

THE CHARACTERISTICS OF SOME ANIMAL SPECIES FROM DOLJ COUNTY AND THE IMPORTANCE OF THEIR CAPITALIZATION

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ABSTRACT

Dolj Forest District manages a surface of 59 800 ha public forest fund and 9 125 ha private property forest fund. Non-wood forest products represent an important part for all industries, as well as for the gastronomic and artisanal domains. In this context, the present paper presents the importance of capitalizing game species and the need for this sector's development, by taking into account three species frequently found in this area. The crop goose (*Anser fabalis*) is a species with a high price for the raw product as well as for the derived products. Partridge (*Perdix perdix*) has a smaller harvesting period and distribution range and the largest quantities are found in forest units of Amaradia, Perișor and Filiași. Pickerel (*Esox lucius*) is a very popular species, with a high selling potential and an increased market request. These species belong to the 8 game species that were analyzed through the AHP interval based on 19 criteria.

INTRODUCTION

The concept of non-wood forest products (NWFP) was introduced four decades ago in the tropical silviculture in order to satisfy the general production from the forest sector (Bragă et al., 2019; Timiș-Gânsac et al., 2018). Even though wood products are considered as the most important resources for the forest sector, non-wood products (NWP), together with forests, have a multifunctional purpose from an economic perspective (promoting rural competitiveness), as well as ecological (ensuring biodiversity) and cultural (maintaining old traditions). Numerous areas from Romania are renowned for their traditional products, some of them being obtained by manufacturing non-wood forest products. Knowing, understanding and perpetuating these

traditions is extremely important for maintaining and promoting cultural, ethnical, culinary and artisanal Romania (Dincă et al., 2020).

Non-wood forest products (NWFP) represent an important part of the forestry sector, and their value was reconsidered during their last years (Marshall & Cherukat, 2009). The report published by FAO (2009) foresees an increase of this sector with the intention to develop the market and to sustain owners, distributors and the products offered to consumers in Western Europe. Non-wood forest products from Romania differ from one county to the other and are influenced by the surfaced occupied by the forest, as well as by that area's traditions.

oldest traditions. Its existence and development were connected to Jiu river, precisely to its valley which was considered both a geographical and historic axis. Jiu valley also gave the

MATERIAL AND METHOD

Dolj County is one of Oltenia's most representative counties and is also among Romania's counties with the

county's name – Plain Jiu Region or Low Jiu Region (Badea L., Ghenovici A., 1974).

Dolj County is situated in southwest Romania and is bordered on the south by the Danube (over a length of 150 km), on west by Mehedinți County, on north by Gorj and Vâlcea counties and on east by Olt County. Dolj is one of our country's largest counties, having a surface of 7.414 kmp, from which 86.900 ha are

occupied by the forest found, meaning 11% of its surface. The relief is relatively varied, with low altitudes that increase steadily from south (Danube's Meadow) towards the north plains and hills where it can reach 300-400 m (Romanian Plain, Oltenia's Plain). Based on the relief's general aspect, Dolj can be considered a plain county as well as a Danube county as this is the main agent that has generated most of its relief forms.

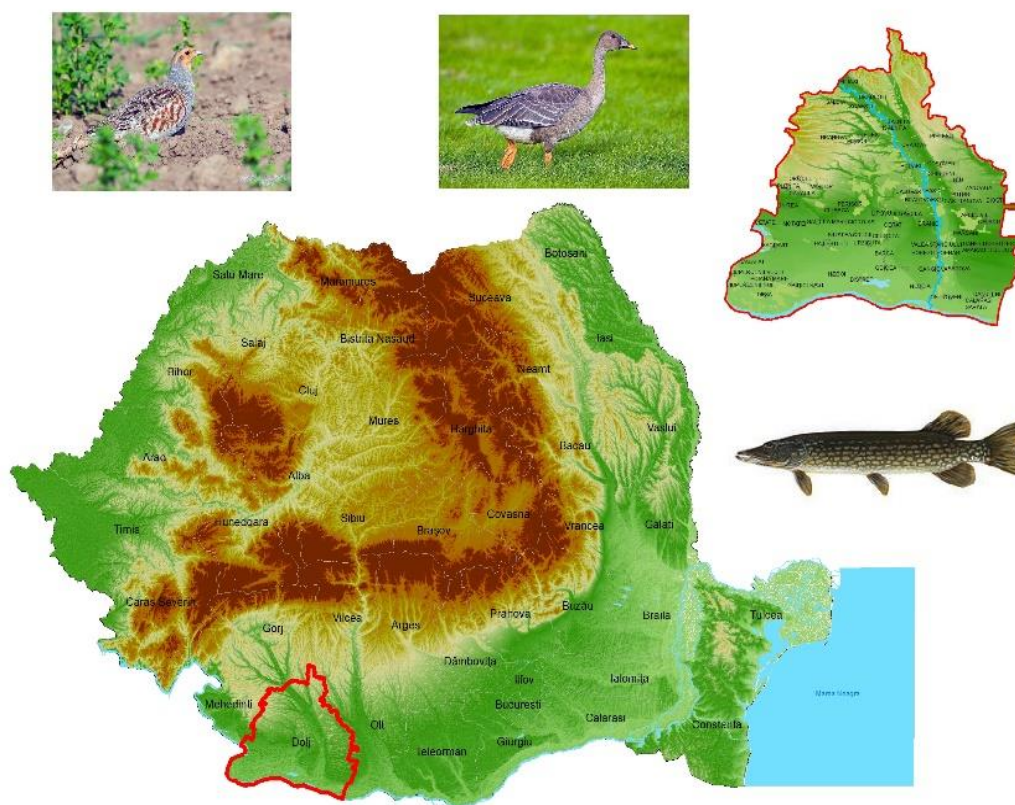


Figure 1. Location of Dolj County (Source: Shuttle Radar Topography Mission SRTM, 30m)

Game meat contains few fats, is more flavored and has a more intense taste. As such, the requests from hunters, restaurants, hotels and the food industry had led to the intensive growth of some game bird species such as pheasant, partridge, quail, wild geese and ducks,

Dolj Forest District manages 8 game funds that cover a total game fund surface of 66.169 ha. The main game species are: fallow deer, buck, boar, rabbit, pheasant, partridge, wild geese and ducks (<http://www.rosilva.ro>).

The forestry domain has also used the analytical hierarchy process (AHP)

which consists in decomposing a complex decision in a hierarchy with the purpose of establishing the best options. As such, non-wood forest products were grouped in four categories established by the European project COST FP1203 European Non-Wood Forest Products (NWFPs) Network: mushrooms and truffles, tree products, subterranean products and animal products. These four categories were also used in recent studies from other Romanian counties such as Bacău (Blaga et al., 2019), Dambovița (Cântar et al., 2020), Satu Mare (Tudor et al., 2019) and Gorj

(Vechiu et al., 2018). Animal species were analyzed in Caras (Ciontu et al., 2020), Tulcea (Dincă et al., 2018), Arges (Ciontu et al., 2018) and Bihor (Timiș-Gânsac et al., 2018).

RESULTS AND DISCUSSIONS

The eight species taken into account for Dolj county were: buck (*Capreolus capreolus*), rabbit (*Lepus europaeus*), crop goose (*Anser fabalis*), jackal (*Canis aureus*), partridge (*Perdix*

The purpose of this study was to emphasize the most important game species from Dolj County.

perdix), snipe (*Gallinago gallinago*), carp (*Cyprinus carpio*) and pickerel (*Esox lucius*).

The products were prioritized based on the 10 criteria chosen by the experts (Tab. 1).

Table 1

Alternative AHP grading system

| Criteriul | Specii de animale | | | | | | | |
|--|---------------------|-----------------|---------------|--------------|---------------|---------------------|-----------------|-------------|
| | Capreolus capreolus | Lepus europaeus | Anser fabalis | Canis aureus | Perdix perdix | Gallinago gallinago | Cyprinus carpio | Esox lucius |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1 Perioada de recoltare | 1 | 6 | 5 | 8 | 2 | 3 | 7 | 4 |
| 2 Cantitatea recoltată de un lucrător în 8 ore | 1 | 5 | 4 | 2 | 8 | 3 | 7 | 6 |
| 3 Costul recoltării | 8 | 6 | 7 | 1 | 5 | 3 | 2 | 4 |
| 4 Cunoștiințe necesare pentru recoltare | 7 | 3 | 8 | 1 | 4 | 2 | 5 | 6 |
| 5 Unele necesare pentru recoltare | 5 | 4 | 8 | 1 | 2 | 3 | 6 | 7 |
| 6 Complexitatea procesului de recoltare | 7 | 2 | 8 | 1 | 6 | 5 | 3 | 4 |
| 7 Desfășurarea procesului de recoltare | 8 | 6 | 7 | 1 | 3 | 2 | 5 | 4 |
| 8 Cunoștiințe necesare pentru recunoaștere | 4 | 2 | 6 | 7 | 5 | 8 | 1 | 3 |
| 9 Rază de distribuție | 7 | 8 | 5 | 4 | 1 | 2 | 6 | 3 |
| 10 Amenințări din partea factorilor biotici | 5 | 7 | 4 | 1 | 8 | 6 | 3 | 2 |
| 11 Amenințări din partea factorilor abiotici | 3 | 8 | 4 | 1 | 7 | 6 | 5 | 2 |
| 12 Perisabilitate | 2 | 3 | 6 | 1 | 8 | 7 | 5 | 4 |
| 13 Potențialul pe piață | 8 | 7 | 6 | 1 | 4 | 2 | 5 | 3 |
| 14 Cererea pe piață | 6 | 8 | 3 | 1 | 4 | 2 | 7 | 5 |
| 15 Popularitatea produsului pe piață | 7 | 6 | 5 | 1 | 3 | 2 | 8 | 4 |
| 16 Prețul produsului brut | 8 | 7 | 6 | 1 | 4 | 2 | 5 | 3 |
| 17 Prețul produsului derivat | 5 | 4 | 8 | 1 | 3 | 2 | 7 | 6 |
| 18 Portofoliul de produse derivate | 4 | 7 | 8 | 1 | 3 | 2 | 6 | 5 |
| 19 Transportul de la locul de recoltare până la spațiul de stocare | 8 | 6 | 7 | 3 | 2 | 1 | 4 | 5 |

Based on the data resulted from the graphic representation (Figure 2), it can be seen that the crop goose, buck and

rabbit are among the most promising NWFPs products for Dolj County.

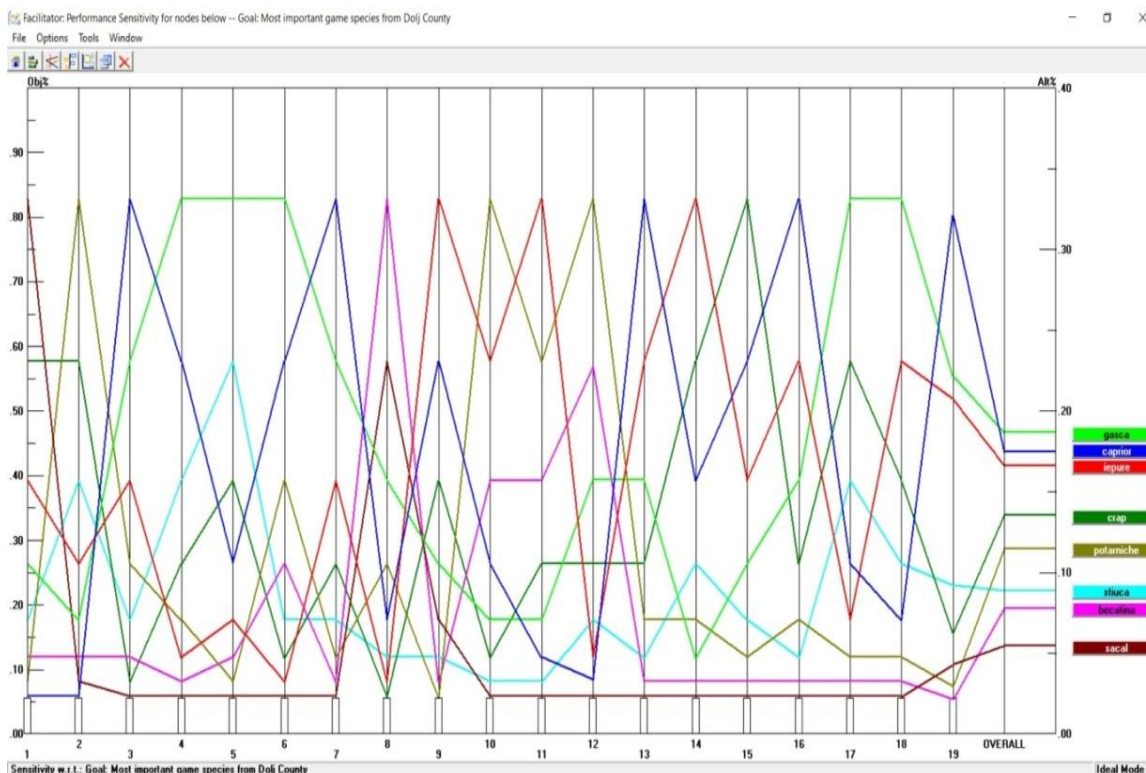


Figure. 2. Classification of the 8 NWFPs

Crop goose (*Anser fabalis*) (Fig.3) is found near lakes, rivers, swamps or meadows. It is a brown goose, with a pale neck and white rump. The white fringed feathers form white stripes around the chest, while the laterals showcase a series of white stripes. The feet and paws are light orange, while the beak is black at the top and towards the root and orange in the middle. The body can reach 71-89 centimeters in length, while the wings can measure 135-163 cm. The average weight is of 3400 g (male) and 2800 g (female which is very similar with the summer goose but has slightly darker feathers and is lighter in weight. (<http://pasaridinromania.sor.ro>)

Based on the AHP analysis, it can be observed that the crop goose is a rather expensive species, having high prices for the raw and derived products. Furthermore, the harvesting process is not complex, nor expensive, while the knowledge necessary for harvesting do not have to be high. On the other hand, the species is threatened by both biotic and abiotic factors, and the market request is not very high.



Figure. 3. Crop goose (*Anser fabalis*) (<https://casacuperusi.wordpress.com>)

Partridge (*Perdix perdix*) is a sedentary bird, widespread in agricultural fields. The species has a 30 cm waist, is light brown in color, while the neck and crow are grey, the abdomen is white and the chest has a brown-rusty horseshoe mark. It feeds on plants (seeds, cereals, leaves, grass) and invertebrates (insects, larva, worms, snails). Its nest is formed on the ground, hidden in the grass or under bushes. The species can be found in Romania in low regions, in plains, cereal cultures and rarely in the alpine hollows from the Carpathians (<http://pasaridinromania.sor.ro/>).

Based on the AHP analysis, the species presents a low perishability, with

biotic and abiotic factors posing a small threat, while the quantity harvested by a worker in 8 hours is high. However, the harvesting period and the distribution range are very small, while the prices of the raw and derived products are low.



Figure 4. Partridge (*Perdix perdix*)
(<https://www.toateanimalele.ro>)

Pickerel (*Esox lucius*) lives in all freshwaters, both running and standing. The species can be found anywhere downstream of the barbel's area in hill and plain waters. Pickerel has an elongated body, slightly squashed on the laterals, while the head is oblong and slightly curved; the muzzle resembles a duck's beak, having a large mouth with jaws that open until under the eyes. As such, it can easily swallow another pickerel of the same size. The eyes are situated on top, on the forehead. The pickerel's color serves as a "disguise", being harmonized with the predominant colors from the environment in which it lives. The species can reach a length of 40-50 cm, while the average weight varies between 1-2 kg. (<https://www.spinningclub.ro>)

For this species, the AHP analysis has revealed average values with few tools required for harvesting, a high quantity harvested by a worker in 8 hours and high prices for the derived product and the portfolio of products. Pickerel is endangered by both biotic and abiotic

factors, while the raw product's price and the market potential are low.



Figure 5. Pickerel (*Esox lucius*)
(<https://ro.wikipedia.org>)

CONCLUSIONS

Dolj County has a high diversity, harvesting potential and commercialization of game interest species. This fact is determined by a well-represented forest surface so that local species have both the space and the environment in which to develop.

The AHP method was used for analyzing 8 species and describing 3, namely crop goose, partridge and pickerel. The first species is the most valuable based on the technique used, having high grades for the price of raw and derived products and a harvesting process that is easy and affordable. Problems are caused by biotic and abiotic threats, while the market request is not high. However, crop goose is the non-wood forest product whose exploitation can bring good financial results.

Even though the pickerel's grades are low, the species proved to generate a considerable profit due to its easy harvesting, a large range of derived products and an increased price.

Based on the results obtained, we can conclude that non-wood forest products play an important role, both economically, as well as socially and culturally due to their diverse usages and attributes.

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