvested/bought (Q2) consisted in mushrooms (especially honey fungus, penny bun and Blancaccio), forest fruits (blackberries, raspberries, and berries of sea-buckthorn, rosehip and Cornelian cherry) and medicinal plants (flowers of elder,

peppermint, plantain and common Saint John's wort).

The harvested quantities ranged between 2 and 20 (on average 5.2) kilograms of edible mushrooms, between 1 and 25 (on average 6.7) kilograms of forest fruits and around 1 kilogram of medicinal plants per household (Q3).

The average price per one kilogram (Q4) of edible mushrooms was 5 RON (*i.e.* 1.1 Euro), while the price for one kilogram of the forest fruits was a little bit bigger, *i.e.* 7 RON (1.5 Euro).

All respondents, with the exception of one, declared that they are collecting the NWFPs for familial uses (Q5). The only person who is not doing this is selling the products fresh, immediately after their harvesting at very low prices and in small quantities (Q6).

The most preferred places for harvesting / collecting of NWFPs (Q7) across Berteia are marked in yellow in Figure 3.

61% of interviewees said that they don't think that the NWFPs should be intensively promoted in Berteia. According to the ones who share the opposite opinion (*i.e.* they think that the NWFPs should be promoted), collecting and storing places, and a shop are needed. Also, according to their opinion, these products should be promoted during the local festivals, especially some of the by-products, such as jams and juices (Q8).

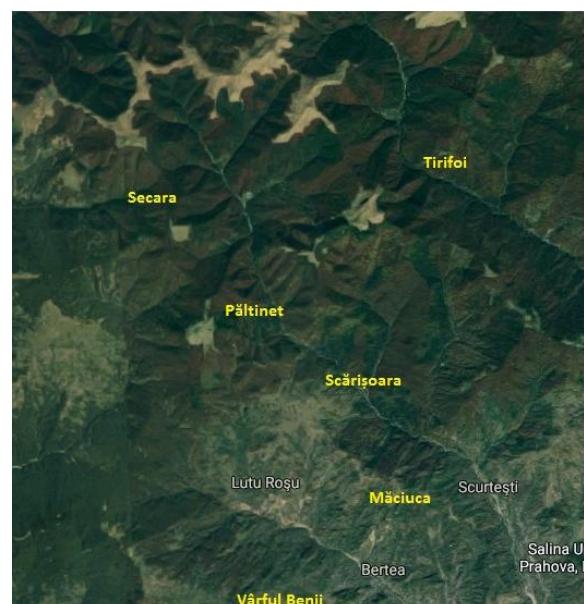


Fig. 3. Preferred harvesting/collecting places  
 Source: Google Maps, <https://www.google.com/maps>

Most of the people said that they are consuming very often the NWFPs (Q9). For example, the mushrooms are consumed immediately after harvesting, forest fruits are consumed throughout the year (mainly as jams and juices), while medicinal plants are used (mainly as teas) to treat various medical problems.

40% of the interviewees wish to have a market in Berteia, where they might find these kinds of products (Q10).

Seven out of ten respondents don't think that collaboration between the ones who are harvesting/collecting certain NWFPs and the ones already involved in marketing activities would be benefic for them (Q11).

## CONCLUSIONS

In Berteia, the main way to procure NWFPs is to harvest them by family members, with very few people buying these products from local markets, the most common products being the edible mushrooms, the forest fruits and the medicinal plants.

The marketing of the NWFPs in Berteia is almost none, almost all inhabitants using the NWFPs for familial purposes and in small quantities, without selling them.

Most of the people don't think that the marketing of the NWFPs should be promoted or collaboration between local stakeholders should be established.

Although the diversity of the non-timber forest products in Berteia locality is high and the prices of these products are low, only a small part of the respondents truly think that a business targeting their marketing would be a success.

## REFERENCES

- [1] Anastasiu, A.E., Bratu, A., Mihalache, M., Hanganu, A., Chira, N., Roșea, S., 2015, Comparative study of juices and wines obtained from forest fruits and grapes using 1H-NMR spectroscopy, U.P.B. Sci. Bull., Series B, 77(4): 265-274.
- [2] Bucur, S.I., Bucur, E.C., 2016, Rural area of the region South-Muntenia – evolutions and gaps of the socio-economic indicators. Case study: Argeș, Dâmbovița and Prahova Counties, Agrarian Economy

and Rural Development – Realities and Perspectives for Romania, 300-307.

[3] Chamberlain, J., Bush, R., Hammett, A.L., 1998, Non-timber forest products, Forest Products Journal, 48(10): 10-19.

[4] Cozma, A., Popescu, S., Rîvis, A., Velciov, A., Petcu, M., 2016, Physico-chemical characterization of some Romanian edible forest fruits of unpolluted environment, Ecology and Environmental Protection, 1: 495-502.

[5] Enescu, C.M., 2017, Which are the most important non-wood forest products in the case of Ialomița County? AgroLife Scientific Journal, 6(1): 98-103.

[6] Enescu, C.M., Hălălișan, A.F., 2017, The economic contribution of hunting products to the turnover of the forestry units in Romania, Agriculture & Forestry, 63(3): 147-153.

[7] Enescu, C.M., Dincă, L., Crișan, V., 2018, The most important non-wood forest products from Prahova County, Revista Pădurilor, 1: 24-51.

[8] Hegedűs, A., 2007, Utilization and marketing of non-wood forest products, University of West Hungary, Faculty of Forestry.

[9] Man, A., Januszewska, R., 2010, Forest Fruits' Purchase and Consumption Motives by the Urban Romanians: an Application of the Theory of Planned Behavior, Bulletin UASVM Horticulture, 67(2): 144-149.

[10] Man, A., Funar, S., 2011, University Students' Forest Fruits Preferences, Bulletin UASVM Horticulture, 68(2): 127-130.

[11] Pandeleșcu, A., 2012, The habitat potential of the natural environment of Teleajenului Subcarpathians, Analele Universității din Oradea, Seria Geografie 1: 80-88.

[12] Pârvu, C., Șinca, N.I., 2015, BERTEA Un colț de rai, Monografie, Monitorul Oficial R.A.

[13] Pettenella, D., Secco, L., Maso, D., 2007, NWFP&S Marketing: Lessons Learned and New Development Paths from Case Studies in Some European Countries, Small-scale Forestry, 6: 373-390.

[14] Regia Națională a Pădurilor – ROMSILVA, 2018, Raport privind modul de îndeplinire a Programului de activitate al RNP, pentru 12 luni ale anului 2017, [http://www.rosilva.ro/files/content/bucuresti/Raport\\_Activitate\\_CA\\_2017.pdf](http://www.rosilva.ro/files/content/bucuresti/Raport_Activitate_CA_2017.pdf), Accessed November, 13, 2018.

[15] Simon, A., Arsene, G., Vechiu, E., Enescu, C.M., 2018, Forest trees in Romanian toponymy, Current Trends in Natural Sciences, 7(1): 151-156.

[16] Vasile, D., Dincă, L., Enescu, C.M., 2017, Impact of collecting mushrooms from the spontaneous flora on forest ecosystems in Romania, AgroLife Scientific Journal, 6(1): 268-275.