Monitoring fallow deer populations in NSW using helicopter linetransect sampling

D Forsyth¹, A Bengsen¹, R Ladd^{1,2} ¹Department of Primary Industries, Orange, NSW ²University of Queensland, Gatton, QLD

There is interest in understanding changes in the abundances of fallow deer (Dama dama) in New South Wales. We evaluated the usefulness of helicopter line-transect sampling (sometimes called 'distance' sampling') for monitoring two fallow deer populations in New South Wales: one near Mudgee and one at Liverpool Plains. The Jet Ranger helicopter was flown along linear transects at 46 m above ground level at 85 km per hour, with three people (one in the front and two in the rear seats) observing. Surveys were conducted in the 2 hours after sunrise and before sunset, when deer are active. Each person's observations were recorded into tablets linked to a GPS. The group size, distance class (0-20 m; 20-40 m; 40-70 m; 70-100 m; 100-150 m) and habitat (woodland or open) were recorded. To obtain sufficient observations to reliably model the detection function, transects were flown on multiple occasions. The method provided sensible baseline estimates of fallow deer density and abundance in the two areas. Future surveys of these two populations using this method will be able to report changes in fallow deer abundances relative to these baseline estimates. The strengths and weaknesses of this method for monitoring deer populations will be discussed.