

adjoining reserved forest), and Kaziranga, in Assam, are likely to be selected. It will be recalled that the IUCN, under the inspiration of Paul Leyhausen, then Chairman of the Cat Group of the SSC, issued a statement indicating that, if the tiger was to be saved, sanctuaries of 800 square miles with a population of at least 300 animals should be established. The best that can be done today is to set aside areas of about 500 square miles, each with a tiger population of 25 to 40. There is no reason to doubt that if these areas are stocked with the necessary prey species, the tigers will multiply.

The World Wildlife Fund has assumed a heavy responsibility in coming out with a statement that it will provide a million dollars for Project Tiger if the Indian Government will take the necessary conservation measures. The Government of India seems to be playing its part, and the WWF must start its fund-raising campaign in earnest.

Tiger Census—How it was Done

Richard Waller

In April-May this year the Indian Forest Service held the first-ever tiger census. Hitherto all assessments of tiger numbers had been based on estimates from the 17 or 18 States which still hold tigers. The Indian Government and the Forest Service are to be highly commended for setting up this difficult operation, for the task of counting this largely nocturnal, forest-dwelling solitary animal over the vast area of India is a formidable one. To achieve reasonable accuracy there is no substitute for the man living in the tiger's own forest environment, who will have acquired over the years a knowledge of tiger movements in his area (perhaps 10 to 20 square miles) and can distinguish one tiger from another, partly by sighting but more often by the pattern of the pug mark. This pointed to the Indian Forest Service as the men to do the job, and moreover the work could be done in the normal course of duty.

The pug mark and the placing of the feet on the ground are of paramount importance in identifying tigers. Much work has been done on this by S.R. Choudhury, Senior Research Officer and Head of the Wildlife Education Courses at Dehra Dun, and K.S. Sankhala, who recently completed his two-year study of the tiger. It seems that the pug mark of the hind foot is more likely to be seen clearly (the dust it kicks up can partly obscure the pug mark of the fore foot). So Choudhury, who conducted the census-training courses, decided that the pug mark of the left hind foot should, wherever possible, be the one drawn for comparison and identification, using the 'tiger-tracer', which he invented. A 6 in. x 8 in. piece of thin, clear, framed glass with four adjustable short legs in the corners of the frame, is placed horizontally over the pug mark, nearly touching it. The shape of the pug mark is traced on to the glass, re-traced on to paper, and then dated and numbered for the record and for comparison with other tracings to identify individual tigers.

For Choudhury's courses, some of which I attended, DFOs or Assistant Conservators from neighbouring States were deputed by the

Using the tiger tracer
Richard Waller



Inspector General Forests and Chief Conservators to attend. The courses covered instruction in the objectives of the census: the distribution of tiger, rather than an exact numerical count; population trends and factors affecting these trends; tiger ecology and habits; and, most important of all, the use of the tiger-tracer and the recording and processing of data. Most of the time was spent in the field observing tiger tracks and pug marks and practising with the tiger-tracer. If good sets of pug marks were not readily available, we made our own with the plaster casts we carried. At the end the trainees returned to their States to conduct their own training courses, thus disseminating the knowledge down to the guards who were to do the basic work.

Each forest guard had a counting sheet, on one side of which he recorded general information about his 'beat', such as vegetation and terrain, recent or last sightings of tiger, cattle-lifters, man-eaters, tigresses with cubs, cattle competition with wild herbivores, evidence of local villagers etc. On the other side was the week's log book, divided into two regimes: the first five days were spent collecting evidence on kills, sightings, calls, faecal matter, claw marks and pug marks, working up to the extensive search over all likely areas of the 'beat' during the 6th and 7th days. Pug mark tracings, with at least two representative left hind pug marks, were attached to the counting sheet and contained data on place, date, time, nature of soil (coarse or fine sand, fine dust, etc), normal stride (measured from ridge between pad and toes to ridge of next equivalent pug) and sex. The detailed processing of data and plotting of distribution on maps was done at divisional level before going to the Chief Conservator of the particular State, for submission to the Central Government in Delhi, probably in July or August.

States in early monsoon areas did their week's census in the third week of April; southern India in early May and the rest of India in the third week of May.

The difficulties were considerable: different languages; the forest guards' various levels of intelligence and interest. the dangers of exaggeration in a desire to show that one beat or range held more tigers than the next, proving that 'we protect our tigers well'. But the Indian Forest Service is making a brave effort. As the operators gain in experience and interest, the projected second census in early December should give a more accurate picture. May was a good time for a census because the great heat keeps both tigers and prey species near water. Early December is suitable because the grass is still high, and the heavy dew, which the tiger dislikes, keeps him to the paths and sides of forest roads where his pug marks can be clearly seen.