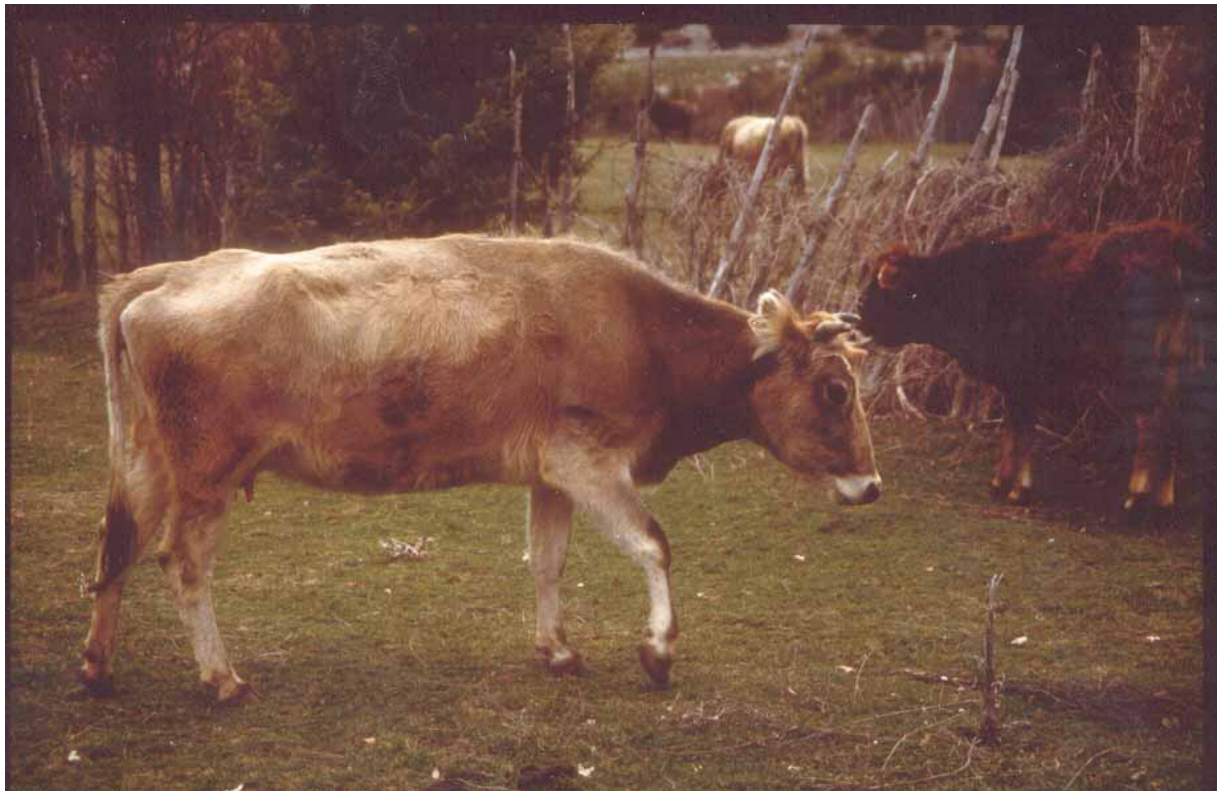




Prespa cattle

Identification and possible conservation measures



(photo Giorgios Catsadorakis)

Evaluation of a search tour from 22nd to 27th May 2006
Hans-Peter Grunenfelder, MSc, Monitoring Institute

with addenda from November 2010

A) Reason for the mission

Within the frame of the study "Animal Genetic Resources in Greece", financed by the MAVA Foundation and carried out by the Monitoring Institute, several hints were received about the existence of "dwarf cattle" in the Greek part of the Prespa catchment. In winter 2005/2006, it was therefore tried to investigate the seriousness of these messages and to document the population.

According to personal information of the zoologist Dr. Thomas Schultze-Westrum who produced a photography documentation of the animals in 1976, they are very small-framed and moved "like goats" in mountainous terrain. The official Greek side, however, only mentions a slightly smaller form of the "Greek shorthorn" called Brachyceros. In the very comprehensive, yet not complete "Mason's World Dictionary of Livestock Breeds, Types and Varieties"¹, Prespa cattle is not mentioned but a "Western Macedonian Cattle", described as follows:

West Macedonian: (Greece)/dwarf/variation of Greek Shorthorn/cf. Macedonian Blue, Rodopi

All hints concerning dwarf cattle centred on the Greek village of Psarades. But taking into account experiences of the Monitoring Institute with populations in border regions, it had to be assumed that the breed also occurs in the bordering neighbour countries. A small population in Psarades would not have had a long-term chance to survive – inbreeding problems – when isolated from other stock ("a breed dies out before the last animals have died...")

In order to answer as many of the questions as possible, to document the population and to discuss if it really represents an own breed or just a local type of another breed, a search tour was conducted in May 2006.

B) Search-Tour

To create the most favourite starting position, around a dozen local and regional groups (NGOs) located in regions in Greece, Albania and FYR Macedonia bordering the Prespa Lakes were contacted. A few could provide rudimentary information on the occurrence of Prespa cattle and showed interest in the project. From 22nd to 27th May 2006, on-site investigation was carried out by a delegation of the Monitoring Institute:

- Hans-Peter Grunenfelder, MSc, Director of the Monitoring Institute
- Dr. Philippe Roch, Consultant and patron of the Monitoring Institute

For logistical reasons, only the Greek and Albanian areas could be explored in the short time allocated for the tour. Areas in FYROM still have to be searched at a later date. The group was accompanied in Greece by Yannis Kazoglou (Society for the Protection of Prespa) and in Albania by Prof.Dr. Kristaq Kume, Professor for Animal Breeding and chairman of AlbaGene in Tirana and by Agim Cili, director of the agricultural station in Korçë.

¹ Mason's World Dictionary of Livestock Breeds, Types and Varieties / revised by Valerie Porter,--5th edition, 2002, CAB International; ISBN 0 85199 430 X



original type of cow at Liqenas

Results Greece

- Psarades

Psarades, gorgeously situated behind a mountain chain at Lake Macro Prespa, was difficult to reach in former times, but is today well developed with a modern road. First reports about the occurrence of "Prespa Cattle" and the whole documentation material to date available came from this village; therefore, it was obvious that the investigation had to start here.

The herd of cattle grazes the areas at the Lake and the mountain slopes and thus keeps the landscape open. Sometimes, the farmers drive animals into other directions. For nature protection issues, it is important that they also graze the reed vegetation at the shores of the Lake. Thus, the shores are kept open. Using the historical photo material, 8-10 animals of the old Prespa type could be identified. For further breeding, animals differing slightly from the old type can possibly also be used.

- Isle of Agios Achillios

On the small island situated in Lake Micro Prespa, a population is found that is interesting for nature protection issues, but rarely suitable for breeding. The "breeding bull" accompanying the herd is striking. He is estimated to have 3/4 or more old blood, with an outstanding and rare marking called bridle. It is also called "tigerbusha" when occurring in Busha cattle and - as far as we know - only found in Montenegro and the Carpat-Ukraine.

- Agios Germanos

A farmer in Agios Germanos has bought some animals from Psarades. Amongst them, there is an old cow of the Prespa type that should by all means be included into a future nucleus breeding group.

- Sires:

The crucial factor for future breeding is the existence of sires or sperm suitable for breeding. Sperm of old autochthonous breeds is, however, only very seldom available. As already mentioned there is a breeding bull with 75 or more percent old blood proportion on the island of Agios Achillios. This means that according to common standards for endangered breeds, the offspring of pure-bred cows can be used for further breeding. They will show at least a 4/5 proportion of the old blood.

The situation in Psarades seems, however, to be better. Farmers practice a simple traditional mating system used in some countries for small populations. Sires in the true sense do not exist. Farmers leave the male offspring with the herd until the young bulls become active and cover the cows. As soon as cows have become pregnant, the bulls are sold or slaughtered. If a cow has not received yet, it is brought to Agios Achillios... the system is simple and financially viable. Young bulls grow constantly and the meat increase can be sold. Some of the young bulls in Psarades seem to be rather pure-bred and could well be used for conservation breeding.

Results Albania

The Albanian area at the Prespa Lakes has to be divided up into two parts: the part at Lake Micro Prespa, open towards the Devoll Plains. Here, the influence of foreign breeds has nearly completely swamped out autochthonous cattle breeds (Tren, Buzeliqën, Shuez). The second part is located at Lake Macro Prespa and separated from other Albanian regions by a 2500m mountain range. Modern high performance breeds have only been introduced quite recently (community of Liqenas, divided up into half a dozen parts and the remote mountain village of Cerje at the border to Greece Vendero that is only accessible with 4X4 vehicles). All villages at the Lake and in the mountains were visited individually. The following list shows an estimation of the number of still pure-bred Prespa animals:

Village	Remarks	Total number of cows	Pure-bred Prespa
Tren	Converted to Holstein-Friesian		-
Buzeliqën	In the process of conversion (questionable if there are still pure-bred animals)	40	??
Shuez	All animals cross-bred	40	-
Rakicke	1 pure-bred cow from Cerje, 2-3 years old	55	1
Cerje	According to information, all animals pure-bred, 1 pure-bred bull	46	(46) ?
Zaroshkë	Advanced process of crossbreeding	250	3-4
Liqenas	Crossbreeding takes place, still pure-bred bulls	600	200-300
Gorica e Vogël	Ongoing crossbreeding	200	60
Kallamas	Ongoing crossbreeding	350	100
	Overall number		400-500

Pure-bred animals of the old breed are called "Mistrece" (= small local animal). Sires of the old breed are still kept. The offspring is therefore suitable for conservation breeding. Crossbreeding is increasingly done with Holstein, Jersey and Simmental. Therefore, action has to be taken immediately to conserve the old Prespa breed.

The Prespa catchment area with the occurrence of the Prespa cattle:



C) Identification

As documents for identification, the following material was available:

- Photo from Giorgios Catsadorakis (cf. front page)
- Photos by Schultze-Westrum, 1976
- Photos from 1998 with short description of the type
- Diverse basic material on the adaptation area of the breed
- Checklist "Considerations on Prespa dwarf cattle" (cf. annex).

Using the attached checklist, it soon became obvious that Prespa Cattle is an own breed. Traditional breeders fulfil FAO-criteria anyway (" Breeders themselves consider their animals as own breed"). Prespa cattle are, however, distinguishable from other breeds visually. Subsequently, the breed is shortly described:

- Head: long and narrow nose with muzzle, relatively large eyes
- Horns short and bent front-inwards or up-inwards, colour grey or white with black tips
- Mucous membranes grey-black, pink when crossbred with Illyrian cattle
- Colour of coat: grey – greyish blue – brown – reddish brown – ochre, sometimes dark; hair coat of original type often coarse and sometimes shaggy.
- Size of the cows: 95-105 cm

The body of the animals is sometimes slightly higher at the croup than at withers. As often found in original animals, the breed shows a distinct sexual dimorphism (bulls are much larger than cows). With a daily milk performance of 1-4 litres (at Ligenas), animals are only suitable for suckling management systems. This might, however, be financially viable in low-input agricultural systems. Still, some cows are milked.

In the distribution area of Prespa cattle (and beyond it), the closely related and also highly endangered Illyrian Dwarf Cattle is found. Apparently, it has been crossbred with Prespa for a long time, so that the characteristics of both breeds mix up. Illyrian Dwarf has a longer head and larger eyes, coat colour is yellowish-orange, mucous membranes pink. These statements do not claim to be absolutely correct, it is an approach according to the best of our knowledge and belief. The problem is that Balkan breeds have rarely been defined and described. The above mentioned description has to be verified.



the illyrian type



the old Prespa type



Proportion of
Prespa Cattle



Bull of
Agios Achillios



From the point of view of the author, there is every indication that Prespa cattle are one of the last (still living) representatives of Neolithic cattle (Stone Age Cattle, according to Rütimeyer² "Torfrind", *bos brachyceros palustris*). These animals were found until the end of the 19th century in some remote Alpine areas (e.g. Dwarf Cattle from Feldis-Scheid). It will be tried to clarify the situation, e.g. with support of Prof.Dr. Jörg Schibler from the Institute for Prehistory and Archaeological Science (IPAS) at the University of Basel, Switzerland.

The question arises immediately why Prespa cattle has survived in its original form. The following reasons are symptomatic:

- The area of distribution is geographically isolated, it is situated in a remote large-scale depression without overground flow off.
- Massive and high mountain ranges form the border to neighbouring areas.
- The Prespa catchment area is situated in the border region of three countries (AL, GR, MK) and was military area for a long time.
- Until most recent times, there was little human influence from outside. Performance breeding was just unknown, the local breed was optimal adapted to local conditions and performed according to expectation without much input.

The breed was mostly unknown to date and if there was any information about it, it was considered as unimportant local cattle. In 1988, the University of Thessaloniki carried out a rough investigation, but the results were never published. Further documentation of the breed is urgently required. For that purpose, photos from old family albums are useful as they sometimes also show livestock by chance.

D) Conservation strategies

If the old breed is to survive, it has to be made "fit for the future"! Particularly its reputation amongst farmers has to improve. This includes

- showing that the breed's performance relation of input-output is very good. Crossbreeding with performance breeds implies the danger of having to increase the necessary input continuously (not only feed, but also veterinary costs, care by the farmer etc.). The old breed is economically more viable.
- raising awareness for the breeds excellent suitability for low-input agriculture and use in nature protections
- that the breed is a unique cultural heritage of the Prespa region
- supporting the marketing of the breeds' products as specialties
- "sell taste, not kilogrammes!", labelling Prespa-Park
- awarding of best animals and breeders, organising shows

For the conservation of the breed, the introduction of herdbooks and of a sire management system is necessary. Considering the local conditions in the countries involved, the following measures should be taken:

Measures in the Greek area

In Greece, the last remaining animals have unconditionally to be conserved. If they would disappear, a reactivation of breeding is rarely realistic.

² Ludwig Rütimeyer, Die Fauna der Pfahlbauten der Schweiz, Zürich 1862

Two main strategies could be followed:

- Restructuring of the herd in Psarades:
This could either be done by removing (buying) of the cross-bred animals or by separating the herd into a pure-bred and into a cross-bred group. In any case, mating of the females with “pure-bred” bulls has to be guaranteed. This solution, aiming at tourist marketing of the herd, implies the consent and close co-operation of all animal keepers in Psarades, which is probably very difficult to achieve.
- Set-up of new nucleus herds in third locations:
It would probably be much easier and less expensive to buy the remaining pure-bred animals and transfer them to a third location where the danger of cross-breeding does not exist. Conditions in a third location should, however, comply with habitat conditions in Psarades so that animals can fully use their adaptation advantage. Best suited would therefore be villages like Pili or Mikrolimni, where no other cattle are kept and where conditions correspond to those in Psarades.

To reduce the risk of loss of the entire herd, it should be divided and separated very soon. A safety double of all breeding lines should be secured. To avoid the risk of in-breeding depression, blood exchange with animals from neighbouring populations is necessary.

As the University of Thessaloniki acknowledges Prespa cattle as *Brachyceros*, conservation support according to EU-Regulation 1257 should be possible. This requires keeping of pure-bred herds and introduction of a herdbook.

The Society for the Protection of Prespa SPP has collected experiences in the area of livestock keeping and its use in nature protection in its buffalo project. It is predestined for the organisation of a conservation project.

Measures in the Albanian area

Thanks to the still numerous occurring animals in the Albanian region of Prespa Lakes, a more conventional approach can be taken here. With only 400 – 500 animals and the threat of crossbreeding, action has, however, to be taken fast.

- Support of the reputation of breeders of the old breed. Establishment of a breeding organisation, organisation of shows for pure-bred animals only, awards for breeders and animals etc.
- Introduction of bull management (young bulls should not accompany the herds, particularly not crossbred ones).
- Financial support for keeping pure-bred bulls, if possible
- Introduction of a herdbook

In Ligenas, a farmer pays today approx. 6 Euro to cover his cow with a breeding bull (a high price considering Albanian conditions). Lowering the mating fee through general support for the keepers of pure-bred bulls could support the old breed. Furthermore, pure-bred bulls should be bought and transferred to sites where pure-bred sires are not found any more. The Albanian SAVE-partner organisation AlbaGene could possibly, together with the local organisation Dielli (Sun of Liqenas), realise these measures.

It has to be taken into account, that no subsidies or financial support for this cattle breed are available at the moment in Albania (neither in FYROM).

E) Further proceeding

The need for action in the FYROM has urgently to be clarified! Albanian experts from AlbaGene, as well as the author of this report with the assistance of the Society for the Protection of Prespa will put their efforts into the matter.

The Prespa catchment area is a region of outstanding importance for international nature protection (amongst others Ramsar wetlands). Therefore, the abutting nations have set up diverse national and nature parks and other protected regions. For some years, these efforts have been merged in the "Prespa Park". In the Strategic Action Plan for the Sustainable Development of the Prespa Park (SAP), the conservation of Prespa cattle is postulated (C.1.1-2.i.; C.1.5. objective II; C.1.6., objective I, operational target II und „G. Sustainable livestock breeding in the Prespa basin“). To date, these demands have not been realised, mainly due to low priority of the issue among stakeholders and limited funds available for specific projects. The UNDP wishes to allocate funds for the realisation of the SAP in Albania and FYROM within the frame of a Global Environment Facility (GEF) Prespa Park project (with a budget of approximately 13.5 million US \$). The Prespa cattle project should well be suited for GEF as it fulfils numerous demands such as linking-up biodiversity, nature protection and rural development, the combination of agriculture and nature protection (protection/use). It can be supported by local organisations and thus be anchored amongst the locals. This chance should unconditionally be used, the more so as only few real "field projects" will probably be handed in. The inception meeting of the GEF project, where a specific yearly workplan will be agreed upon, will take place in late September 2006. We should work until then with our local NGO partners in order to prepare a specific focussed project idea that could be implemented in the framework of the GEF project. For co-financing (20-30% of the funds) agricultural consulting, set-up of breeding organisations and the co-ordinating activities of interested organisations (SPP, AlbaGene, SAVE etc) can be credited.

Greece cannot profit from GEF funds directly. Still, there would be a special opportunity to make local agro-biodiversity accessible to a broader public in a suitable frame: through establishment of a "park in the park" on the best-suited Island Agios Achillios. Let's go for it and try our best!



Herd on Agios Achillios Island, used for landscape management





So-called blue cow in Psarades today (cf. Mason), compared to an old photo of Catsadorakis (consider the form of the head!)



Annex:

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foundation



Considerations on Prespa dwarf cattle; checklist

Breed status

- is Prespa dwarf cattle a distinctive breed? (or just a type of Busha, Illyrian, Brachyceros)
- if yes: where is this breed occurring (Psarades, elsewhere)?
- What is the situation? Is it an endangered breed?
- If yes: How many animals are left in the relict populations?
- Why is it endangered? (due to crossbreeding, replacing by breeds on performance)
- Have there been conservation efforts in the past? Have they failed?
- Are there conservation efforts today?
-

Use of the breed

- Has the breed advantages (robustness, fertility, undemanding nature)?
- Is it suited for low-input agriculture?
- Value for tourism?
- Value for regional quality products (meat), labelling?
-

Conservation efforts

- How farmers could be brought to organise pure-bred breeding?
- How the breed could be organised in future?
- Who could be interested in conservation? What is each stakeholder ready to do?
- Which group could overtake responsibility (breeding assoc., NGO, etc.)
- What is expected from SAVE Foundation?
-

Financial support

- Could breeding be done in an economic way (niche products, low-input agricult.)?
- If not, could subsidies been available for breeding rare breeds (state subsidies after EU regulation 1257 in Greece, possibly similar subsidies in AL and MK)?
- Can a pilot project be funded to start the breeding project?
-

March 06 / Gru

Addenda from November 2010

Search for Prespa cattle in FYROM in 2006

In September 2006 the author made a search tour in the neighboring Prespa area of the former Yugoslav Republic of Macedonia (FYROM). The investigations revealed that the breed in Macedonia existed only in Stenje-Konsko, a secluded area next to the Albanian border. The last of originally some 200 animals had been sold about 2003 to Albania. During the visit, there were about a dozen Holstein cows at Stenje. Konsko had no more livestock.

DNA testing at the Veterinary University of Munich

Dr. Ivica Medugorac 2007 examined at the Veterinary University of Munich tissue samples of 50 Albanian Prespa cattle and compared these – using 105 microsatellite – with other samples of shorthorn cattle, especially with 12 different Busha-types from the Balkans. He presented his results at the Busha-workshop hold 11-13 September 2008 in Pogradec Albania. A download of the summarizing presentation is possible from URL: http://www.agrobiodiversity.net/balkan/Pogradec/pdf/submitted_Papers/Genetic_diversity_Medugorac.pdf

Medugorac concludes that the Prespa cattle are related to the Busha, but nevertheless constitute a distinct group. Further analysis for conservation priority (among others, after Caballero and Toro 2002) showed that the Prespa cattle are very important for maintenance of neutral genetic diversity. Beyond 21 breeds of cattle he gives them third conservation priority, after Metochian Red cattle and Macedonian Busha. The full report will be published in 2011.

DNA testing at the University of Basel

10 Prespa cattle samples were analysed also by the Institute for Prehistory and Archaeological Science (IPAS) in Basel, Switzerland. Dr. Angela Schlumbaum concluded: There is a large haplo group diversity: Animals 13 and 16 are typical African T1 types, animal 30 is part of a typical Asian group T4 (this type has so far not yet been found in Europe), Animal 36 belonging to T5, Animal 5 to T3b and the others to T3a. Animals 3, 15 and 35 have the identical haplotype T3a European standard.

The results are exciting. In particular, the Asian type is very interesting. All animals belonging to groups T1, T4 and T5 and deviate from the respective reference sequence by at least 1 base but are, due to the other typical mutations, quite clearly from these haplogroups. The results of the Prespa shall be compared with the published sequences of other breeds in the same region and be calculate using the usual diversity data, too. A publication is foreseen.