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'Rock Salt Around the Clock'. Ethnoarchaeological Research Concerning Traditional Extraction of Salt for Animal Consumption

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Abstract. *In Romania, an EU Member State since 2007, there are several mountainous areas with enduring ancient practices of animal husbandry and exploitation of salt resources. Here, shepherds quarry rock salt from outcrops two to three times per year as nutrients for their sheep flocks, for which they travel up to 20–30 km. Salt thus becomes an essential element for increasing the spatial parameters of pastoral mobility. Complex ethnological models emerged within a broader research project (cf. ethnosalro.uaic.ro), opening new windows to understanding the prehistorical or historical pre-mining phase of rock salt exploitation.*

Rezumat. *În România, stat membru al Uniunii Europene din 2007, există numeroase zone (în special montane) în care se păstrează practici străvechi de creștere a animalelor și de exploatare a resurselor de sare. Aici, păstorii înșiși sau persoane specializate extrag bolovani de sare din zăcăminte de două sau de trei ori pe an, ca nutrienți pentru animale, acțiune pentru care se deplasează până la 20–30 de km sau chiar mai mult. Sarea devine așadar un element esențial în augmentarea parametrilor spațiali ai mobilității pastorale. Astfel, în contextul unor proiecte extensive de cercetare, au rezultat modele etnologice complexe, care deschid perspective noi spre înțelegerea etapelor pre-miniere, preistorice sau istorice, ale exploatării sării geme.*

Keywords: Ethnoarchaeology, rock salt, pastoral mobility, Subcarpathian area.

1. Introduction

Both the Subcarpathian area and the Inner-Carpathian area of Romania (aka the Transylvanian depression) are characterized by a high density of salt water springs and salt mountains. Obviously, this situation led, over time, to an intense human reaction to salt, visible through the relatively numerous archaeological sites within the saliferous areas, manifold historical sources and the practice even today in some resilient areas of traditional behaviours of exploiting salt springs and salt outcrops. Hence, these realities gave Romania one of the highest potentials in Europe for ethnoarchaeological research on the preindustrial

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civilization of salt. During the last three-four decades, particularly after 2000, this research direction witnessed a very energetic development, to culminate in the systematic approach undertook by the continuously increasing interdisciplinary international team under the institutional framing of three research grants supported by the Romanian government (see http://ethnosalro.uaic.ro/). The main research directions were: the identification and geo-referential localization of the salt springs and salt outcrops through GPS (Figure 1); complex ethnographic inquiries related to them, performed at the salt springs and salt outcrops, at the seasonal animal breeding settlements, and at exploiting localities; spatial analysis method applied to the distribution area of the salt coming from a salt spring or a salt outcrops — habitat implementation relationship, etc.

Pastoralism and salt extraction

One particular item of the Ethnosal research was the relation between the exploitation of the salt rock and ovine pastoralism within the areas where this mineral is still available, outside industrial mining[2]. Both empirically and scientifically it is known that salt (sodium chloride)

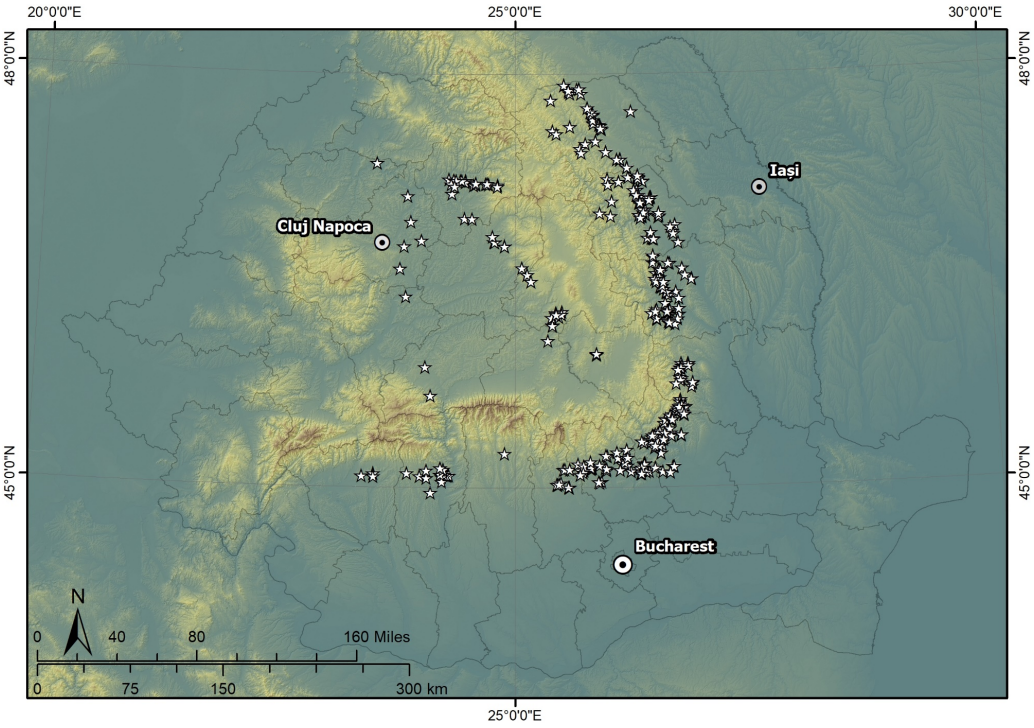

Figure 1. Map of the salt springs and salt outcrops identified within the Ethnosal research (2007–2019)

[2] ALEXIANU *et al.*, 2015; BRIGAND *et al.*, 2018.

is an essential nutrient, absolutely necessary, as it performs an important regulatory function for the health and normal development of the body (both human and animal). Its insufficient intake finally leads towards a loss of appetite and weight, decrease of lactation, or, in the case of severe deprivation, to central nervous system damage and even to death[3]. Usually, a sheep will consume around 9–10 g of salt per day as salt lick[4]. A simple calculation shows around a ton of salt is needed per year that for a herd of 200–300 sheep. Normally, the farmers and shepherds buy salt blocks from various sources (stores, traveling salesmen and even online). More rarely, they acquire salt first-hand, by exploiting the naturally occurring salt rock.

The extensive ethnoarchaeological investigation (from 2007 till present), conducted around the salt springs and salt mountains from the extra-Carpathian areas of Romania, identified several genuine practices, undisturbed for centuries. In this case, it is about the relation between salt harvesting (modes of exploitation, persons involved, ways of transportation, etc.) and ovine pastoralism, observed specially in the areas surrounding the salt outcrops of Vrâncioaia, Andreiașu de Jos, Jitia-Cerbu (Vrancea county), Mânzălești, Luncile, Fundata, and Negoșina (Buzău county) (Figure 2). Also, valuable information was provided by inhabitants of areas were rock salt is no longer available or just no longer exploited traditionally (Bistrița Năsăud county). Around 50 informers (villagers and shepherds) were interviewed, following specific questionnaires, according to the situation (at the salt source, at the sheepfolds, and at the consumer household).

According to our informants, acquiring rock salt for animals is usually done twice a year, in early spring (for consuming over the warm season) and in late autumn (for wintering). The quantities of salt needed vary depending on the size of the flock and on the subjective assessments of the informants: ~1000 kg / over 500 sheep / half a year (Ion Prună, shepherd from Negoșina, Buzău county); ~400 kg / 200–300 sheep / half a year (Constantin Bâscenel from Luncile, Buzău county); ~300 kg / 100 sheep / half a year (Gheorghe Hristea, shepherd from Andreiașu de Sus, Vrancea county); ~1000 kg / 150 sheep / year (Fănică Anițoiu, shepherd from Bodești, Vrancea county); ~250kg / 300 sheep / year (Fane Danțiș, shepherd from Bodești, Vrancea county); ~30 kg / 15 sheep / year (Ion Ochean from Vrâncioaia, Vrancea county), > 1500 kg / 400 sheep / year (Emil Banu, shepherd from Cerbu, Vrancea county) etc. One can see that, generally, the amount of salt is close to the scientifically determined average, provided above.

In most cases, the shepherds gather the salt themselves, using common tools (spades, pickaxes, hammers, chocks — Figure 3) and transporting it to the sheepfold in wains

[3] BERGER 1993, 5, 23; SUTTLE 2010, 183–184; MCDONALD *et al*., 2011, 117.

[4] NUTRIENT REQUIREMENTS OF SHEEP 1985, 11; PUGH 2014.

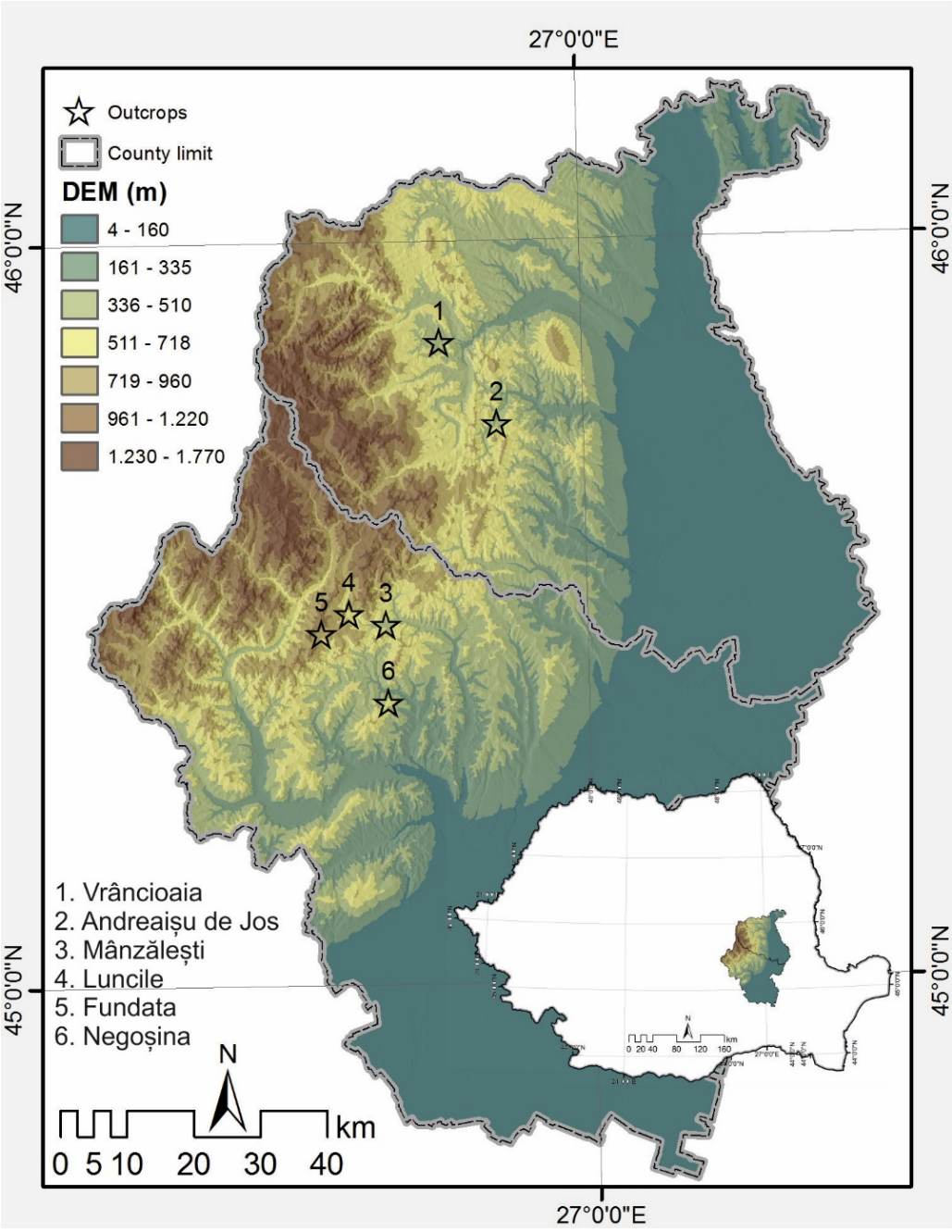

Figure 2. Map of the salt outcrops exploited for sheepfolds supplying (Buzău and Vrancea counties)

Figure 3. Tools used for quarrying and processing the salt rock. 1–2: Luncile, Buzău county, household of C. Bâscenel; 3: Fundata, Buzău county, household of I. Ciobanu. Images by F.A. Tencariu, A. Asăndulesei

Figure 4. 'Specialists' in salt excavation. From left to right: Constantin Bâscenel (Luncile, Buzău county); Ion Ciobanu (Fundata, Buzău county); Jenică Bucăluță (Paltin, Vrancea county). Images by F.A. Tencariu & A. Asăndulesei

Figure 5. Storage of salt within the sheepfolds. 1: Negoșina, Buzău county, sheepfold of Ion Prună; 2: Andreiașu de Sus, Vrancea county, sheepfold of Gheorghe Hristea. Images by F.A. Tencariu, A. Asăndulesei.

Figure 6. Salt lick blocks placed in the holding pens. 1–2: Bodești, Vrancea county, sheepfold of Fănică Anițoiu; 3: Bodești, Vrancea county, sheepfold of Fane Danțiș; 4: Negoșina, Buzău county, sheepfold of Ion Prună; 5–6: Recea, Buzău county, sheepfold of Stan Băiețelu. Images by F.A. Tencariu, A. Asăndulesei

(Rmn. *căruță*) — 500–600 kg at once, or with horses — large sacks placed on the saddle (*tarniță* — wooden saddle, with up to 200 kg per horse — Ștefan Silai, Nimigea Ungurească, Bistrița-Năsăud county). The salt is transported the same way towards the mountain pastures, when the flocks leave the village, in the case of pendulatory pastoralism; sometimes, during the summer, if the initial amount of salt is finished, the shepherds make an additional trip to the outcrop (up to 50 km).

Besides the auto supply with salt, accomplished by the shepherds, we had the unique opportunity to meet a form of unofficial specialization in salt excavation. Constantin Bâscenel (70 years old, from Luncile, Buzău county), Ion Ciobanu (70 years old, from Fundata, Buzău county), Vasile Dobrotă (60 years old, from Lopătari, Buzău county) and Jenică Bucăluță (49 years old, from Paltin, Vrancea county) are denizens known within the community as salt diggers (Figure 4). These villagers, besides daily agricultural occupations, used to excavate salt from the outcrops, when solicited by shepherds or other people. They used to work alone (unlike the shepherds or other users, who usually work in teams of 2–3 people), extracting 5–6 salt blocks (~50 kg) in three hours (V. Dobrotă), ~300 kg in 10 hours (C. Bâscenel), 300–400 kg a day (I. Ciobanu) or 300–400 kg in 7–8 hours (J. Bucăluță). They own tool kits (Figure 3) used exclusively for salt digging, composed of spades, chisels, sledge hammers, adzes, pick axes, etc. Only one of them (V. Dobrotă) was travelling with the salt, taking as payment especially agricultural products (barleycorn, wheat, corn, sunflower seeds, etc.), around 20 kg of salt for a *dublă* (old Romanian volume unit, ~20 litres). The other three were working only locally, negotiating products or money as payment. Extracting salt for the local shepherds was a common thing, the payment being usually in cash. C. Bâscenel used to ask 1 RON (~¼ EUR) per 1 kg of salt, or rarely, accepted 10–15 kg of cheese / curd per 300 kg of salt. I. Ciobanu used to demand 50 RON (~12 EUR) for a wain with 400–500 kg of salt. In these cases, we are dealing with half-time specialists, a category of individuals much more numerous and active in the recent and probably the distant past. Nowadays, salt being very cheap and easy to procure from elsewhere, the hard work of manually extracting it from the outcrops is just no longer profitable.

Once brought to the sheepfolds, the salt is kept away from humidity in small storage sheds, on shelves, wood boxes or simply in the shepherd's hut, under the bed (Figure 5).

The salt for lick is placed in the holding pen, on trifurcated wooden sticks, on improvised containers or simply on the ground (Figure 6).

In the Romanian literature the distinction between sedentary, local, pendulating pastoralism and long-distance transhumance was emphasised[5]. In the area of the salt outcrops are practiced nowadays only the first three types of pastoralism, closely related to this natural resource.

[5] VUIA R. 1964; BUTURĂ V. 1978, 229; BRIGAND *et al.*, 2018.

Figure 7. The sheepfold from Cerbu/Jitia. The salt outcrop is located ~300 m on the left.
Image by F.A. Tencariu, A. Asăndulesei

In the case of sedentary and local pastoralism, the sheep owners or shepherds procure the necessary salt themselves, going to the closest outcrop as many times a year as they run out of salt for lick or for making cheese (up to 5–6 times, taking 200–300 kg of salt at once). Examples: the sheepfolds from Cerbu-Jitia (Figure 7), Negoșina, Andreiașu de Sus, Bodești etc.

As for the pendulatory pastoralism, there are only a few cases encountered, this practice being slowly abandoned. However, we were able to document several cases in which the salt deposits are also used for this type of shepherding.

During the spring, the shepherd is going with the horse wain from the village Poiana to Alghianu salt outcrop[6]. In the same day the shepherd returns in the village with the aprox. 200–300 kg of salt extracted from Alghianu outcrop. When the flock of sheep is moving from the village to the sheepfold from Harboca mountain, it is accompanied by horses transporting salt boulders brought from Alghianu salt outcrop. In the event that the quantity of salt from the sheepfold was exhausted, the shepherds are going directly with horses to the Alghianu salt outcrop to bring some more salt in order to satisfy the needs of salt for the sheep.

In April/early May (depending on the weather), before the movement of the flocks from the Lopătari area towards the mountain sheepfolds (Gura Teghii, Penteleu, Zănoaga, Mușa, Bălescu), the shepherds came to the outcrops of Luncile (Figure 8) or Fundata with the wains

[6] ALEXIANU *et al.*, 2015.

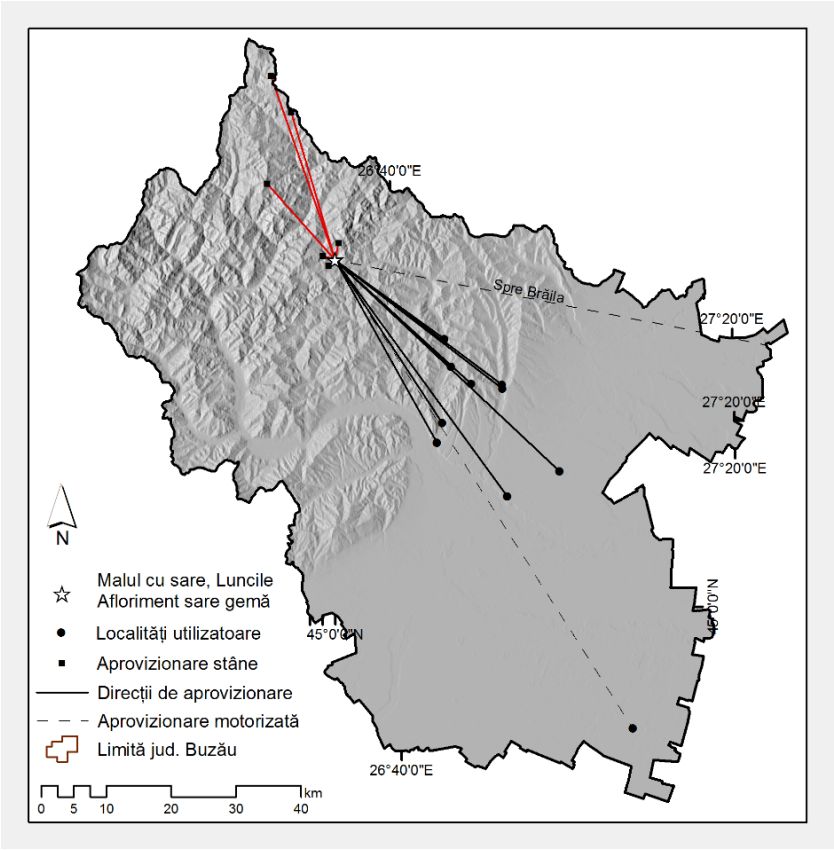

Figure 8. Salt supplying from the Luncile outcrop: mountain sheepfolds (red lines) and other villages from Buzău county

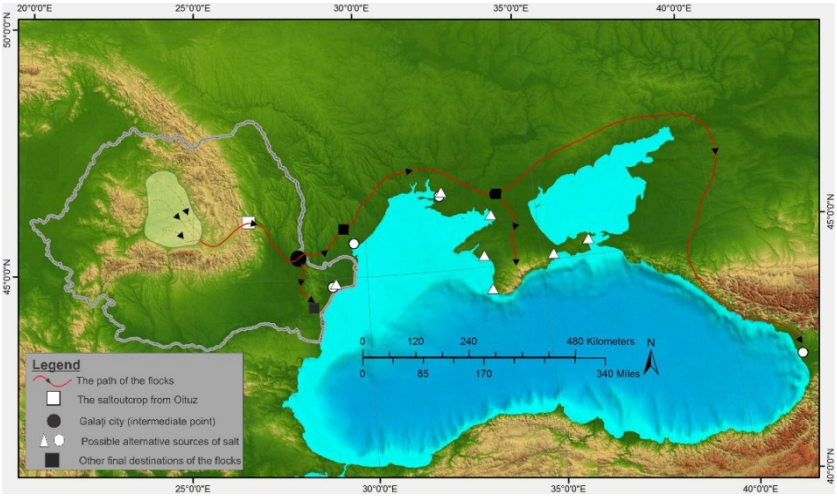

Figure 9. Path of the transhumance with possible resources of salt for animal consuming

to gather themselves (or, rarely, pay someone from the nearest village to do it) the necessary salt (around 400–500 kg per wain) and transport it to the sheepfolds, in the mountains. They do the same in autumn, when they return home, to ensure the salt for wintering.

On what concerns the transhumance, we do not have much information on supplying with salt for animal consumption, since it is an extinct phenomenon (at least in its traditional form). However, in the past (up to the beginning of the 20th century) shepherds from Transylvania were travelling with the flocks for over 1500 kilometres, reaching even Crimea and Caucasus in search of better grazing lands and warmer winters[7]. The collective memory of Moldavian Oituz states that when the shepherds crossed the mountains (Eastern Carpathians) through the Oituz pass, they procured the necessary salt for the road from near the village, where it was an important salt mountain (Figure 9).

Conclusion

Tracing and recording these nearly extinct practices are invaluable, as they identify models of the traditional ways of salt exploitation by village communities, particularly by pastoral communities engaged in over summering in semi-mountainous areas in the Carpathian hinterland. The pastoral calendar here is often associated with specific movements linked to the procurement of rock salt, both at the time of the summer ascent and prior to overwintering in the village. Also, the modes of exploitations, quantities, toolkits, ways of transportation, trade and barter, etc. are elements, preserved almost unaltered for centuries, which could provide hints in understanding the human mobility determined by the need for salt from the historical and even the prehistoric past.

With respect to the exploitation of salt from several outcrops above mentioned, it should obviously be ascribed to a phase preceding the actual mining exploitation, respectively the quarrying of rock salt[8]. Even if it constitutes quarrying, this type of exploitation of the rock salt during prehistoric times required, as evinced from our investigations, particularly hard tools (at least axes, chisels and hammers fashioned from stone or metal). From another point of view, this type of exploitation of rock salt involves a number of activities (extracting, transporting and crushing the salt) much more labour-intensive than those of the exploitation of the salt springs.

The existence in the area of the outcrops of rural communities with quasi-autarchic economies centred on animal husbandry (cattle, ovicaprids, swine) allowed us to highlight the role held by salt in animal feeding. In this context, it was possible to elaborate new models of salt supplying of the settlements and sheepfolds from the area witnessing intensive animal husbandry.

[7] METEȘ 1977, 153–154.

[8] HARDING 2013, 61

Annex — the list of informants mentioned in text:
Ion Prună, 69 y.o., Negoșina, com. Cănești, Buzău county
Vasile Dobrotă, 60 y.o., Lopătari, com. Lopătari, Buzău county
Constantin Bâscenel, 70 y.o., Luncile, com, Lopătari, Buzău county
Ion Ciobanu, 70 y.o., Fundata, com. Lopătari, Buzău county
Gheorghe Hristea, 52 y.o., Andreiașu de Sus, com. Andreiașu de Jos, Vrancea county
Fănică Anițoiu, 54 y.o., Bodești, com. Vrâncioaia, Vrancea county
Fane Danțiș, 36 y.o., Bodești, com. Vrâncioaia, Vrancea county
Ion Ochean, 82 y.o., Vrâncioaia, com. Vrâncioaia, Vrancea county
Emil Banu, 61 y.o., Cerbu, com. Jitia, Vrancea county
Ștefan Silai, 52 y.o., Nimigea Ungurească, com. Nimigea de Jos, Bistrița-Năsăud county

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