



Rare Breeds and Plant Varieties  
in the Carpathian Mountains

Monitoring and Conservation Strategies

Workshop-Report

Suceava, Romania, May 26-28 1999

SAEFL: Swiss Agency for Environment, Forest and Landscape  
Margarethe & Rudolf Gsell Foundation, Basel, Switzerland

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## Workshop-Report

# Rare Breeds and Plant Varieties in the Carpathian Mountains Monitoring Conservation Strategies

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### The task of the Monitoring Institute

is the research of the former diversity in agriculture (domestic breeds and cultivated plants) and the still existing populations. It delivers scientifically founded data for the documentation of the degree of endangering and the need for action. The work is done by:

- Mapping: Recording and characterisation of biodiversity in agriculture
- Watching: Continuous watching of the population of endangered breeds and varieties. Assessment of the efficiency of measures being taken.
- Alarming: Waking awareness in the wider public and in decisionmakers. Regular assessment of a possible need for action and alarming of responsible institutions and organisations.

For this the Monitoring Institute maintains a wide network of contacts and runs several combined databases for traditional breeds and plant varieties.

# Content

## Synthesis of the Workshop "Rare Breeds and Plant Varieties in the Carpathian Mountains"

### *Synthesis*

Synthesis of the Workshop in English	I
Synthesis of the Workshop in Romanian	II
Synthesis of the Workshop in Polish	III
Synthesis of the Workshop in Ukrainian	IV
Synthesis of the Workshop in Slovakian	V

## 1 Seminary Work and Roundtable 1-18

### *Animals*

Report of the afternoon workshop of 27 05 14.00 – 16.00 Team: Big Animals (horses, cattles, buffaloes) <i>Prof. Dr. Imré Bodo, Budapest, Hungary</i>	2
---	---

Roundtable discussion on small domestic animals in the Carpathian region <i>Berthold Traxler, Vienna, Austria</i>	4
--	---

<i>Final discussion</i> about the needs for future actions in the area of animal genetic resources conservation <i>Prof. Dr. Imré Bodo, Budapest, Hungary</i>	9
--	---

### *Plants*

Discussion about state of the conservation programs, problems and possibilities Team Crops, Maize and Vegetables <i>Dr. Wieslaw Podyma, Poland and Nadia Hungerbühler, Switzerland</i>	11
--	----

Seminary work conclusions: Problems of rare fruit varieties in the Carpathian Mountains <i>Dr. Nelu Orlaie, Cluj-Napoca, Romania</i>	13
---	----

<i>Final discussion</i> about the needs for future actions in the area of plant genetic resources conservation <i>Wieslaw Podyma, Poland; Nadia Hungerbühler, Switzerland</i>	15
--	----

## 2 Introduction and Acknowledgements 18-30

Opening Speech	18
----------------	----

*Dr. Silvia Strajeru, Director Suceava Genebank, Romania*

Welcome words of the inviting body, the SAVE Foundation <i>Hans-Peter Grunenfelder, Chairman SAVE-Foundation and Head of the Commission for Animal Projects, Switzerland</i>	19
---	----

The Project Work of SAVE Foundation in the Carpathians up to now, Introduction <i>Hans-Peter Grunenfelder; St. Gallen, Switzerland</i>	21
---	----

Carpathian mountains genetic resources: potential area of collaboration between IPGRI and the Monitoring Institute <i>Lorenzo Maggioni</i>	23
--	----

NGO's for the Preservation of Domestic Animals <i>Prof. Dr. Imré Bodo, Budapest, Hungary</i>	25
---	----

The Conservation of Breeds and Cultivated Plant Varieties in Biosphere Reserves, National Parks and other Protected Areas in the Ukrainian Carpathians <i>Prof. Dr. Stephan Stoyko, Ukraine</i>	27
---	----

Problems of Taxonomy and Conservation of Pyrus, Vitis, Cerasus mahaleb, ev. Prunus, Cerasus, Malus Ribes <i>Prof. Dr. András Terpó, Budapest, Hungary</i>	29
--	----

3 Rare Breeds	31-64
<i>Overlook</i>	
Endangered Livestock Breeds in the Northern Carpathians (Beskidy) e.g. Efforts in Safeguarding Valachian Sheep, Podgorska Red Cattle and the Tatra Dwarf Cattle	32
<i>Hans-Peter Grunenfelder, Pavel Beco; Waltraud Kugler; SAVE Project Office, St.Gallen/Switzerland</i>	
Rare and Dispersed Varieties of Sheep, Cattle, Horses and Geese in Ukrainian Carpathian Mountains.	35
<i>Dr. Rostyslav Fedoruk, Lviv, Ukraine</i>	
Relict Populations of rare Breeds in the Romanian Carpathians	37
<i>Prof. Dr. Condrea Draganescu, IBNA, Bucuresti, Romania</i>	
<i>Horses</i>	
The Hucul Horses Breeding in the Carpathians	40
<i>Dr. Maciej Jackowski; Krakow, Poland</i>	
The Hucul and the Sicul Horse	46
<i>Prof. Dr. Sandor Mihok; Prof. Dr.Imré Bodó Debrecen University, Hungary</i>	
<i>Cattle</i>	
Rare Cattle Breeds in Restrained Areas of Romania	49
<i>Prof. Dr. Constantin Velea, Romania</i>	
<i>Buffaloes</i>	
Breeding of Buffaloes in the Carpathians	52
<i>Prof. Dr. Constantin Velea, Romania</i>	
The Hungarian Buffalo	53
<i>Dr. Béla Dunka, Hortobagy National Park, Simonyi, Hungary</i>	
Water Buffalo in Austria	55
<i>Berthold Traxler, Vienna, Austria</i>	
<i>Pigs</i>	
Bazna and Red Mangalitza pig breeds as local breeds of Carpathian Hills. Note I: Bazna pig breed	57
<i>Dr. Alexandru Nagy, Turda Romania; Dr. Florin Spădaru, Cluj, Romania</i>	
Bazna and Red Mangalitza pig breeds as local breeds of Carpathian Hills. Note II: Red Mangalitza pig breed	60
<i>Dr. Alexandru Nagy, Turda Romania; Dr. Florin Spădaru, Cluj, Romania</i>	
<i>Geese</i>	
The Sub-Carpathian Goose Variety	62
<i>Prof. Dr. Elzbieta Smalec; Siedlce, Poland</i>	
<i>Dogs</i>	
The Romanian and the Carpathian Romanian Ciobanesc Dogs	63
<i>Dr. Constantin-Viorel Gaspar,Suceava, Romania</i>	
4 Rare Plants	65-104
<i>Overlook</i>	
On Farm Conservation of Plant Genetic Resources in the Carpathian Mountains	66
<i>Wieslaw Podyma, Blonie, Poland</i>	
Old Landraces in the Carpathians Mountains in Romania	69
<i>Claudia Ciotir, George Savu Suceava, Romania</i>	
Old Varieties of Fruit Plants in Transcarpathia - Evaluation, Selection and Preservation	73
<i>Dr. Boris M. Sharga; Uzhgorod, Ukraine</i>	

## Crops

Suceava Genebank – Objectives and Achievements 75  
*Dr. Silvia Strajeru - Suceava Genebank, Romania*

Old Indigenous Forms of Crops in the Ukrainian Carpathian 80  
*Dr. Victor K. Ryabchoun, Dr. Roman L. Boguslavsky; Kharkov, Ukraine*

Endangered Vegetable Genetic Resources in the Carpathian Mountains. 85  
*Teresa Kotlinska, Skierniewice, Poland*

Some data on vegetables in Poland 90  
*Teresa Kotlifska*

Rare Maize Varieties and Local Landraces in Mountain Regions of Romania 91  
*Dr. Danela Murariu; Suceava, Romania Dr. Marius Murariu; Suceava, Romania*

## Fruits

Traditional Varieties of Cultivated Fruits in the Romanian Carpathians 94  
*Prof. Dr. Ioan Coste, Romania*

Wild Fruit Plants in the Ukrainian Carpathians 97  
*Dr. Vasil Zayats, Uzhgorod, Ukraine* 97

Description of the past and current situation of Land Races and obsolete Fruit Species  
in the Carpathian Mountains of Slovakia 98  
*Jan Gazo, Mariam Miko, Stefan Hajdu Nitra, Slovak Republik*

Variability of Ribes, Rubus, Fragaria, Rosa and Vaccinium in Areas of the Carpathians 101  
*Dr. Nelu Orlaie, Dr. Gabriela Roman Cluj, Romania*

Peculiarity of Fruit Cultures Genofond in Zakarpatia 103  
*Anush Balyan, V. Burya, Nadia Pylypchynets Uzhgorod, Ukraine*

5 Appendix 105

DETAILED PROGRAM Workshop "Rare Breeds and Plant Varieties in the Carpathian Mountains"  
In collaboration with the Vegetal Genebank Suceava 106

Technical Tours on Tuesday, May 25th 1999, Thursday, May 27th 1999 Friday, May, 28th, 1999 107

Topics for the Seminary Work in Teams and the Roundtable 108

Endangerment of Breeds: Criterias for Red Lists 110

List of Participants 111

# Synthesis of the Workshop

## "Rare Breeds and Plant Varieties in the Carpathian Mountains"

English

*Hans-Peter Grunenfelder and Nadia Hungerbuhler, St.Gallen, Switzerland*

Mountainous regions, made up of a variety of different topographical regions and various hindrances to production, have developed a great diversity of agricultural animal breeds and plant varieties. This is now in danger of ousting by modern performance methods in agricultural production. It is possible that numerous breeds and varieties in these mountainous regions will vanish completely — and with them, their valuable genes for survival in such conditions. The Carpathian mountains represent an important retreat for biological diversity, spread over several countries in Europe. In the Central and Eastern European countries, in addition to the general threat to diversity from modern techniques, the rapid economic transformation in agriculture resulting from privatization poses further dangers. To obtain an accurate picture of the needs for action, representatives of SAVE Foundation have undertaken a number of expeditions to monitor different areas of the Carpathians. This has included a number of tours to Poland and Slovakia between 1991 and 1995; Romania in 1997 and Carpathian-Ukraine in 1998.

In May 1999, SAVE Foundation assembled experts and persons familiar with the most remote areas of the Carpathians at a workshop to determine the current situation and to analyse the needs and required actions. Some 30 experts of the four neighbouring countries of Poland, Slovakia, Ukraine and Romania met in Suceava, Romania. Organized by SAVE Foundation, in co-operation with the Vegetal Gene Bank Suceava and the Monitoring Institute St.Gallen, the workshop was financed by the Swiss Agency for the Environment, Forests and Landscape.

The goals of the workshop were:

- o to size the remaining populations of rare breeds and plants in the Carpathians
- o to study the problems of breeding, endangering and extinction
- o to determine the priority needs for action

Roundtable and small groups discussions developed a list of cultivated and useful wild plants which are the most endangered and should be conserved as a priority. These include malus, perennial rye, perennial vegetables, pyrus, sorbus domestica, sorbus torminalis, small fruits, Triticum dicoccum, T. monococcum and vitis.

An analogous list for livestock breeds showed the necessity for urgent actions for the Red Mangalica pig, the Valachian sheep (Beskidis), the Valachian Dwarf cattle (or Mocanitsa cattle), the old indigenous type of the Carpathian buffalo (especially in Transcarpathia), the Huzul horse in the place of origin (and establishment of an international studbook). Further monitoring work is necessary for other mountain horse breeds as Sikul and Bikaz, primitiv old types of international cattle breeds as Simmental, Brown and Pinzgau/Dorna cattle, donkeys, goats, poultry, sheep dogs and bees.

Participants also stressed the importance of common action in several regions of the Carpathians, specifically in the Apuseni and the Maramures mountains of Romania and neighbouring Transcarpathia (especially the Rakhiv region) in the Ukraine. The participants agreed to become network partners of crossborder cooperation to rescue endangered livestock breeds and plant varieties. They stated their readiness to make available their facilities and knowledge, and will also raise awareness in their countries on the need to conserve the endangered agrobiodiversity in the Carpathians.

The international co-operation in the Carpathians is running, further workshop meetings shall be organized periodically in the countries in alternation.

## Polish

Podsumowanie warsztatów roboczych:  
" Rzadkie rasy zwierząt i odmiany roślin w Karpatach"

W rejonach górskich, często zróżnicowanych topograficznie, z różnymi ograniczeniami, rozwinęła się duża różnorodność ras zwierząt i odmian roślin. Znalazły się one obecnie w niebezpieczeństwie wynikającym z nowoczesnych metod produkcji rolnej. Prawdopodobne jest, że wiele ras i odmian powstałych w tych rejonach zaniknie zupełnie, a razem z nimi cenne geny, te które umożliwiają przeżycie w trudnych, górskich warunkach.

Karpaty, leżąc w obszarze kilku krajów Europy prezentują dużą różnorodność biologiczną. W krajach Europy Środkowej i Wschodniej istnieją dodatkowe niebezpieczeństwa wynikające z szybkich przemian społecznych i gospodarczych, w tym transformacji ekonomicznej wynikającej z prywatyzacji. W celu uzyskania dokładnego obrazu, przedstawiciele fundacji SAVE podjęli kilka wypraw w różne rejony Karpat: do Polski i Słowacji w 1991 i 1995r., Rumunii w 1997r. i Ukrainy w 1998 roku.

W maju 1999r. fundacja SAVE zaprosiła ekspertów i osoby posiadające szeroką wiedzę o najbarczniej niedostępnych miejscach Karpat na spotkanie robocze, aby omówić obecną sytuację i przeanalizować potrzeby i kierunek koniecznych działań. Spotkanie odbyło się w Suceavie w Rumunii z udziałem 30 osób z czterech sąsiadujących krajów: Polski, Słowacji, Ukrainy i Rumunii. Spotkanie, finansowane przez szwajcarską Agencję Środowiska, Lasów i Krajobrazu zorganizowała fundacja SAVE we współpracy z Vegetal Gene Bank, Suceava i Monitoring Institute z St. Gallen. Celem spotkania było:

- określenie wielkości populacji rzadkich ras zwierząt i roślin w Karpatach,
- przeanalizowania problemów hodowli ginących i zagrożonych wyginięciem ras,
- określenie kolejności niezbędnych działań.

Dyskusje między uczestnikami pozwoliły sporządzić listę roślin użytkowych i dzikich, w największym stopniu zagrożonych wyginięciem, które należałoby objąć ochroną w pierwszej kolejności. Lista ta obejmuje: jabłonie, grusze, jarzab brekinia i domowy, rośliny jagodowe, wieloletnie warzywa i winorośl, żyto wieloletnie, pszenice piaskurkę i samopszę. Podobną ochroną należałoby objąć następujące zwierzęta: świnia czerwona (Mangalica), owca beskidzka (Walachian), bydło karłowate (Walachian / Mocanitsa), stare, miejscowe typy bawołów karpaccich i koni huculskich w miejscach ich powstania (utworzenie międzynarodowej księgi stadnej). Niezbędne jest stałe monitorowanie górskich ras koni (Sikul i Bikaz), starych ras bydła (Simentalerów, Czerwonej Alpejskiej i Pinzgauer / Doma), osłów, kóz, drobiu, psów pasterskich i pszczół.

Uczestnicy spotkania podkreślili wagę wspólnego działania w kilku rejonach Karpat, zwłaszcza w Apuseni i Maramureszu w Rumunii i okolicach Rakhiv w Ukrainie. Uczestnicy zgłosili gotowość służenia swą wiedzą i doświadczeniem w celu ochrony ras i odmian zagrożonych wyginięciem. Niezależnie od granic państw, uczestnicy postanowili stać się orędownikami idei zachowania agro-biologicznej różnorodności w Karpatach.

Międzynarodowa współpraca trwa, kolejne spotkania będą odbywały się okresowo w różnych krajach.

Podsumowanie warsztatów roboczych:  
" Rzadkie rasy zwierząt i odmiany roślin w Karpatach "

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Karpaty, leżąc w obszarze kilku krajów Europy prezentują dużą różnorodność biologiczną. W krajach Europy Środkowej i Wschodniej istnieją dodatkowe niebezpieczeństwa wynikające z szybkich przemian społecznych i gospodarczych, w tym transformacji ekonomicznej wynikającej z prywatyzacji. W celu uzyskania dokładnego obrazu, przedstawiciele fundacji SAVE podjęli kilka wypraw w różne rejony Karpat: do Polski i Słowacji w 1991 i 1995r., Rumunii w 1997r. i Ukrainy w 1998 roku.

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- przeanalizowania problemów hodowli ginących i zagrożonych wyginięciem ras,
- określenie kolejności niezbędnych działań.

Dyskusje między uczestnikami pozwoliły sporządzić listę roślin użytkowych i dzikich, w największym stopniu zagrożonych wyginięciem, które należałoby objąć ochroną w pierwszej kolejności. Lista ta obejmuje: jabłonie, grusze, jarzab brekinia i domowy, rośliny jagodowe, wieloletnie warzywa i winorośl, żyto wieloletnie, pszenice piaskurkę i samopszę. Podobną ochroną należałoby objąć następujące zwierzęta: świnia czerwona (Mangalica), owca beskidzka (Walachian), bydło kartowate (Walachian / Mocanitsa), stare, miejscowe typy bawołów karpaccich i koni huculskich w miejscach ich powstania (utworzenie międzynarodowej księgi stadnej). Niezbędne jest stałe monitorowanie górskich ras koni (Sikul i Bikaz), starych ras bydła (Simentalerów, Czerwonej Alpejskiej i Pinzgauer / Doma), osłów, kóz, drobiu, psów pasterskich i pszczoł.

Uczestnicy spotkania podkreślili wagę wspólnego działania w kilku rejonach Karpat, zwłaszcza w Apuseni i Maramureszu w Rumunii i okolicach Rakhiv w Ukrainie. Uczestnicy zgłosili gotowość służenia swą wiedzą i doświadczeniem w celu ochrony ras i odmian zagrożonych wyginięciem. Niezależnie od granic państw, uczestnicy postanowili stać się orędownikami idei zachowania agro-biologicznej różnorodności w Karpatach.

Międzynarodowa współpraca trwa, kolejne spotkania będą odbywały się okresowo w różnych krajach.

## Slovakian

**Resumé**  
**Praktického seminára Zriedkové**  
**druhy živočíchov a rastlín v Karpatoch**

Horské regióny, vytvárané množstvom rozmanitých topografických celkov a rozličnými výrobnými podmienkami, disponujú veľkým počtom poľnohospodárskych živočíšnych a rastlinných druhov, ktoré sú v súčasnosti na ústupu z dôvodu využívania moderných technológií poľnohospodárskej výroby. Mnoho druhov a čeladi je priamo pod hrozbou úplného zániku, ohrozený je tiež ich vzácný genetický fond. Karpatské hory predstavujú dôležitú zónu zachovania biologickej rôznorodosti, ktorá sa ťahne cez niekoľko európskych krajín. V krajinách strednej a východnej Európy sa k jestvujúcemu ohrozeniu biologickej rôznorodosti zo strany modernej výroby pripájajú aj rýchle zmeny v poľnohospodárstve, predovšetkým proces privatizácie. Na vytvorenie reálneho obrazu vzniknutej situácie uskutočnili predstavitelia nadácie SAVE ( Záchrana poľnohospodárskych druhov v Európe ) rad monitoringových expedícií do rôznych oblastí Karpát: do Poľska a na Slovensko v období rokov 1991-1995, do Rumunska v r. 1997 a na Ukrajinu v r. 1998.

V máji 1999 nadácia SAVE zorganizovala stretnutie odborníkov a zainteresovaných ľudí, ktorí dobre poznajú problémy najodľahlších oblastí Karpát.

V máji 1999 nadácia SAVE zorganizovala praktický seminár za účasti odborníkov a zainteresovaných ľudí dobre ovládajúcich problémy najodľahlších oblastí Karpát, cieľom ktorého bolo pomenovať súčasnú situáciu, analyzovať problémy a nevyhnutné kroky. 30 odborníkov zo štyroch susediacich krajín ( Poľsko, Slovensko, Ukrajina, Rumunsko ) sa stretlo v rumunskom meste Sučava. Praktický seminár pripravila nadácia SAVE v spolupráci s Rastlinnou genobankou Sučava a Inštitútom monitoringu v Saint-Gallenc, s finančnou podporou švajčiarskej agentúry pre životné prostredie, lesy a krajinu.

Cieľom praktického seminára bolo:

- vymedziť jestvujúce populácie vzácných živočíšnych a rastlinných druhov v Karpatoch;
- preskúmať problémy živočíšneho plemenárstva, nebezpečenstva zničenia z vymierania;
- vymedziť prioritné opatrenia.

Diskúzie za ukročným stolom a v menších expertných skupinách vymedzili okruh kultúrnych a úžitkových divorastúcich rastlín, ktoré sa nachádzajú v ohrození a vyžadujú si prvoradu pozornosť zameranú na ich záchranu. Patrí k nim: malus, raž trvácna, trvácna zelenina, pyrus, Sorbus domestica, Sorbus torminalis, drobné ovocie, Triticum dicoccum, Triticum monococcum a vinič.

Analogický zoznam domácich zvierat potvrdzuje nutnosť opatrení na záchranu červenej mangalickej svine, valašskej ovce ( Beskydy ), valašského trpasličieho druhu statku ( alebo Mocaniec ), starého miestneho plemena karpatského byvola (zvlášť na Zakarpatsku), buculeckého koňa v miestach pôvodu ( založenie medzinárodnej plemenárskej ľuňmy ). Je nevyhnutný ďalší monitoring súčasných druhov horských plemien koní, ako spikal, bikaz, pôvodných starých, medzinárodne rozšírených plemien domáceho dobytku ako simentálske, bvré a pinsganské / doma, ďalej osla, kozy, vtákov, ovčiarkeho psa a včely.

Účastníci tiež zdôraznili nevyhnutnosť spoločného postupu v niektorých oblastiach Karpát, najmä v pohorí Apuseni a Maramureš v Rumunsku, ako aj v susednom Zakarpatsku (zvlášť v Račovskom rajóne) na Ukrajine. Účastníci sa dohodli na vytvorení medzinárodnej partnerskej siete zameranej na spoluprácu pri záchrane jednotlivých druhov domácich zvierat a rastlín, ktoré sa nachádzajú v ohrození. Potvrdili svoju pripravenosť poskytnúť nevyhnutné prostriedky a znalosti, a taktiež vyjadrili ochotu viesť vzdelávaciu prácu v oblasti ochrany prírody vo svojich krajinách, ochrany agrobiologickej rôznorodosti Karpát, klone je rovnako v ohrození.

Medzinárodná spolupráca v Karpatoch sa realizuje: ďalšie praktické semináre sa uskutočnia v zúčastnených krajinách v dohodnutom poradí.

**Резюме практичного семінару  
“Рідкісні види тварин і рослин в горах Карпатах”  
Ханс-Петер Грюненфелдер і Надія Хунгербулер**

Гірські регіони, створені багатством різноманітних топографічних районів та різними умовами виробництва, мають в наявності велику кількість сільськогосподарських порід тварин та видів рослин, які знаходяться зараз під загрозою витіснення через використання сучасних технологій сільськогосподарського виробництва. Багато порід і видів під загрозою повного зникнення – їх цінний генетичний фонд є також під загрозою. Карпатські гори являють собою важливу зону збереження біологічного різноманіття, яка протікає через декілька країн Європи. В центральних і східноєвропейських країнах на доповнення до існуючої загрози біорізноманіттю з боку сучасного виробництва, додатковою небезпекою додають швидкі зміни в сільському господарстві, насамперед процес приватизації. Щоб отримати реальну картину щодо необхідних дій, представники фундації SAVE (Збереження сільськогосподарських різновидів в Європі) провели ряд експедицій – моніторинги різних районів Карпат: в Польщу і Словаччину в період з 1991 по 1995 роки; у Румунію в 1997 і в Україну в 1998.

В травні 1999 року фундація SAVE зібрала разом експертів та людей, які добре знають проблеми найбільш віддалених районів Карпат, для проведення практичного семінару, метою якого було визначення сучасної ситуації та аналіз потреб та необхідних дій. 30 експертів з чотирьох країн-сусідів (Польща, Словаччина, Україна і Румунія) зустрілися в Сучаві, Румунія. Практичний семінар був організований фундацією SAVE у співпраці з Рослинним Генобанком, Сучава та Інститутом Моніторингу, Сент-Галлен та фінансований Швейцарським Агентством з навколишнього середовища, лісу та ландшафту.

Цілі практичного семінару були:

- визначення наявних популяцій рідкісних видів тварин і рослин в Карпатах
- вивчення проблем племінного тваринництва, загрози знищення та вимирання
- визначення пріоритетів щодо дій

Дискусії за круглим столом та в маленьких групах визначили список культурних та корисних дикорослих рослин, які перебувають під загрозою і потребують першочергового збереження. До них належать мале довголітнє жито дозголітні оячі, пірус, сорбус доменстїка, сорбус тріміналіс, малі фрукти, трітїкум дікоккум та виноград.

Аналогічний список домашньої худоби свідчить про необхідність термінових дій для збереження червоної мангалицької свині, валахської вівці (Бескди), валахської карликової городи худоби (або Моканиці), для старого місцевого типу карпатського буйвола (особливо в Закарпатті), гуцульського коня в місці походження (та заснування міжнародної племінної ферми). Подальший моніторинг є необхідним для інших порід гірських коней, таких як Спікул і Біказ, первинних старих видів міжнародного розведення домашньої худоби, таких як Сіментальська, Бура та Пінгауська/Дорна, для осла, кози, птиці, вівчарської собаки та бджоли.

Учасники також наголосили на необхідності спільних дій в деяких регіонах Карпат, а саме, в горах Апусені та Марамуреш в Румунії та в сусідньому Закарпатті (особливо в Рахівському районі) в Україні. Учасники домовилися про встановлення міжкордонного партнерства – сітки для співробітництва для рятувальних заходів видів домашньої худоби і різновидів рослин, які знаходяться під загрозою знищення. Вони підтвердили свою готовність надати необхідних належних засобів та знання, а також висловили намір проводити просвітницьку природоохоронну роботу в своїх країнах з питань охорони агробіорізноманіття Карпат, яке знаходиться під загрозою.

Міжнародна співпраця в Карпатах проводиться; подальші практичні семінари будуть проходити в країнах-учасниках в черговому порядку.

# 1 Seminary Work and Roundtable

Report of the afternoon workshop  
of 27 05 14.00 – 16.00  
Team: Big Animals  
(horses, cattles, buffaloes)  
*Prof. Dr. Imré Bodo, Budapest, Hungary*

*Horses*

*Hucul (The ponies of the Carpathian mountains)* a) the estimated population:

	stud mares	unknown pedigree mares
Romania	40	100
Poland	230	
Hungary	20	10
Ukraine	100	
Slovakia	35	
Other countries	80	

The globally estimated number for the Carpathian region is about 500 and all over the world about 800 Hucul mares.

The existence or extinction of the other Carpathian horse types described in the literature is unknown.

The problem is the lack of an international stud book, the advantage is the existence of an active international breeder's association.

Actions planned

*Hucul, Sireline Prislop,  
Hergelie Lucina*



Monitoring of the whole pony population of the Carpathian region. The extinction or existence of other native horses (Sicule, Bicz) must be investigated by in situ expeditions.

Organizing the maintenance of other existing types within or besides the Hutzul breed should be the next step or confessing the extinction of those breeds.

Creation of an international stud book for all the breeds found is also necessary.

*Gidran, Nonlus, Furioso-North Star, Lipizzan, Shagya Arabian*

The most important task is to organize national breeders' associations, an international co-operation, and in the framework of an umbrella organization, may be, also a common stud book for these breeds can be created.

*Other local not typically mountain horse breeds*

The donkey population of all the participant countries is nearly unknown and unregistered. A monitoring program would be necessary.

### *Cattle*

It is important to organize a short expert consultation on the characteristics of the breed, which is on one hand historical on the other hand its existence and traits are uncertain. After such studies an international monitoring program should be organized in situ, whether it exists or not any more. If the answer is yes. then other measures of preservation should start.

*Mokanitza*

Grey Steppe varieties, which were typical local breeds of the region hundred years ago. Now they can also be found in Moldavia and on the Hungarian Lowland. The short study of their characteristics, their existence or only some traces of their traits (a possible gene pool) and the present situation. The excursion can be joined together with the search for Mokanitza.

*Other rare cattle breeds*

Study of the international breeds living nowadays in the region like Simmental, Braunvieh, Pinzgau etc. Description of primitive local types within these internationally improved breeds would be important and interesting.

*International cattle breeds*

### *Buffalo*

In Romania there are about 80000 buffalo cows and most of them (70000) live in Carpathian region. In Hungary the population counts 160 cows.

There are three different buffalo types in the Romanian population.

The Carpathian type, (valuable gene resource, well adapted to the cold climate for buffalo), the Danubian buffalo and the improved one by the Indian Murrah.

The first step of action can be a conference on clarifying the characteristics of the different types and to create a national and international association for herd book keeping. It is important to make a distinction between the ancient valuable gene resource and of the new improved types.

The Hungarian population can be considered as a good reserve stock for a cooperation with the Carpathian type breeders.

# Roundtable discussion on small domestic animals in the Carpathian region

*Berthold Traxler, Vienna, Austria*

*Introduction* Due to the lack of information and knowledge of specialists there is an urgent need for monitoring the following domestic animals:

Goats, donkeys, poultry (geese, ducks, fowls), bees. Also further investigation on sheep races and their varieties in Rumania and the sparse remainders of the Ukrainian region in general.

*Breeds per Country* In the following, countries and their breeds will be treated in succession; the following numbers and abbreviations will be used:

1. How many animals are left and where are they?
2. What is the problem and why?
3. Where is action needed and how?

## *Pigs*

### *Romania*

- Stocli pig*
1. Purebred Stocli pigs are supposed to be extinct, crossbreds fairly certain not in the Carpathians, but surely in the Danube delta where they are endangered by cross breeding (mainly with Mangaliza). On Traxler's excursion three years ago he met animals with pronounced traits. Professor Draganescu will visit this region.
  2. Cross breeding and displacement, no care at all
  3. Search for animals

- Red Mangalica pig*
1. Turda: conservation programme for red Mangalica, stock: 35 females and 6 males (3 lines), opportunity for further (Ind) in the western region of the (Apusen) mountains.
  2. Few animals. Arguments between the Hungarian participant and Mr. Nagy about the Red Mangalica. Their difference in opinion will not make co-operation easy. Hungarian animals may be a cross-breed between Salontaer and Blond Mangalicas.
  3. Search for animals. After investigation there will be a cooperation between Romania and Hungary.

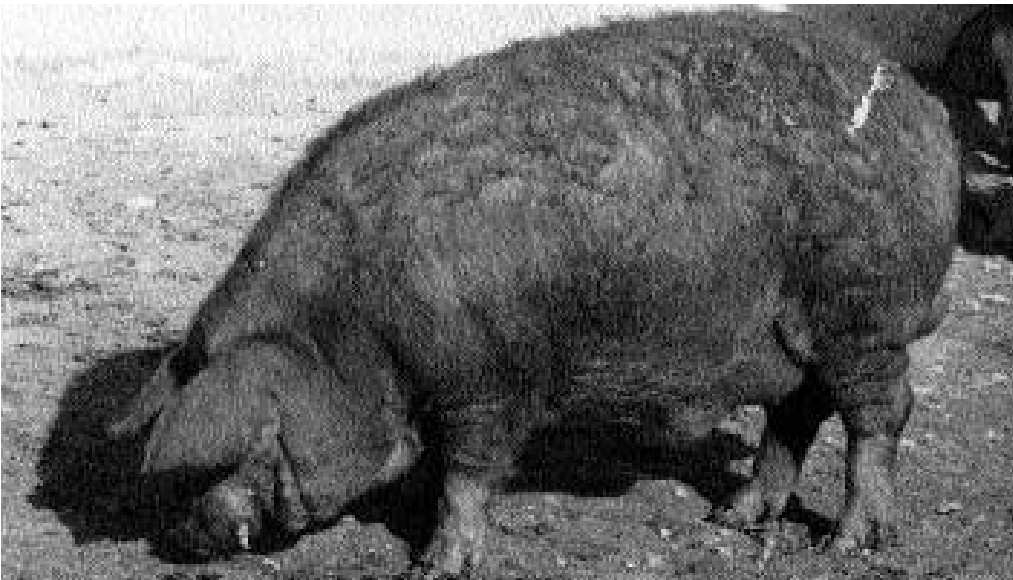
- Saddleback pig*
1. Turda region (north of Clausenburg): Several thousand individuals of Saddleback pigs are expected. On small farms mainly saddleback pigs were found, frequently with intercrossings (175 25 males (7 lines)).
  2. Amount of intercrossings with Angler is unknown.
  3. Conservation programme to be continued.

### *Hungary*

- Mangalica*
1. Blond: Main Mangalica group, 500 individuals in conservation programme, some hundreds in private hand.  
Swallowbelly: 50 in conservation programme, few in private hands. Red: 50
  2. Discussion about the Red Mangalica as mentioned above.
  3. Co-operation between the countries and conservation programme.

### *Ukraine*

No information available



*Mangalica rosu - red Mangalica, breeding boar in the breeding station Turda*

*Poland*

No information available

*Slovak Republik*

No information available

**Sheep**

*Romania*

1. 45% of the Romanian population, 2 mio animals, many local populations.
2. Too little investigation in and analysing of the various populations, no danger for the race but for the varieties. Analysis of the status quo is important.
3. See above, not very important.

*Tsurkana (Valachian Sheep)*

1. 20% of the Rumanian population, (Transhumance) Brasov and Covasna. Various head and leg colours (brown, red, white) are only poly-morphisms, also varieties, the black heads should be considered an own population (are not bred in the Carpathians, but in Banat and Vojvodina).
2. See Tsurkana
3. See Tsurkana

*Tsigai (Cigaja) Sheep*

1. 500 pure bred in the Banat hills, not in the Carpathians.
2. See other Rumanian sheep.

*Ratska Sheep*

*Slovakia*  
No information available

*Ukraine*

1. This Mountain Sheep is a new cross breed between Cigaja and Zackel. Stock 2500. Found in the Putil district, Chernivtsi.
2. Decreasing stock. Sheep breeding is generally in financial problems.
3. Conservation programme.

*Carpathian Mountain Sheep*

1. 100 – 200 animals found in North-Bukowina, Putil district and Chernivtsi, in the frontier area to Romania.
2. No information
3. Monitoring, investigation to find out whether they differ from Tsurkana.

*Tsckel Sheep*

## Poland

- Polish Mountain Sheep* 1. 2% of the Polish population. 50000 individuals.  
*(Valaska Sheep)* 2. Not endangered, there is an improvement programme.

- Olkuska Sheep* 1. only very few left.  
 2. Conservation programme.  
 3. monitoring

*Hrzosowka Sheep* No participant knew whether this breed lives in the mountains at all.

## Hungary

- Racka Sheep* 1. 4500 individuals. (herdbook).  
 2. No problem at the moment.

*Gyimesi Racka Sheep* 1. 600 females; (herdbook).

*Tsigai Sheep* 1. 600 individuals; herdbook.

*Cikta Sheep* 1. 350 individuals. (herdbook).

## Goats

### Romania

- Carpathian Goat* 1. 700000 individuals in the Carpathians.  
 2. No information at all concerning race, varieties etc. Not taken care of at all.  
 3. Monitoring, analysis, conservation programme.

*White Banater Goat* 1. 20000 individuals. In the Banat, not in the Carpathians. On his trips Traxler did not see any purebred stock anywhere. There are white individuals within all flocks, strait or tufted hair. Trachsler guesses that this race does not exist purebred, unless the white individuals are imported Saanen.  
 2. No herdbook.

### Ukraine

No information about autochthone goats. Total number of goats in the Carpathians is 1500.

## Donkey

### Romania

*Transhumance donkey* 1. 5000 to 10000, in the mountains with shepherds, 1 donkey per 300 sheep.  
 2. No information or care.  
 3. Monitoring, conservation programme.

*Agricultural Donkey* 1. North-western area  
 2. See above  
 3. See above

## Dogs

### Romania

60 - 70% of the sheepdog breeds are living in the Bukowina.

*Ciobanescul Romanesc* 1. Some 100 in breed programme. Bukowina, Moldowa, Sibiu.  
*Mioritic dog* 2. In Traxler's personal view breeding animals for exhibitions, i.e. for their exterior and not for their original task, such as flock protection, is problematic. The Romanian sheepdogs belong to the few remaining dog breeds in the world that are not bred according to wishes of canophiles lovers.

## 1 Seminary Work and Roundtable

1. Some 100 in breeding programme; area Bistritz, Bukowina, Maramuresch and Moldowa.
2. See Mioritic

*Ciobanescul Romanesc Carpatin dog*

No information available

*Transilvanian Dog*

### *Poland*

No information available

*Polskiowsczarek Podhalanski dog*



*The romanian Carpatin from Maramuresh region*

### *Slovakia*

No information available

*Slowenski Cuvac*

### *Ukraine*

No information available. Finding out if this population is a race of its own or if it was only lately imported from Slovakia would be useful.

*White Carpatin*

### *Hungary*

The last three races are not sure to belong to this geographical area. Nevertheless all races are taken care of.

*Kuvasz, Komondor, Pull, Puml, Mudi*

### *Geese*

#### *Romania*

Private farmers seem to breed original types of geese. No information or literature. Monitoring and investigation necessary.

#### *Poland*

1. 200 individuals. Ex situ.
2. No more in the Carpathians. Collected in this area for 70 years.
3. Monitoring, transfer back in the area of origin.

*Podkarpackich (Subcarpathian) Goose*

These geese are a crossbreed between Podkarpacka and an unknown race.

1. 200 – 500 individuals. Close to Cracow.

*Zatorska Goose*

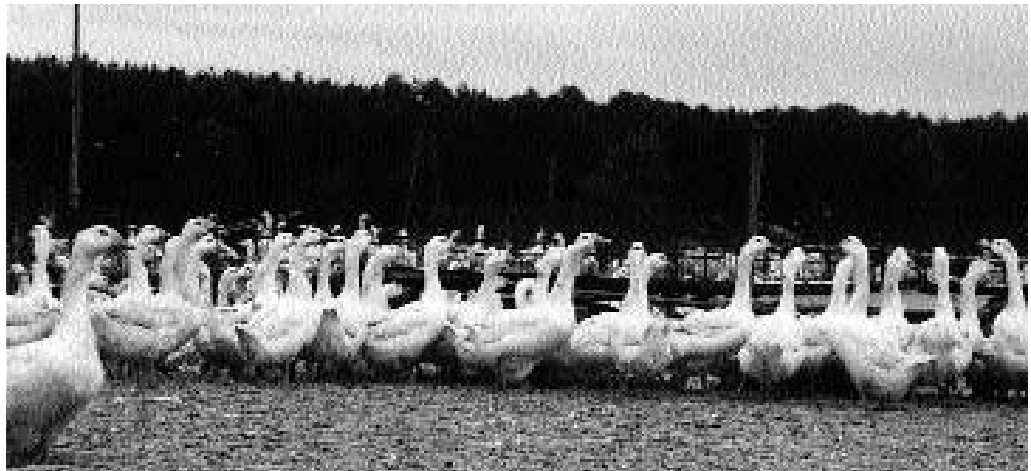
#### *Ukraine*

New breed, crossbreeding between three races.

1. 186 individuals.
2. Drastic decrease of stock.
3. Urgent need for conservation programme.

*Obroshyno Grey Goose*

A herd of Carpathian Geese in Poland.



## Ducks

In Romania but also in Ukraine, original Landraces are bred. No information available.

## Fowl

### *Romania*

- Git Golas (Nackthals)*
1. Some 1000 are found with hobby breeders. On his trips Traxler did not see any purebred strain). The Naked Neck factor is dominant, therefore many mixed population found. Until 1998 the Genebank on the Black Sea kept all colours. The red coloured, collected in the Ulcea area, are remarkable. They are of large size and lay heavy eggs.
  2. Not taken care of. Where have the individuals of the Genebank gone?
  3. Reorganization of the Genebank. Monitoring.

*Negru de Banat (Schwarzer Banater)* See Git Golas. Three years ago Traxler transferred about 20 breeding eggs from the Genebank to Austria. This population counts now about 20 females and 3 males. Continuation is problematic without new bloodlines. No information about this race in the literature.

### *Hungary*

There are preservation breeds of Git Golas in white, black and stripy colour.

## Bees

### *Romania*

According to Professor Draganescu the Carpathian bee stands between *A.m. caucasica* and *A.m. carnica*. Since twenty years no official imports of other races.

- Carpathian bee*
1. No information available
  2. No information about the many varieties
  3. See above

### *Hungary*

No information available

### *Ukraine*

- Carpatska bee*
1. There is a department for bee breeding; there ought to be more information.
  2. Supposedly no organized pure breed.
  3. Monitoring.

### *Poland*

No information available

### *Slovak Republik*

No information available

# Final discussion about the needs for future actions in the area of animal genetic resources conservation

*Prof. Dr. Imré Bodo, Budapest, Hungary*

- a) To study the literature in order to clarify the characteristics of different breeds which lived more than hundred years ago. *Priority list of future actions*
- b) To invite the possible experts for a meeting in order to have training on the characteristics of these breeds.
- c) On the basis of this knowledge to organize in situ excursions in order to collect information on the following breeds:
- Mokanitzá cattle
  - Varieties of different mountain horse types of the Carpathians (Sicul, Bikaz)
  - Description of the present status of breeds which can be found also somewhere else, like Mangalitzá or Bazna pigs.
  - Different types within the not endangered international breeds (Pinzgau, Simmental, Braunvieh etc. and the sheep breeds like Tzurkana, Cigaja)
- d) In order to estimate the genetic distance between the breeds, also DNA investigation can be organised with different laboratories on a scientific level.
- e) A conference on the different buffalo types
- f) Establishment of breeders' associations where they are not yet existing. The excursions should be organised for different purposes which are: collecting data not only on the animals, but also on breeders' situation. The experts of these excursions should be selected from all the Carpathian countries and the tasks should be internationally fulfilled.

## *Romania*

Ministry of Agriculture, Bucharest  
Anarz, Romanian Agency for Animal Production and Breed Improvement  
Romanian Academy of Agriculture and Forestry Sciences  
Romanian Academy of Agriculture and Forestry Sciences, Institute for Animal Biology and Nutrition  
Agency for Technology and Innovation and its Experimental Stations  
National Society for Horse Breeding, Bucharest

*The role of different institutions*

## *Poland*

Committee for Animal Diversity, Ministry of Agriculture Warsaw

## *Ukraine*

Institute of Agriculture and Animal Biology UAAS, Lvov  
Zarkarpatian Institute of Agroindustrial Production, Bakta  
Chernivsti State Agricultural Experimental UAAS  
Ivano-Frankivsk State Agricultural Experimental UAAS Kolomya

## *Hungary*

Ministry of Agriculture, Budapest  
Hungarian Association of Animal Breeders, MASZ  
National Institute for Quality Control in Agriculture, OMMI

### *Regional*

DAGENE, Danubian Countries Alliance for Conservation of Genes in Animal Species.

### *International*

SAVE Foundation, Safeguard for Agricultural Varieties in Europe.

The task of Ministries and other central institutions is to finance and to control the activities on the national level. Establishing a legal basis of preserving ancient domestic animal breeds by law is also important, where it is not yet solved.

The research institutions or universities have to organise the meetings mentioned above; they have to give experts to the excursions.

DAGENE can undertake the job of collecting literature in this respect.

SAVE has already given a good start in Suceava. Hopefully there is a continuation of this work.

*Fundraising* This is one of the most difficult tasks. All conservationists taking part in the monitoring programme have to inform their governments about the EU system of subsidies and have to ask for something similar to them. The 5th EU Framework programme seems to give also some possibilities for financing. It is important to decide for small and realisable projects and to ask for money for them. It seems the only way to get some financial basis for the activities.

*Proceedings* The role of such Proceedings like to Suceava Workshop is important to inform all the possible future participants of the programme. Therefore the distribution has a crucial importance.

*Participants of the Workshop after Visiting the Suceava Genebank*



# Discussion about state of the conservation programs, problems and possibilities

## Team Crops, Maize and Vegetables

*Dr. Wieslaw Podyma, Poland and Nadia Hungerbühler, Switzerland*

To size the still growing plant varieties, the group compiled the following list, subdivided it in field crops and vegetables for the Carpathian countries Ukraine, Romania, Poland and Slovakia.

*How many are left and where?*

*Still growing field crops and vegetables in the Carpathian Countries*

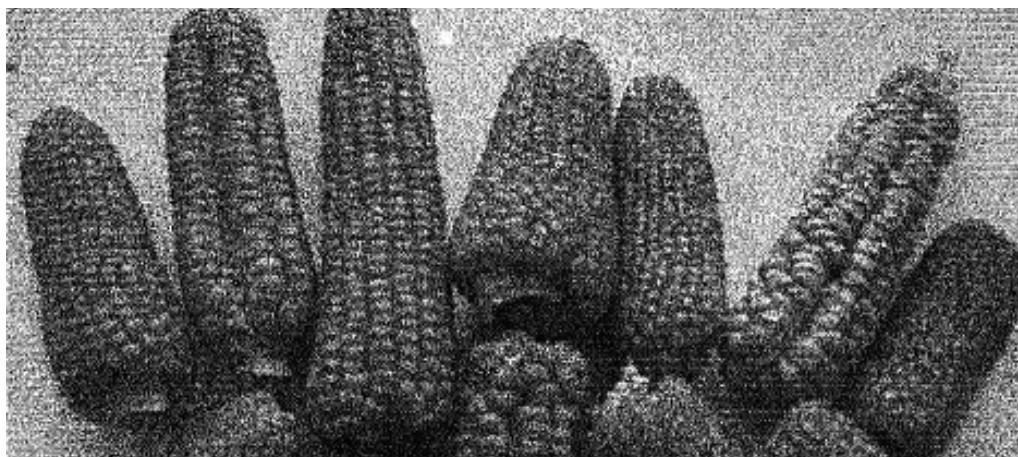
Country	Field Crops	Vegetables
Ukraine	Triticum dicoccum! Triticum spelta Hordeum (naked) Oats (naked) Potatoes (local forms)* Rye (perennial)* Local varieties of Flax, Poppy, Hemp and Maize	Turnip Rutabaga (syn. Swede) Parsley) Scorzoner
Romania	Triticum aestivum Triticum monococcum! Avena sativa Secale montanum* Hordeum distichon Fagopyrum esculentum Maize Potatoes (landraces)*	Cucurbit Onion (red)
Poland	Rye (perennial)* Avena strigosa Triticum sp. Hordeum vulgare Pisum sativum (local varieties) Vicia (local varieties)	Rutabaga Cabbage Kohlrabi Carrots Spinach Root Parsley Persnip, Onion* Rhubarb, Horse Radish, Shallots, Potato Onions
Slovakia	Triticum dicoccum! Lens culinaris Triticum dicoccum! Lens culinaris Cicer avretinum	Cucurbit Shallots Spinach

*Legend: \* no varieties found until now*

*! these varieties should be on a red list*

In Romania there are more vegetables endangered then listed but there is no data available or known at the time of the workshop. Perennial Vegetables (as Cabage or Carrots) are said to be more endangered than annual vegetables.

Collection of old and local  
Maize varieties from the  
Carpathian Mountains



*What is the problem and why?*

On one side it can be said, that the rapid agricultural development in these four countries is taking place. Horsepower will soon be replaced by modern tractors and old varieties are already and will be more and more replaced by new and advanced cultivation. Breeders have in general a low interest in the economically low rated old varieties. The amount of harvest of these old varieties is often smaller and the cultivation time longer but they might be resistant to certain diseases and need a lower input of pesticides. Old varieties are often perfectly adapted to mountain conditions and can be the source of regional products and good tasting specialities. But then there is a lack of their promotion and market.

On the other side it can be said that there is not much known about the local landraces and an inventory involves great expense and is difficult. Ecological catastrophies especially in mountain regions can destroy any long-term effort in one single day.

In the end it can be said that law regulations can hinder the distribution of local landraces. An example is the prohibition of hemp. Ownership and registration laws don't benefit the distribution of certain plants.

*How is action needed and where?*

It is necessary to have a systematic inventory of existing local varieties in the Carpathians. This inventory should include the geographic distribution of plant varieties, the indigenous knowledge and an inventory of farmers that are growing old varieties. A publication of global results would be even better. A characterisation and evaluation of plant material will add value to the most interesting varieties. The cultural, historical, culinary value and the value for marginal areas should be defined. Local committees "pro Carpathian varieties" are important for the valorisation of Carpathian varieties and as a organ of public opinion. In this respect it might give a problem of financing such local groups but benefits should be shown and emphasised and par example a magazine is good for the promotion. Changes in the country legislation, that are taking these concerns serious, is a slow but continuous process. On farm – indigenous plant material should be maintained and an on farm conservation system established. Genebanks should secure the collection of germplasm.

During the workshop it was possible to focus the need of action on certain regions for these three countries:

Ukraine:	Verkhoryna district Yaremcha Transcarpathian region (Rakhiv) Chernivtsi region (Putyla district)
Romania:	Apuseni mountains Bucovina region Maramures region
Poland:	Carpathians and their forelands

# Seminary work conclusions: Problems of rare fruit varieties in the Carpathian Mountains

*Dr. Nelu Orlaie, Cluj-Napoca, Romania*

Traditional varieties of fruit trees represent a genetic treasure which must be conserved. *Introduction*

Old fruit varieties in the Carpathians were selected against harsh environments, and they are adapted to pedo-climatic conditions specific for mountains, possess good quality, taste and diseases and parasites resistance. Rural people are using about 20 species of fruits.

On Czechoslovakian territory, according estimations from the end of last century were, cultivated 1000-1500 introduced and original genotypes of apples. From 1991 to 1999 more than 5000 samples (including duplicates) were preliminary evaluated and in Slovakia and about 350 were described as original spontaneous genotypes. *Conservation of apple*

In Romania there were almost 200 local varieties identified only in the Western Carpathians, and in Ukraine are mentioned enough local varieties which are productive, good in storage and disease resistant.

*Malus sylvestris* Mill lives wild in Carpinus - Fagus forests. The number of stands is reduced much by *M. dasy-phylla* Borkh., individuals can be found extremely rarely.

In the Fruit Research Station - Cluj collection, Romania, 85 old local pear varieties collected in the Carpathian area are conserved. *Conservation of pear*

In Slovakia the collections consist of 120 genotypes. More than 65 pear varieties cultivated in Easter Romanian Carpathian were extinct or threatened during the last 30 years.

In Ukraine, Poland and Romania special attention should be given to the local walnut and chestnut varieties. Populations of trees with different quality of nut kernel, time of blooming, tolerance to bacterial diseases and plant vigor are distributed on the edge of the Danubian valley and on the foothills of the Carpathians. Many old and young chestnut trees were discovered in forests near the town of Mukachevo (Ukraine). *Walnut and chestnut*

*Cornus mas*, *Sorbus domestica* and *Coryllus avelana atropurpurea*, only small populations were observed in the Carpathian mountains and hills. Especially *Coryllus avelana atropurpurea* in Ukraine is endangered of being extincted.

Some varieties of *Cornus mas* and *Sorbus domestica* are preserved only in some private farms.

There are some unknown local gooseberry varieties found in Maramures area and black currant varieties were recorded in Apuseni mountains. Small colonies of *Ribes* species sometimes less than 10 plants, were dotted among the natural vegetation. *Small fruits*

The Carpathian mountains are exceptionally rich in *Rubus* species and could be considered to be a center of diversity for the genus. In Romania more than 100 species and 75 intraspecies hybrids are reported to be and many are mentioned only in the Carpathians in small populations.

Other species which only exist in small plant numbers are *Fragaria moschata*, *Vaccinium myrtillus* var. *leucocarpus*, *Vaccinium oxycocum* var. *microcarpus*, some local varieties of *Vaccinium vitis-ideea* which are extinct or threatened, *Rosa damascena* and *Rosa pendulina*.

*Problems, needs of action and possibilities*

During the last 50 years biodiversity has been dramatically reduced. Many of local valuable genotypes of fruit plants were lost because of collectivisation in agriculture, development of pasture farming or modern farming and changes as western technology flooded into these areas.

Old populations of fruits are consisting now mainly of old trees, which are sometimes more than 100 years old.

The fact could be mentioned that a great number of local varieties resist at an altitude superior to 800 m and these represent important resources in improving quality, disease resistance of varieties for mountain regions and not only there. Some of these varieties can be directly reintroduced to gardening, used in breeding programs or kept "in situ" conservation in order to prevent their losses for future generations.

In Slovakia and Poland national programs exist for the conservation and protection of germplasm of obsolete cultivars and landraces.

Scientists must continue to be able to draw upon this genetic diversity for the next generations. Urgent actions for rescuing rare plant varieties in the Carpathian mountains are necessary:

- initiating an international programs for researching and preserving fruit tree genofund;
- setting off a regional network for monitoring and conservation strategies in rare fruit plants varieties;
- propagation and return of local varieties to the area of their former dissemination;
- scientific expeditions are necessary for evaluation of the plant material. In these expeditions scientists from a group of Carpathian countries will join;
- participation of local communities in these projects;
- partnership between the authorities at international, national, regional and local levels;
- co-operation with forest responsible and a red book or list of all endangered species and varieties in the Carpathians;
- establish a red book or list.

*Acknowledgment*

Information of this report proceed from scientists participating in a Seminary work of the fruit team of the Workshop "Rare Breeds and Plant Varieties in the Carpathian Mountains" and from Draft Reports of the Participants.

# Final discussion about the needs for future actions in the area of plant genetic resources conservation

*Wieslaw Podyma, Poland; Nadia Hungerbühler, Switzerland*

Participants of the discussion prepared a short list of the cultivated plants and wild useful plants which are the most endangered and should be primarily conserved: *Priority list*

- Triticum diccocum
- Triticum monococcum
- Perennial rye
- Perennial vegetables
- Apples (Malus)
- Grape (Vitis)
- Pyrus
- Sorbus domestica
- Sorbus torminalis
- Small fruits

The action which should be undertaken is a systematic inventory of existing local varieties in the Carpathian Mts. which would be focused on the geographic distribution of selected taxa, collecting indigenous knowledge, and inventorying of farmers still growing old varieties. The publication of global results would be a very important part of the action. The common action which should be also undertaken for plant genetic resources is to establish database on existing resources in situ and ex situ. The action in the area of field crops needs additional activities documenting the potential value of the indigenous material by evaluation for cultivation, and promotion of their historical, culinary value and value for cultivation in marginal areas.

The current status of fruit trees is less known than that of other plants, so in the first step inventorying and description of distribution of the most endangered taxa should be done. The establishment of nurseries of fruit trees and multiplication of unique accessions are necessary. The action can be undertaken by regional agricultural universities, institutes and genebanks using existing facilities. The collected information could be the basis for applying to the local authorities for establishment of new genetical reserves with special focus on selected taxa.

All participating organizations expressed their willingness to participate in the programme, and availability of their facilities and knowledge according to their specialization. The problem which has been recognised is low activity of non-governmental organizations especially in the area of plant genetic resources. To be successful, the action needs strong participation of local authorities, non-governmental organizations and private persons. Special attention should be put on the establishment of local committees for the evaluation and promotion of the material. *Partners*

The participants identified the following international and national potential sources of financial support: *Finances*

International funds

5th Framework Programme of European Union for Research, Technological Development

and Demonstration 1998-2002.  
Global Environmental Facilities  
ECP/GR programme

*National funds* Bilateral agreements on co-operation  
Environmental Foundations

Some of the participating countries are in a very difficult economical situation and external support is considered to be the most real source of funds for the initiation of the activities. However country environmental sector should be considered as potential partner for cooperation.

*Needs for common actions* Besides actions undertaken on the territory of the countries, the participants strongly stressed the importance of common action in selected areas of the Carpathian mountains. The Maramures (Romania) and the neighbouring Transcarpathian region (Rakhiv) in Ukraine have been selected for international co-operation.

During discussion other important topics have been raised for common co-operation:

1. Periodical organization of workshops in different countries
2. Standardization of methodology of research
3. Availability of digitised maps of the Carpathian region.

Also better knowledge on "Alps programme for conservation of genetic resources" would be very useful for the development of an international co-operation in the Carpathian region.

The participants expressed their acknowledgements for the organizers of the meeting. The workshop was the first attempt for further joint collaboration of Carpathian countries in the field of genetic resources conservation.