British Pig Association
Conservation Strategy Update
On Farm Conservation 2020

In January this year the BPA Conservation Committee held a meeting to discuss and update the Conservation Strategy. As well as the Committee members there were also breed representatives and breed clubs present to help plan the individual conservation breeding programmes for each of our native breeds.

The Conservation Committee has agreed a strategy for the next few years. It is based on the two well known strands of farm livestock conservation - in situ and ex situ conservation programmes.

Let's dispense with the Latin right from the outset. In Situ conservation is what you do every morning when you get up in all weathers to feed your pigs. Not very glamorous but that is what is at the heart of saving our native breeds. Everyone who keeps pedigree pigs from the best known breeders with an office full of show trophies and rosettes or export customers around the world to the member of a village pig club rearing few pedigree weaners for Christmas is part of that conservation programme.

To start with we need to decide which breeds we are going to focus on. The BPA works with 10 native breeds and 4 non-native breeds. Of those non-native breeds the Duroc, Hampshire and Pietrain are not considered to be at risk worldwide which leaves the Mangalitza. A relatively recent arrival in the UK this breed is very much at risk in its homeland in Hungary. Like some of our own native breeds it has fought back from the very brink of extinction but it is still a Hungarian breed and the primary responsibility for its conservation lies with the breeders in Hungary. That leaves us with 10 native British pig breeds for which we are responsible and where we have to take the lead in any conservation programme.

The next step is always to know what you have. This is called Inventory and Monitoring.

In 2002 in the aftermath of the Foot and Mouth Disaster we agreed to take over responsibility for the pig bloodline breed surveys from the RBST. At that time the survey only covered 6 breeds and the thank you letter to the surveyors started "Thanks for all your hard work with this year's survey. I hope that this will be the last year that you have to do so much of the work by hand." It went on to say that although the new system would be computerised, we would still need experienced and knowledgeable breeders to help with the follow up.

The system that we now have is infinitely better than the paper based one that was used in 2002 to survey 6 breeds in 500 herds. This year we surveyed 750 herds in those same 6 breeds as well as another 500 herds in 6 other breeds. In the end however we only got the results we needed because we have a team of volunteer surveyors who gave up their evenings and weekends to ring round breeders and cajole them into completing the on-line forms. So a big thank you to all of them.

The way we collect the information has changed and evolved but some elements such as the role of the surveyors and their importance has remained much the same. We even have one of our original surveyors, Viki Mill who helped carry out the very first RBST survey in 1985 and is just as committed as ever. This year we were also assisted by two of the older members of our Junior Pig Club as part of our mentoring programme.

The information that we collect and the way we interpret and use it has also evolved. From the start the bloodline survey has always been about more than the headline numbers of total sows.

Pigs have always been boom and bust livestock. First year economics students learn about the pig cycle. In the heady days of the Noughties an increased awareness of the importance of conserving our native breeds in aftermath of Foot and Mouth combined with a fast growing economy to create boom conditions for pedigree pigs. The result was a huge increase in numbers of pedigree pigs and keepers.

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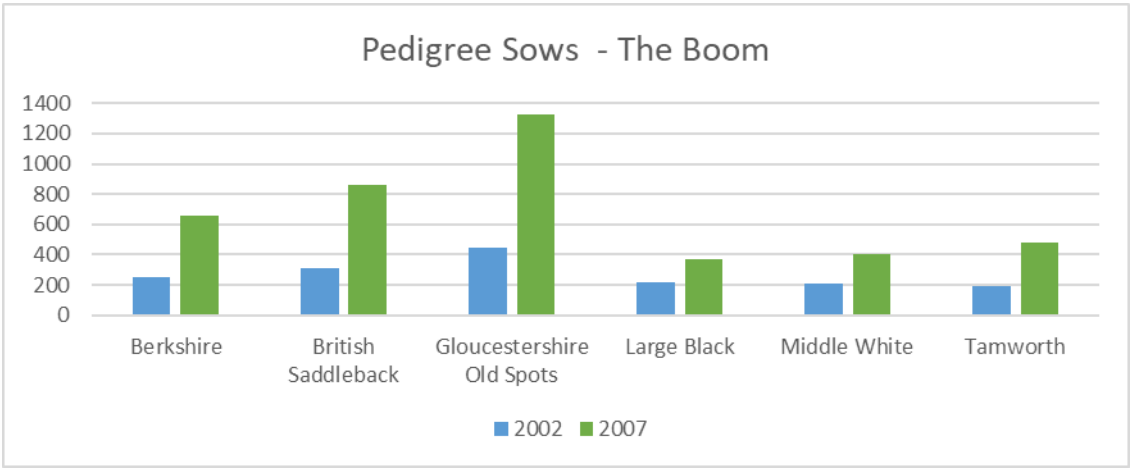
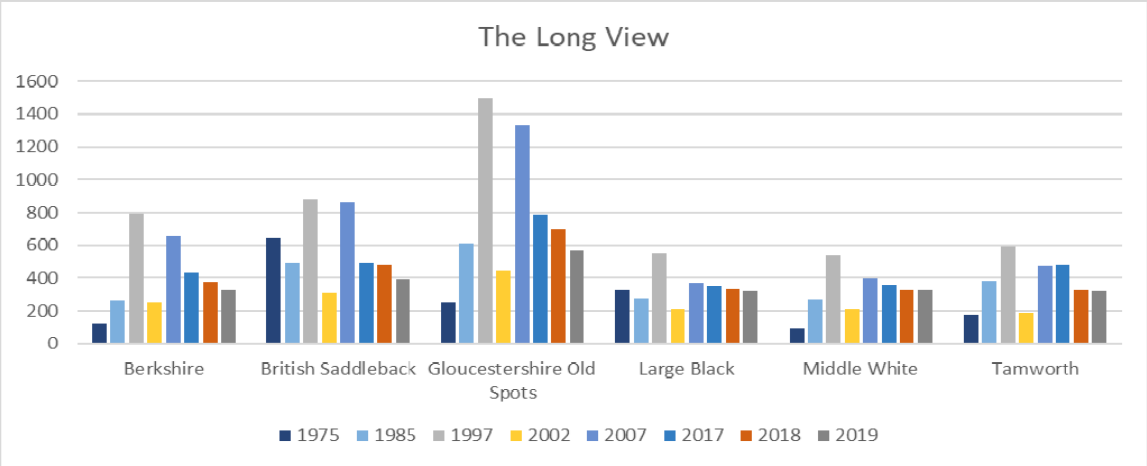


However a longer term view shows that we have been here before. In 1997 the pig industry was also in great shape. The UK pig herd was almost 1 million sows and pedigree pigs were part of that just as they are not immune from the decline that has seen the national herd fall to around 400,000 sows today.



These headline figures show that there are longer term trends that we cannot control. That is why the original surveys always focused on the bloodlines. We have to measure our conservation efforts in more than just sow numbers. The genetic health of the breed is equally important. We have to conserve as much of the genetic diversity as possible within the breed so that when times are good we have a base from which to expand.

The next step therefore is to have a plan and the headline objectives of our plan for these 10 breeds are:

Conserve named male and female lines

Scientists might argue that named lines are not important but a breed is more than just a collection of genes that confer specific characteristics such as ear shape of coat colour. A breed is a living cultural heritage. The lines within the breed are more than just parts of its genetic diversity they represent its history and often the history of its breeders. Conserving the lines within our breeds has been the cornerstone of our conservation programmes over the last 40 years and we are not about to throw that out of the window. So we will continue to ensure that we preserve all the named lines within our breeds unless the breeders make a conscious decision that a particular line is not worth saving. Only three lines have been lost from those breeds in the 2002 survey and we don't want to lose any more. Our aim will be to ensure that all current male and female lines are being bred in a minimum of 5 herds around the UK and that at least one boar of each named line is stored in the Heritage Gene Bank.

Conserve Genetic Diversity within each breed.

Conserving the lines is already a step in the right direction but we know that the line names do not tell the full story. Inbreeding is the curse of any rare breed population and we have to try and manage this. We are often asked what is permitted. The BPA does not seek to tie the hands of breeders in managing their own breeding programmes and herds. Our best advice is to avoid any shared grandparents but experienced breeders seeking to improve or develop a line will make their own decisions. In the same way someone who has developed a business selling pork will be looking for a specific type of carcass to meet the demands of their butchers and customers. They will inevitably focus in on a limited selection of pigs that will give them consistent results - they are not looking for a wide range of diversity in their herd. That is why conservation breeding is more than just a business. Part of conservation breeding involves making decisions for the good of the breed as a whole rather than the bottom line of the business. It involves a commitment to the future of the breed and a desire to pass the breed on to the next generation.

Modern computing power allows us to look at all the live animals in the herd and work out how they are related to all the other animals in the national herd. The best time to do this is immediately after the Bloodline Audit in January when we have the most accurate picture of which pigs are alive. In future this whole breed analysis will be part of the Audit process every year and we will identify the pigs in each breed that are least related to the population as a whole. We will then try to ensure that a percentage of the least related females and males produce a litter and contribute to the next generation and that boars for the Heritage Gene Bank are selected from the least related list provided that they meet quality standards.

Concentrating on bloodlines has worked. The Large Black surveyors report in 2002 reported on the loss of one of the bloodlines. “Saddest of all it appears that the Large Black breed has, after 18 year’s of annual bloodline surveys and monitoring, lost a line altogether. At this time last year the Skylark line was down to 3 sows and 2 gilts and it now looks as if none of these or their progeny still survive.” This warning galvanised enterprising breeders to track down birth notified pigs that could be brought into the breeding herd and the latest figures in this year’s survey show 10 Skylark sows in 7 herds across 4 regions.

Why does it matter where the sows are? Measuring risk is a complex equation one which we need to keep improving. When the bloodline survey was computerised in 2002 we started to look at the number of breeders keeping individual lines. If all the sows of a particular bloodline are in one herd the risk of losing them increases. Not just from disease but also from economics. When times are tough for pig keepers and someone decides to give up their herd they are not always going to be thinking about conservation and before you know it the line could be gone.

That is why the BPA Conservation Committee, when they introduced their first Conservation Breeding Programme in 2017, decided to set a target for the minimum number of herds keeping each bloodline. In 2007 at the height of the boom the Large Black had 7 lines that were being bred in less than 5 herds. This year in spite of the overall decline in total sows the number of at risk lines has almost halved with only 4 lines still below the target. Of course as one line improves another may decline and so there is a constant need to update the plan.

This year we have added a new element into our risk equation. Geographical concentration. What does that mean? Think back to 2001 and the plight of the Herdwick Sheep. Foot and Mouth disease in the Lake District caused devastation to the breed because they are all in the one place. Thankfully the breed was saved and they now have a genebank with both semen and embryos. We are not so lucky with pigs – genebanking embryos is still a long way off and we only have on-farm or in-situ conservation to rely on for our sows.

If all the sows of a line are in one herd that is a risk. We can spread them around five herds but if all those herds are in one region that is still a risk when we have another outbreak of exotic disease like African Swine Fever. We want to have all the lines in each breed distributed to as many regions as possible.

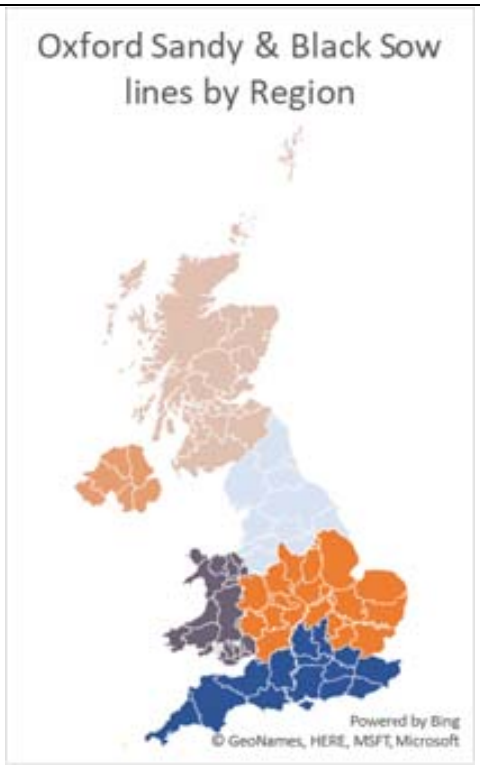
Take the Gloucestershire Old Spots as an example. Sow numbers are declining faster than the average across all the breeds but the Gloucestershire Old Spots has a history of volatility. The breed

still has more sows than most other native breeds and a glance at the figures shows that all the 15 sow lines meet the 5 herd target and only 3 are being kept in less than 10 herds. All the boar lines are present in at least 20 herds.

So everything is rosy then? Not really. Look more closely at the regional distribution and it turns out that none of the sow lines are present in all 8 regions of the UK and more than half are only present in 4 out of 8 regions. Dig a bit deeper and we find that in many cases the number of sows in those 4 regions is very unbalanced. Look at the Muriel line with the lowest numbers - only 20 sows in 4 regions. Two of those regions only have a single sow. Or take the Dolly line, with 59 sows it is the second most popular line in the breed, present in 6 regions but in 4 of those 6 regions there are only a handful of sows. In reality the line is only present in significant numbers in the South West and Wales.

Does this really matter? After all in 2001 Foot and Mouth spread throughout the whole country so will it make any difference where the sows are. Yes it should - in 2007 the FMD outbreak was confined to the South East and we hope that shows we have learned lessons from 2001. African and Classical Swine fever are different from FMD. In 2000 CSF was contained in East Anglia and the same could be possible if were to get ASF.

Have a look at the picture for the Oxford Sandy and Black. A fantastic success story since 2002 and a breed where all the lines meet the 5 herd target. Closer examination reveals that just under half of all the sows are in being kept south of the M4. Not surprisingly these two regions, South and South West are the only ones where you can find all the lines.



Region	Sows / Region
Anglia	43
Central	52
North	40
South	99
South West	118
N. Ireland	22
Scotland	32
Wales	38
Total UK Oxford Sandy & Black Sows	**444**

Region	Sow lines / region
Anglia	10
Central	10
North	7
South	13
South West	13
N. Ireland	9
Scotland	8
Wales	12
Total Sow Lines in the Breed	**13**

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To protect the genetic diversity within our breeds from exotic disease we must try to distribute the lines around the country as much as possible. Establishing more diverse local populations is also important for everyday breeding. The new government is going to review journey times for livestock. The manifesto commitment specifies journeys for slaughter and fattening but all types of animals will fall within the scope of the consultation that will be launched this month. Notwithstanding any regulatory issues on Welfare in Transport it is much better for our Conservation Breeding Programme if breeders have access to a wide range of choices of breeding lines within their region.

What about the boars? So far we have only talked about the sow lines. The on-farm distribution of the boar lines is equally important. We are very lucky to have most of our breeds available through Artificial Insemination but many breeders prefer to rely on natural service and we can only afford to have one boar of each breed available at a time.

For the genetic health of each breed we need to use as many different boars as possible to sire the next generation and no boar should be allowed to make too big a contribution.

Each of the breeds now has the information available to work towards a more balanced distribution of its boars around the regions and we look forward to seeing how much progress can be made over the coming years.

For information about ex-situ conservation or Genebanking please see the document outlining our Genebanking project which is carried out in partnership with the Rare Breeds Survival Trust

British Pig Association Bloodline Survey Results 2019

2019	UK Population				International*	
Breed	Sows	Boars	Breeders		Sows	Boars
Berkshire	305	97	108		19	6
British Landrace	183	44	34			
British Saddleback	378	104	129		11	7
Duroc	94	50	26			1
Gloucestershire Old Spots	568	123	141			
Hampshire	47	19	11			
Large Black	316	74	119		2	1
Large White	399	93	51			
Mangalitza	87	29	19			
Middle White	321	63	66		4	2
Oxford Sandy & Black	451	120	160		44	8
Pietrain	100	40	22			
Tamworth	295	84	91		28	7
Welsh	588	107	61			

* Pigs registered in the BPA herdbook

These figures are also published by Defra as Official Statistics. The can be viewed on the website of the Farm Animal Genetic Resources Committee

https://www.gov.uk/government/statistics/uk-farm-animal-genetic-resources-fangr-breed-inventory-results