Breeding first

Long term management of Studbooks
Genetically based future perspectives

Basic steps in long term studbook management
• Determining optimal studbook size
• Long term planning
• What about breeding a surplus

Determining studbook size
• For determining the size of the studbook I advise to take a sliding 5 year period.
• This period is about the longest foreseeable period possible, and it is long enough to plan ahead.

Determining studbook size 2
• Basically the size of a studbook determined by 3 factors;
  • 1 Availability of animals
  • 2 Manageability of the population
  • 3 Availability of housing

Availability of animals
• In a well breeding population the availability of animals will soon outstrip the demand.
• So this factor is only important for species with poor breeding results and or a high infant mortality
Manageability of the population

• This refers to the number of animals you as a studbookkeeper are willing/able to manage.
• We think that a number of 100–150 transfers per year should still be acceptable.
• Normally this is not a determining factor.

Availability of housing

• Basically this is the determining factor in the size of the studbook.
• This means that every studbookkeeper should have an idea how many animals could be placed with existing keepers and how many potential new keepers are available.
• This survey should be updated every year.

Hints on studbook size

• If possible the size of the studbook should be about 50-100 animals per generation.
• For a species with a life expectancy of 5 generations this would mean a maximum size of 500 animals.
• This number can be reduced by increasing the generation time or decreasing the max. breeding age.

Long term planning

• Goals to achieve
  1. Avoid inbreeding
  2. Avoid gene loss

Aspects of inbreeding

• Inbreeding is breeding with closely related animals.
• Inbreeding dramatically decreases the genetic base of an individual animal.
• Inbreeding can have negative health aspects in the case of negative recessive genes

Aspects of gene loss

• Gene loss means the loss of a specific gene out of the population or gene pool.
• Gene loss is even more serious than inbreeding because gene loss affects the survival of the population were inbreeding only affects the individual
Aspects of gene loss
- The effects of gene loss are usually invisible; it only affects the adaptability of the population; so in captivity when animals are taken very good care of this will not surface.
- Gene loss could mean losing the possibility of re-introduction.

Managing a studbook
- After the studbook size decision the number of bloodlines available must be evaluated.
- The simple division of the desired studbook size divided by the number of bloodlines gives the optimal offspring per bloodline.
- Try to reach this number in as little generations as possible.

Managing a studbook population
- To avoid inbreeding and gene loss it is important to have an even distribution of bloodlines.
- This is best achieved when rare bloodlines are coupled with rare bloodlines and abundant ones with other abundant lines.

Breeding a surplus
- Definition (for this lecture);
- Breeding a surplus means breeding more animals than you can or want to incorporate in the studbook.

Breeding a surplus
- Breeding is part of the fun of reptile keeping and it will be hard to motivate a keeper to stop breeding.
- But; Breeding a surplus with a well breeding species is practically unavoidable; with live-bearing species this is very clear, but even with egg laying species one should breed a small surplus in order to compensate for calamity’s.

Mechanisms to avoid a surplus
- **Euthanizing** healthy animals in order to avoid a surplus is considered not to be acceptable.
- **Exclude animals from breeding** (by keeping them apart, not give the proper stimuli etc) could lead to permanent infertility of the animal and is considered not acceptable.
- Last option: **destroying the eggs**. For egg laying species this is a good option. For live bearers there are basically no acceptable options to avoid surplus breeding.
Options with a surplus

• Place animals for re-introduction or educative purposes
• Place surplus animals with non-breeders
• Commercially sell the surplus

Selling animals

• Of course selling here means every action to place life animals outside the control of the studbook.
• Acceptability of this point will be a highlight in the coming discussion, but from a genetic point of view I would like to make some comments.

Selling animals

• When animals are placed outside of studbook registration great care should be taken to avoid unknowingly re-entering those animals in the studbook.

End

Thanks for listening and please start asking questions