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Rare Livestock Breeds in Nature Conservation

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Without anthropogenic influence, Europe today would be a relatively species poor, dark forest. Only the development of open spaces through crop cultivation and animal husbandry led to the diversity of landscape that exists today. When largely traditionally managed, they carry today the largest diversity of wild plants and animals. Thus, agrobiodiversity is an essential, integral part of biological diversity. This conclusion is reflected in the international agreement “Convention on Biological Diversity” signed in 1992 in Rio de Janeiro (CBD, Art. 2, ff). Not only are wild animals and plants worthy of protection and conservation, their domesticated relatives are equally worthy.



Water buffalo keep the vegetation on the shores of Lake Prespa cleared

Over centuries people have bred livestock and cultivated plants especially suited to their local environment. With the sustainable use of the natural surroundings, biologically valuable traditional agro-eco-systems developed within each regional ecosystem. Today these areas of high diversity belong to the most endangered ecosystems.

Yield increases, industrialisation and over-use in agricultural production lead to destruction of ecosystems and biodiversity, not only in the case of wildlife but also domesticated breeds and varieties. Relicts of once extensive regional ecosystems need to be conserved long-term in both sustainable and economically viable ways.

There are many fruitful synergies to be found between nature conservation and agrobiodiversity: The regional ecosystems worthy of protection can only be preserved in their full diversity with management. Old livestock breeds and cultivated plants, adapted to the locality, offer a low-cost alternative to elaborate technical solutions. Alternatives are:

- Grazing with old livestock breeds: robust and bred for sparse conditions they even eat mat-grasses and other rough grazing, usually need no more than a shelter. Light-footed and agile, with hard hooves adapted for harsh conditions, they keep even the most fragile areas open.
- Nature conservation with the conservation of old fruit trees: robust orchards, traditional hedgerows with fruit bushes are elements of the landscape worthy of protection. The richness of their structure serves a large community of wildlife as shelter, nesting space and nutrition.
- The cultivation of regionally typical grain and vegetable varieties can be used as a sustainable and environmentally compatible, pesticide free farming method in large nature conservation areas.
- Traditional agro-eco-systems, in which specifically adapted livestock and cultivated plants are used, conserve the functioning of ecological systems promoting soil fertility, regulation of pests and diseases and increase pollination.



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The Alpinet Gheep - Goat and sheep breeds of the Alps

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INTERREG III B, a programme for the Alpine region, is a common initiative during 2000-2006 that shall strengthen the economic and social bonds in the Alpine region through transnational and inter-regional development.

The network at present consists of 16 partners from Italy, Slovenia, Austria and Germany whose aim is the support of the regional long-term development of sheep and goats. The Province of Trento in Italy coordinates the project. From 2005-2006, the main activities are the collection of data about the distribution of breeds and focus of breeding programmes, the identification and description of grazing areas, the evaluation of economic and ecological factors influencing pasture management, the creation of an international monitoring system for the breeds and a presentation of traditional sheep and goat products. The project's prospects of success lie in the capability of breeders, regional administration, research institutes and private partners.

In the Alpine region, there is a great variety of adapted breeds. Investigations have shown that 60 sheep breeds are still found in the Alpine region: 28 breeds in Italy, 8 breeds in Germany, 8 breeds in Austria, 7 breeds in Switzerland/Liechtenstein, 6 breeds in France and 4 breeds in Slovenia. 60 sheep breeds and 33 goat breeds are found today. Numerous breeds could fortunately be integrated into conservation programs; a not defined number of breeds have, however, already died out and more will certainly follow. The 1994 and 2004 studies on Genetic Resources in the Alpine region, conducted by SAVE – Monitoring Institute, could reveal important need for action and various initiatives have developed since.





Endangered breeds in Italy: what is the real situation?

Riccardo Fortina, Daniele Bigi, Emilio Pastore, Alessio Zanon – RARE, Torino, Italy

What is a breed ? A simple question, but difficult to answer. A definition of breed is the first step for any conservation program. The following are some:

- “Animals that, through selection and breeding, have come to resemble one another and pass those traits uniformly to their offspring” (www.ansi.okstate.edu, 2006)
- “Race, stock, strain; a line of descendants perpetuating particular hereditary qualities” (Oxford English Dictionary, 1959)
- Either a sub-specific group of domestic livestock with definable and identifiable external characteristics that enable it to be separated by visual appraisal from other similarly defined groups within the same species, or a group for which geographical and/or cultural separation from phenotypically separate groups has led to acceptance of its separate identity” (FAO, WWL 2000)
- “A breed is a breed if enough people say it is” (K. Hammond, pers. com.)
- “A breed is a group of domestic animals, termed such by common consent of the breeders...a term which arose among breeders of livestock, created one might say, for their own use, and no one is warranted in assigning to this word a scientific definition and in calling the breeders wrong when they deviate from the formulated definition. It is their word and the breeders’ common usage is what we must accept as the correct definition” (The genetic of populations, Lush, 1994)

Due to this different definitions, conservation strategies of farm animal genetic resources should have different approaches, considering also the limitation of funds.

In Italy (and in most of the countries) the often applied rules by the stakeholders for selection of breeds for conservation mostly rely on a single or a combination of few simple criteria (i.e. number of animals and risk status, inbreeding rate, population dynamics): it the so called “risk-strategy”, applied by FAO and National Focal Points. Such strategy put a breed in a “watch” status when the risk-describing parameter (defined by FAO as “extinct, critical, endangered or not at risk breed”) reaches a defined threshold value. Although simple and pragmatic, such strategy lack criteria that characterise a rational and cost-effective decision making process from a systematic viewpoint (for example: the objective of the conservation strategy is not well defined, or the specific value of the breed or its contribution to genetic diversity is not directly accounted for).

Different strategies are possible. For example, the so-called “maximum-diversity-strategy” was applied by Roane (2000) in Norway. He suggested a framework for prioritising breeds for conservation on the national level scoring breeds for the following criteria: degree of endangerment (mainly current population size), actual economic value, landscape value, scientific value, cultural and historical value, genetic uniqueness. Using the “maximum-diversity-strategy” a breed is ranked according to its contribution either to actual or to the expected future diversity., and therefore selected for conservation.

In Italy the first coordinated research on the risk status of breeds was conducted at the end of the ‘70s by CNR (National Research Council); in 1983 data on Italian sheep, goats and cattle were published. These data have been widely used by Regional programs of conservation in appliance of the UE Reg. 2078/92 and 1257/99. All the programs (including the actual 1698/05) were based on the “risk-strategy” (or risk status based on FAO categories), and did not account for the non-conventional services of endangered breeds, such as their possible cultural and environmental roles. In some cases, different breeds were called with same names and viceversa, thus generating confusion in funding. Or, more frequently, actual number of animals were based on old CNR data.

Some cases are cited. For example, in 1995 the population of Varzese – Tortonese cattle breed was extinct for the Regione Piemonte, but for FAO there were 73 Varzese – Tortonese and less than 100 Montana (also called Varzese or Tortonese or Cabellota!). RARE found 151 Varzese - Tortonese in 2006.

The Mora Romagnola pig was nearly extinct in 1998 (12 animals found by RARE), but for FAO and Regione Emilia Romagna (1257/99) there were less than 100 or 200 respectively (in 2006: 51-54 males and 128-144 females for ANAS, National Pig Breeders Association).

For CNR there were 30 Sempione goat still bred in the Vercelli province. This value has been used by Regione Piemonte for the application of UE Reg. 2078/92 and 1257/99; FAO (2000) reported 100 animals in 1994. RARE found a flock of 20 in 1991 and at least 34.

Also for the regione Emilia Romagna an example of different names (and different numbers) of sheep breeds from 1925 to 1990 is reported.

The many-faceted character of farm animal genetic resources reflects variety of possible objectives in their utilisation and conservation by society. To manage them it is necessary to define precisely the meaning of breed (and consequently their number and status), to get commitment from the society for conservation, and to develop strategies based on parameters that measure conventional and non-conventional services.

The bay horse of the Aegean

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Several islands of the Mediterranean and other marginal areas of the adjacent mainland are still inhabited by breeds of swift-limbed horses which are considered to be of ancient origins. Perhaps, the most famous of them is the horse whose morphology has been definitively classified under the denomination *Skyrian pony*, envisaging exemplars with an average height at the withers of 90-110 cm. However, although it is included in the category of ponies in the classification registers, this is actually a miniature horse. The phenotypical constancy of equine populations of reduced dimensions documented for various areas of the Mediterranean from at least the second millennium B.C. would tend to suggest a common origin. And also their ecological requirements appear to be homogeneous. We are effectively dealing with an equine type which is particularly suited for survival in marginal areas, scantily productive in trophic terms, and frequently characterised by difficult pedological and vegetative conditions. For all these reasons I would suggest to call these Mediterranean equine populations with the name of the “bay horse of the Aegean”.

Instead, as regards the conjectures which have been made in the attempt to explain the reduced dimensions of this equine type, this would appear to be related not so much to the cumulative effects of insularity, but rather to the fact that a form distinguished by this morphology was already in existence in the continental area, which from the second millennium B.C. also began to spread to the Mediterranean islands, proving to be particularly suited to breeding within insular habitats. Also other breeds of domestic animals of reduced dimensions are known from the Mediterranean island, such as the extinct race of Lilliputian cows of Tilos, Dodecanese (Greece), the dwarf longhorn grey cattle of Piperi, Northern Sporades (Greece), the donkeys and pigs of Asinara, Sardinia (Italy), and the Dodecanese (Greece).



Amalthia – the Greek society for the protection and conservation of indigenous breeds and domestic animals

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Current status of indigenous equids in Greece

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In Greece only 6 indigenous equine breeds are officially recognized by the State. Found in the region of Ilia in Greece, the **Andravida** is a light riding and draft breed. It has developed in the early 20th century from Anglo-Norman crossed with local breeds. Nonius stallions were used after 1920. Its live stock counts for up to 40-50 animals. The **Skyros** breed is a variety of the Greek Aegean horse found throughout Greece. It is a light riding and draft horse found most usually in bay, grey, chestnut, or dun. The live stock of this breed counts for up to 200 animals, from which about 110 individuals live in Skyros island (Also about 25 individuals live in Corfu, another 26 in Thessaloniki and about 30 in Thessaly). Its withers height is about 100-120cm. The **Pindos** breed is found in the mountains of Epirus and Thessaly in Greece. It is a light riding and draft breed, seen mainly in bay (70%) and more rarely in grey (30%). Its withers height is about 122-127cm. Its live stock contains 81 males and 464 females (in year 2002). The **Pinia** is found in western Peloponnese. It is a variety of the Greek breed cross-bred with Anglo-Arab, Anglo-Norman and Nonius breeding introduced early in the 20th century. The breed is seen in grey, blue roan, chestnut or bay. Its withers height is about 136-142cm. Its live stock contains 69 males and 231 females (in year 2002). The **Thessalian** is found in the region surrounding Thessaly. It is a light riding and draft breed improved since 1945 by crossing with Arab, Anglo-Arab and Lipitsa breeds. Its live stock comprises 93 males and 412 females (in year 2001). The **Messara** is found on the island of Crete. Its withers height is about 134-140cm. It is a light riding and draft horse, found most usually in bay, chestnut and grey and its herd stock contains 81 males and 101 females (in year 1994).

Recently an official registration union of horse breeders has been established in Skyros island and pursues an EU conservation programme for Skyros breed under the supervision of Amalthia. Breeders unions have been also established for Thessaly and Andravida horse breeds, which are also members of Amalthia. Another union, member of Amalthia, was founded in 2001 for the conservation of Rhodos horse breed, a non-recognised by State breed. Its representatives are 3 males and 3 females and have chestnut or brown colour. Their withers height is about 110-115 cm. Several other local horse breeds have not yet been registered by the State. Amalthia aims to encourage the local societies to establish breeder unions and pursue conservation programmes for such breeds.



A herd of Skyros horses



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Efficiency of European funding for the conservation of rare breeds in Italy

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Nel 1992, l'Unione Europea emanava un regolamento (Reg. 2078/92) che prevedeva incentivi volti alla diffusione di tecniche di coltivazione e di allevamento "eco-compatibili" quali la riduzione dell'impiego di fertilizzanti e fitofarmaci, lo sviluppo dell'agricoltura biologica, la riconversione di seminativi in pascoli, l'estensivizzazione dell'allevamento, l'utilizzazione dell'alpeggio, l'allevamento di razze in pericolo di estinzione, la cura dei terreni abbandonati e il ritiro dalla produzione.

Una delle misure del Regolamento prevedeva incentivi specifici per gli allevatori che si impegnavano ad allevare, in purezza e per cinque anni, soggetti di razze autoctone in pericolo. L'applicazione della Misura implicava che fossero riconosciute e descritte le razze autoctone a rischio che dovevano essere oggetto di finanziamento e avviati i relativi Registri Anagrafici. In Italia, essendo il comparto Agricoltura totalmente decentrato, i Piani di Sviluppo Rurali, la loro gestione e l'utilizzazione dei fondi competono alle amministrazioni regionali.

Ogni Regione ha quindi facoltà di stendere il proprio PSR e decidere, in base ai fabbisogni e alle caratteristiche peculiari del territorio, le misure da adottare e la relativa distribuzione dei fondi. Nei Piani di Sviluppo Rurale per i quinquenni successivi 2000-2006 e 2007-2012 sono stati riproposti i finanziamenti per le razze a rischio.

E' analizzata in generale la situazione dell'utilizzo di detti fondi a livello nazionale poi presa in considerazione in modo più dettagliato i risultati ottenuti in una regione del Nord Italia, il Piemonte, caratterizzata dalla presenza di numerose razze a rischio (16) e dall'utilizzo a partire dal 1994 dei fondi europei per l'allevamento di razze a rischio.

I risultati, in Piemonte, di oltre un decennio di incentivi alle razze autoctone a rischio mettono in evidenza un incremento generale dei capi finanziati passati da 10.000 ad oltre 23.000, un incremento numerico delle razze più consistenti e ancora sfruttate per le loro produzioni, un incremento anomalo di razze-popolazioni non geneticamente definite ma una situazione quasi stazionaria delle razze "reliques".

In conclusione, si ipotizza un uso dei finanziamenti più mirato alla salvaguardia delle razze realmente a rischio (differenziando ad esempio il montante del premio in base allo stato della razza come ha già deliberato la Regione Toscana) e una maggiore incisività delle iniziative locali per la tutela della biodiversità (attuazione delle leggi regionali, finanziamenti pubblici e privati...).

Veterinary health service & rare breeds conservation: antagonism or collaboration?

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Il titolo è una provocazione, infatti, pur non essendo vocazione primaria dei SS.VV. pubblici la conservazione di razze rare, uno dei compiti primari di queste strutture è la tutela del patrimonio zootecnico nazionale.

Considerando questo aspetto possiamo quindi ricomprendere nell'attività di servizio alcune azioni utili alle azioni di conservazione di razze rare.

La distribuzione capillare dei servizi sul territorio può coadiuvare le suddette azioni fornendo sia un supporto cognitivo riguardo distribuzione di allevamenti sul territorio sia il contatto diretto con gli imprenditori in possesso di animali di cui interessi la conservazione.

Altro aspetto qualificante riguarda le funzioni inerente la sicurezza alimentare.

Infatti, poiché per far sopravvivere e sostenere l'allevamento di razze di animali da reddito rare, è indispensabile valorizzare e qualificare i prodotti da loro derivati accorciando la filiera produttiva fino possibilmente ad esaurirla nell'ambito aziendale, è fondamentale accompagnare i processi di adeguamento delle aziende interessate. In questo ambito, i SS. VV. pubblici, con la loro professionalità e cooperazione, possono avere un ruolo di supporto e di indirizzo importante.

Un campo di prova importante per verificare questi processi è stato nella nostra realtà il lavoro svolto per la "Cornella Bianca" in collaborazione con le Università degli Studi di Bologna (Agraria) e Parma (Veterinaria), l'associazione RARE, il GAL Antico Frignano ed Appennino Reggiano, le Province di Reggio Emilia e Modena, ITAS Zanelli.



“European Livestock Breeds Ark and Rescue Net” – ELBARN Elli Broxham – SAVE Foundation, Konstanz, Germany

SAVE, working together with the lead partner Euronatur and the further project partners GEH, SLE and R.A.R.E, has been awarded a grant from the EU for this project under the Work Programme of the Regulation EC 870/2004. The grant was awarded to ELBARN as a ‘Concerted Action’ and thus ELBARN will be financed by the EU to 80% of eligible costs. We are proud that the grant application was accepted by the EU, the fact that this is a project run only by the NGO sector means that the ELBARN Project Partners have set a precedent for other NGOs seeking EU funding. The work to realise the goals of ELBARN will begin 1st June 2007 and the project will last for 3 years.

“Ark Farms” are already in existence (example: the RBST’s Approved Farm Parks, GEH’s Arche Höfe). They undertake important work in conservation and publicity. However, there is still an element missing in the system, an element that has long been identified by SAVE. This element is the Rescue Station. ELBARN aims to change the status quo by creating a network of existing Ark Farms, by encouraging the development of new ones so that every European country has at least one ‘**Ark and Rescue Centre**’ and also by enhancing the system with the missing element: capacity to rescue animals that are both rare breeds and face slaughter or other immediate dangers.

Ark and Rescue Centres will:

- Offer emergency places for endangered genetically important livestock
- Offer quarantine places for rare breeds in the event of epidemics
- Will keep core breeding groups
- And will offer breeding advice to keepers
- Will offer an opportunity for the public to see the animal genetic resources of Europe

These Ark and Rescue Centres will be electronically networked via an online database. The ELBARN Network will be spread throughout Europe to share knowledge and encourage collaboration between organisations and institutes wishing to conserve European animal genetic resources. Additionally, the promotion of the products of these livestock breeds, whether this is as a food product or as a service such as grazing for environmental management, will be a central theme of the project.

ELBARN is not intended as a project that buys property or animals. Nor does it have any finances available for helping in the upkeep of Ark and Rescue Centres. However, through the Working Groups, ELBARN will be able to make concrete suggestions on how Ark and Rescue Centres can maximise the marketing potential of the rare livestock breeds in their care, thus rendering them profitable. It is also hoped that, through the existence of an international network sponsored by the EU, smaller projects related to fulfilling the wider goals of ELBARN will find funding to achieve their goals.

Although ELBARN is financed by the EU, it covers the geographical region of Europe, not only the EU. All countries will be invited to participate in the network. **The Central Workshop will take place in February 2008**, more details will be announced at the end of the autumn 2007. If you wish to express your interest in being a part of ELBARN or have any further questions, please get in contact with SAVE.



Marketing of rare breeds and varieties in Germany

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Marketing of Rare Breeds and Varieties in Germany

Within the framework of rural development regulations in Germany there is an initiative “Plant genetic resources “. In the province North Rhine-Westphalia projects for plant genetic resources (PGR) are financed and led by the agricultural chamber with up to 100.000 Euro per year until 2012. The aim of these projects is it to create a regional centre of excellence of PGR, building of producer communities and promotion of innovative products. Also the pool of rare varieties shall be evaluated, strengthened, described and documented. Up to now about 600 seed samples were investigated and verified. Within this initiative, seeds are also produced for use by farmers and gardeners. The involvement of farmers from the beginning makes the establishment of producer communities possible at a later stage. Processors get innovative feedstock for special products like beer and schnapps from Imperial Barley, Emmer and Black Oats, special bread and vegetables with unusual colours and taste such as special varieties of tomatoes.

Experience of marketing and advantages of products

What these products have in common is that they are made from raw materials which, along with the production processes to make them, are being forgotten (what does “Sauerbier”, known as “small beer” in English, taste like or the meat of the “Bunten Bentheimer” pig?)

Everything has to be developed anew in a lengthy process over many vegetation periods, starting with small quantities and then increasing to an amount that is marketable. This process can be expensive.

These products also have an uniqueness in common e.g. a special flavour, the tradition with its historical and regional story (copyrights etc should be checked before the process begins!). Synergies with other product areas with a similar product value should be made use of, like organic products, fine foods and top class restaurants.

From the initial propagation and preparation through to the marketable product is, therefore, a long road. At the beginning one presents new products in places where potential customers can be found (weekly markets, farmer’s markets and a constant presence with such organisations and companies as Slow Food or delicatessens, organic supermarkets etc). Press releases often show contradictory reactions and publicity in professional journals seems to present this attitude towards food as ‘eccentric’. In contrast, small articles in the glossy magazines tend to lead to a demand for products that can be barely met.

The beginnings of this trend started with the products being sold through farm-shops, beer-gardens, and farm-cafes but now a ‘shopping basket’ has developed which shows the amazing synergy effects. This could be experienced at the Salone del Gusto in Turin: next to the brewer, who introduced his speciality beers, stood the confectioner with truffle pralines, the butcher with “Westfälischen Knochenschinken” and the “Bunten Bentheimer” breeder, introducing ham from acorn-fed pigs.