Hybridisation: *an exciting prospect or a moral dilemma?*

Having discussed the scientific background to this debate last month, geneticist Andy Tedder now addresses the practical issues surrounding the breeding of hybrid reptiles by hobbyists.

Bearded dragons (*Pogona vitticeps*) have been hybridised with other related species, including Rankin's (*P. henrylawsoni*), with their fertile offspring being called vittikins.

There is no doubt that a captive situation is very different to a 'natural' situation in the wild. People can introduce two species together that would never have had an opportunity to meet in the wild, being isolated on different continents, and yet they can then produce fertile offspring. Many breeders may consider this to be unethical, but nevertheless it happens. The resulting offspring technically belong to neither parent 'species', and predicting which traits will be inherited from which parent is very difficult. There can often be considerable variability.

Practical problems

As a result, hybridisation is not without its difficulties on a practical level. Husbandry for hybrid individuals can vary significantly from that of either parent species. This can make hatchling care a difficult process, especially if the requirements for the parents were significantly different. Furthermore, fertility of the hatchling can be restricted to a single parent type, although this is not always the case, but it does raise another problem in this context.

If you breed a hybrid to a non-hybrid of either parent species type, then the resultant offspring will also be hybrids, and you are effectively adding impurity (and I use the word with some caution) into the gene pool of the parent species. Is this a problem? There are those who would argue, definitely, yes. Diluting the gene pool can have the effect of making the population as a whole less fit, although of course the exact opposite view can be supported, with hybrid vigour being a well-documented phenomenon in the case of many species.

This problem is perhaps accentuated by keepers who do not keep accurate records of their animals, as selling hybrid animals without proper documentation is not only bad practice but is in my opinion a good way to introduce problems into your breeding stock (as is introducing non-hybrids of unknown origins for that matter).

Recognisable boundaries

I suspect that many people will see that the boundary between closely-related species could become quite grey in captivity, although this is not to suggest that all will agree with hybridisation though. This is arguably the case when morphological

Corn snakes (*Pantherophis guttatus*) have been widely-used in the breeding of hybrid snakes.

Matings of Californian kingsnakes (*Lampropeltis getulus californiae*) with corn snakes have created jungle corns.

differences between species themselves can be less obvious than morphological differences between individuals of the same species, as typified by designer corn snake morphs for example.

However when we consider breeding distantly-related species, where special practices must be used to initiate breeding, then the boundary in my opinion becomes much more clearly defined. In certain situations, relatively distantly-related species will be hybridised, although morphological and behavioural characteristics will still present a barrier.

Examples of this are common throughout the snake-keeping community. Breeding species that have a drastic size difference, which poses a real threat of the smaller partner becoming lunch, can be achieved by means of stimulating copulation with a partner of the same species first, and then introducing the second species when food is no longer a priority. This seems to me a very different form of hybridisation altogether, as real risk is involved for one or both of the animals.

A moral argument

Opinion is certainly divided on whether hybridisation is morally right or not. There are certainly those that will argue passionately on both sides of this debate, but I would suggest that the situation is never clear-cut. It would be wrong to lump all incidences of hybridisation together into the same category. It makes most sense to treat each situation as an individual case, as certainly some pairings require much more human involvement than others.

I find it difficult to consider ethical opinions in many instances, as a result of the difficulties with species concepts and definitions, as I highlighted in last month's article, means there is no clear answer. Many people will follow the standpoint that if the two species could not naturally meet, then why introduce them? I would counter this argument by pointing out that perhaps if no reproductive isolation can be demonstrated, that these species could simply be populations of the same species in different geographic regions.

Hybridisation in turtles has occurred both in the wild and on breeding farms.

Impact on the gene pool

Concern about the captive gene pool of many species where hybridisation is common can be a real worry for many people. I fully accept and agree with this. Better records that are open to inspection are vital when selecting any animal for breeding. There is no room for exceptions. If everyone knows the history of the animals they have, then they can make an informed choice as to whether they want to breed an animal or not, and the possible effects their choice will have on the captive population.

Finally, whenever I hear someone say they want to keep the bloodline pure (or a variation on this theme) and so hybridisation (at any level) is not an option, I always question the logic. How do you know the species / bloodline / locality you have is pure? What exactly IS pure?

The reality

In truth, hybridisation does occur in wild populations with some regularity. Moreover, it is a viable method of speciation. If no reproductive barrier exists between two species, then surely it becomes a human concept to impose one on an animal that has no knowledge of it. This brings me back to the age-old 'it's not natural' argument. Well, hybridisation occurs in the wild, and indeed, it is recognised as one of the processes by which new species are created. Perhaps most importantly though, the idea of a species is an artificial and flawed human concept in the first instance. I suspect that in this case, arguing against hybridisation on these grounds may need to be rethought. ■

What are your views on hybridisation?
Does it open up new avenues to explore as a breeder or do you consider it harmful to the hobby? Let us know - via email to prk.ed@kelsey.co.uk or write to our address on p74.