

## A SURVEY OF THE LUNDY UNGULATES

By

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### INTRODUCTION AND HISTORY

Islands provide unique opportunities for ecological and behavioural research into genetically-isolated animal populations. The three species of feral ungulate on Lundy — goats *Capra* (domestic), Soay sheep *Ovis* (domestic) and Japanese Sika deer *Cervus nippon nippon* — have been the subject of several educational and research projects by teams from university biology and psychology departments. Longer term studies have been conducted on the social hierarchy of the goats (Allen 1972, 1974; Munton 1975), on goat diet and population history (Baillie, in prep) and the feeding ecology of the Sika deer (Bathe and Scriven, 1975).

The ungulates are survivors of several species of mammal introduced by Martin Coles Harman to enhance the diversity of Lundy's natural depauperate fauna in the second quarter of the 20th century. These included red deer, fallow deer, Barbary sheep, red-necked wallabies and grey squirrels, all of which are now extinct on the island. Goats and deer (probably fallow) were living wild on Lundy as early as 1752 (Lloyd 1925), although within 50 years the goats had disappeared and the deer almost exterminated (Britton, 1802).

Domesticated goats were re-introduced by farmers, lighthouse-keepers and quarrymen during the 19th century. Stock which either escaped or was turned loose formed the nucleus of a feral herd to which other animals, exhibiting a wide range of characteristics, were added by Harman in 1926 (Gade 1978). This herd was later supplemented by two redundant farm animals from which some of the colouration in the present population probably derives (P. Ogilvie, pers comm).

Allen (1974), believed that the coat colours of Lundy goats indicate a mixture of the Alpine breeds Saaren and Toggenberg, and the Nubian goat of the Middle East. However, in 1983 there were none of the tasselled or hornless individuals which are often typical of modern milking strains (Corbet and Southern 1977).

The Soay sheep were introduced in 1942. Although the number brought over is not recorded, in 1944 seven ewes and a single ram were reported (Gade 1978).

The Sika population descends from seven animals brought from Surrenden—Dering Park, Kent in 1927. They all belonged to the Japanese race, *Cervus nippon nippon*. They adapted well to the climate and conditions of Lundy, and within 28 years the population had risen to an estimated 90 animals (Harman 1955). There is no evidence that they ever inter-bred with the 15 red deer *Cervus elaphus* introduced concurrently, and they may be the only genetically-pure wild stock in Britain.

### 1983 POPULATION ESTIMATES

#### METHOD

The survey was carried out between 8th and 15th October 1983. The sex and maturity of observed animals was noted, and locations plotted on maps. Goats were examined with reference to pelage diagrams prepared by students of King's College, Taunton in 1982 (Campey *et al* in prep). Soay sheep were counted each day and corrections applied for the constant intermingling of social groupings during the course of each census. The East Sidelands were searched for deer between 7 and 9 am each day, and attempts also made to locate grazing animals in favoured feeding grounds at night; distinguishing characteristics of the antlers of stags were noted at dawn.

#### RESULTS

The island goats remained on the east side between Tibbets and Gannet's Bay during the survey. Of the 13 described in 1982, three billies (Boss, Maj and Campey Kid) and eight nannies (Gruff, Stripe, Nok, Spot, Clink, Tinge, Tap and Saddle) were easily recognised. The billie Sarge and shorthorned individual of unknown sex were not located and are assumed to have died in the interim. Two kids present which were

not depicted on the pelage diagrams, were presumably born in 1983. One appeared to accompany the nanny Spot. The population therefore remained at 13.

Soay sheep strayed as far south as The Battery during the survey, but over 90% of sightings were north of Threequarter Wall. The highest count made when no duplication was assured, was 50 on 13/10/83. The population consisted of 10 mature and 3 young rams, 29 ewes and 8 lambs. The deer confined themselves to the eastern slopes, sheltering in Rhododendron thickets during the day, and venturing onto the sidelands and hayfields at dusk. A pricket (a young male bearing its first antlers, each of a single point) resident in the Millcombe and St Barton Valley area was notably less nocturnal and more tolerant of human presence than others. Stags were never seen in company with other males; hinds occurred singly or accompanied by calves or other females. Rutting calls were heard only twice, on both occasions near Brazen Ward during daylight. Two rutting platforms were located, one of which (near the Ugly) was held by an 8-point stag. Males in breeding condition were frequently seen thrashing their antlers in bracken and tossing it in the air. Although a single calf is the norm for Sika (Corbett and Southern 1977) one hind was accompanied by two calves. All animals were in good overall condition.

The population was composed of the following elements:

STAGS			HINDS	CALVES	TOTAL
8 pt	6 pt	2 pt			
5	1	2	7	4	

This represents a minimum number. Counts for stags are based on individual recognition. Figures for calves and hinds are based partly on the assumption that offspring invariably accompanied their mothers, thereby making family groupings individually recognisable.

#### DISCUSSION

Because of culling the Lundy ungulates have no natural population structure. Irregular control of all three species has taken place since their introduction, but the number, sex and age of culled animals have rarely been recorded (and are soon forgotten), making it difficult for researchers to reconstruct the history of the mammal populations from those animals remaining. A series of culls reduced the population of goats from 55 in January 1977 (50 of which were individually recognisable from pelage diagrams) to only 7 in 1978 (Bailie pers comm). Unrecorded numbers of Soay were also taken at this time. The deer population was reduced from a minimum of 24 animals in 1975 (Bathe and Scriven 1975) to an estimated 12 in 1978 (Gilliat, pers comm). It rose again to 17 in 1982 at which time a professional stalker took a further five individuals, comprising one stag (aged 4), one male calf, two hinds (aged 3 and 4) and one female calf (Duff, 1982).

From their survival on Lundy for upwards of 40 years it is clear that the three extant species of ungulate are well-suited to the environmental and climatic conditions of the island. Even during recent years when the high stocking levels of domesticated animals might be expected to result in competition for food, the feral ungulate populations have invariably risen until controlled by culling. Levels of recruitment into the populations in 1983 stood at 21% for deer, 16% for sheep and 15% for goats. However the goat population in particular has recovered only slowly since its reduction to 7 in 1978. As nearly 90% of the herd was culled at the time, the major social readjustments necessary amongst surviving animals may have delayed population recovery.

Animal populations occurring on islands are intrinsically less stable than their mainland counterparts. Immigration is unable to introduce new genic material or to supplement depleted populations threatened with local extinction. Unless population management is planned and selective, culling and resultant inbreeding can reduce populations to levels where survival becomes precarious. The Lundy ungulate populations have not been managed in accordance with a long-term plan. Culling has often been indiscriminate in terms of the number and age/sex parameters of the animals taken, even though, as for example in the cull of goats in 1977 and 1978, adequate scientific data existed upon which an ecologically sound culling programme could be organised. This has not only changed the balance of desirable and undesirable traits in the herds but also makes the Lundy ungulate populations an unsatisfactory and unpredictable resource for scientific studies.

If it is agreed that the aesthetic and scientific value of the three ungulate species merits their conservation, there is a clear need to devise a plan within which the populations could be both monitored and controlled. Such a plan could seek to establish upper limits for the populations based upon the agriculturally acceptable levels of competition by each species for grazing and browsing resources, and lower limits determined according to the need to maintain healthy and resilient populations. It would also need to establish the timing and frequency of culls and the ideal age and sex structure of surviving animals. Until such a plan is formulated and implemented, it is questionable whether the ungulates can be safely regarded as permanent members of the island fauna.

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