
General Discussion and Recommendations

Species Management

After becoming familiarised with the principles of population biology during several days of lectures and computer demonstrations and practice, the Training Workshop participants concluded that genetic and demographic management is crucial to the survival and fitness of small captive populations. Animals must be moved from zoo to zoo on a regular basis according to a set of guidelines and principles involving their genetic profile, compatibility, fitness, age, sex ratio, group size, and enclosure facilities at the various zoos.

The Training Workshop participants undertook an exercise, led by experienced geneticists, demographers and studbook keepers, in making recommendations for movement, breeding and holding of animals based on the available studbook data brought to the workshop by participating zoos and their observations.

The recommendations made by the participants are given in Appendix I. Justification and rationalisation for these decisions are given in Appendix II.

Enclosure design

The Workshop participants, after visiting the habitat of LTM felt that any enclosure design should mimic the natural habitat as much as possible, particularly having lofty perches to preserve the arboreal habits of the animals and convey their natural behaviour to visitors.

Group composition

The optimum group size according to the International Studbook Keeper is one male to four females. This was taken as a goal and a guideline for time being.

Husbandry Guidelines

The Workshop participants felt that Husbandry Guidelines specifically for LTM in Indian zoos should be established in India. The international husbandry guidelines may be consulted when published to insure that no useful information has been missed. The Directors of LTM bearing zoos may like to select someone to draft such Guidelines.

Marking and identification of LTMS

Workshop participants reaffirmed that marking and identification of animals is crucial to maintenance of Studbook data from which decisions regarding the rational pairing of animals for genetic and demographic variability can be made.

It was felt that although transponder numbers were unique, permanent and desirable, in view of the lack of equipment and devices at present tattooing was considered next most desirable for permanent marking. Tags were rejected as impermanent and dangerous. The possibility of other permanent marking devices could be explored.

The Workshop participants agreed that it was possible for a conscientious biologist, supervisor or keeper who sees the animals on a daily basis to identify LTMs by their facial characteristics and movements alone if the group was no larger than about ten animals. For behavioural observations, including the recording of important reproductive information, this is the only practical method as distance from the animals in a naturalistic enclosure precludes using either tattoo marks or transponders for identification.

In this regard it is desirable to have a minimum of one animal keeper or observer for every ten animals or for every group so that important behavioural events may not be missed. The potential and problems of using volunteers for behavioural observation was discussed and some measures suggested for spotting and selection of suitable volunteers in pre-arranged educational programmes.

Records

Following the participants' review of the LTM data brought to the Training Workshop, it was felt that the data being maintained for the species may not be optimal for making decisions to adequately implement a programme of scientific management of LTM in captivity. In some of the zoos, only administrative records are being maintained which do not contain sufficient information for correct management. The CZA Norms and Standards require that individual animal records be maintained by all zoos and the participants underscored the importance of these rules. It was also suggested that in the livestock register two or more columns could be added for sire and dam (if known) and for giving some indication of the new animal's background (e.g., if confiscated from private owner or substandard zoo; rescued from life threatening situation; and how long kept alone, etc.)

Training and Research

The Workshop participants emphasized the importance of captive studies which would add to the body of knowledge of this endangered species. The importance of the zookeeper in behavioural observation was reaffirmed. It was suggested by participants that zoos might select their most literate zookeepers for looking after endangered species, particularly Lion-tailed macaques.

The efforts of the Central Zoo Authority to encourage regional-based keeper training were applauded by the participants and it was felt that the teaching of behavioural observation should be highlighted in the keeper training course, as well as in any in-house keeper training being given in the individual zoos.

The Workshop participants recommended that every zoo keeping Lion-tailed macaque should send the keeper looking after them to the official CZA Training.

It was also thought desirable that as an incentive, the LTM keeper be allowed to visit some other zoos having more ideal facilities and management of LTM to promote a deeper understanding of their care.

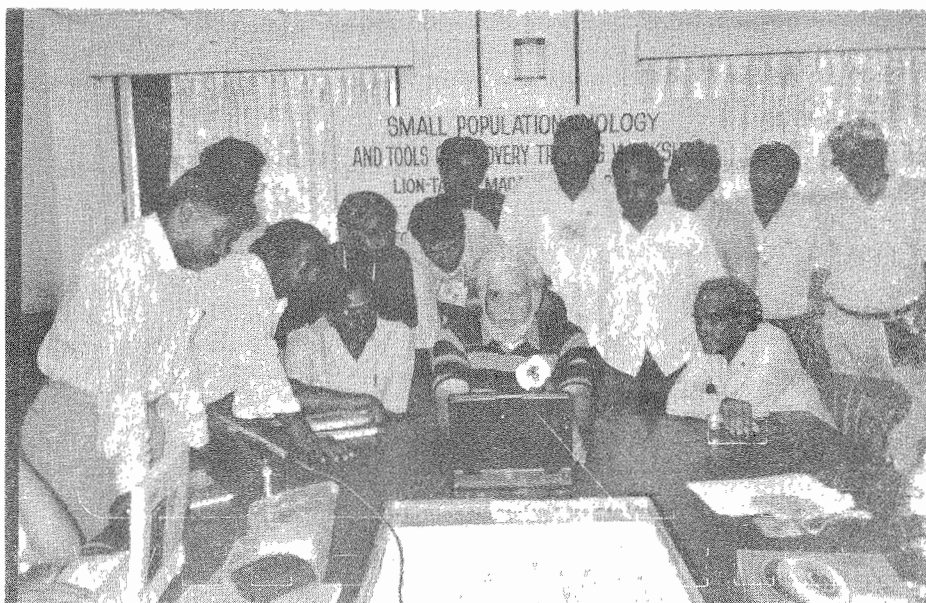
Workshop participants recommended that one keeper be earmarked for LTM only so that he will be available at least eight hours a day for observation and specialised care for this highly endangered species.

The participants, being supervisory and biological staff, recognised the importance of their own role in creating interest, involvement and a sense of responsibility among keepers of LTM. Methods for doing this included :

- frequent checking of behavioural recording sheets
- inquiring often what the keepers have observed and reinforcing new observations
- sharing some interesting information every day about the species in the wild or in other zoos
- encouraging LTM keepers to interact with visitors and assist in the zoo's efforts to educate the public using the information given

Education

The importance of public education was reaffirmed and methods discussed to enhance the zoo's educational reach. Volunteers, including college students, could be utilised to educate visitors but it was recognised that these had to be carefully selected and monitored. One idea was that Workshop participants visit one school or college or other group every three months and give a programme on Lion-tailed macaque using information collected in the workshop. A byproduct of these visits may be the ability to spot interested and sincere persons as potential volunteers.



Participants observe as Laurence Gledhill demonstrates his Lion-tailed macaque programme on a special Web Page on the Internet.