ROAD SAFETY

Culling carnage on the highway

As figures emerge as to the extent of deaths and injuries to both humans and deer in accidents, **Alexandra Wilson** and **Dr Jochen Langbein** look at the issues.

Road accidents associated with deer cause several hundred human injuries – and some fatalities – in the UK every year, while the annual toll of deer involved in such accidents was already estimated by the Highways Agency to have reached in excess of 30,000 by 1997.

While this figure, in reality, was a best guess based on limited records available at the time, the National Deer Collisions Project (NDCP) is now collating information which will give more definitive figures. It has already led Suffolk County Council to take further steps to mitigate the problem in its area

Deer-vehicle collisions (DVC) present a major concern, both in terms of road safety and deer welfare. From a road safety point of view, hitting a deer presents a heightened risk compared with other wildlife collisions, due to the relatively large size of the creature. Additionally, there are many extra accidents that are caused by the tendency of drivers to swerve to try and avoid actually hitting the animal.

The annual cost of car repairs alone is estimated to exceed £11M

Apart from thousands of deer killed or injured, more than 250 human personal injury accidents occur in the UK each year

From the deer welfare point of view, numerous deer hit by vehicles are not killed outright, but may suffer for prolonged periods until suitably qualified persons can be called to attend for despatch or treatment of the animals. Many others escape from the roadside to die of their injuries later. Apart from deliberate selective culling to help regulate numbers, vehicle collisions present one of the main causes of mortality among wild populations of deer.

Even with the still incomplete set of human injury road accident statistics available for 2003, it is clear there is a problem. Together with the many thousands of deer killed or injured, well over 250 personal injury accidents occur in the UK each year through deer collisions – and in 2003 there were at least 10 human fatalities.

The annual cost of car repairs alone, over and above losses associated with human injury costs from such incidents, is estimated to exceed £11M.

But because accurate information on the real scale of the problem, the geographical distribution of incidents, and the location of particular accident black spots remains incomplete, the NDCP is now compiling records of deer found injured or killed on the roadside (*see box*).

In the meantime, local authorities are taking steps to introduce new ways to help alleviate deer accidents. Suffolk County Council is already set to begin a trial, and measures are also under consideration in Buckinghamshire and Hertfordshire by the Chilterns Traffic Management Project.

In Suffolk, the figures already show that the county has the third-highest rate of DVC leading to human injury in England. In the last five years, there have been 55 slight injuries and nine serious injuries resulting from DVC recorded on the county's Accsmaps accident database. However, the total numbers are likely to be higher, as these figures rely on the record stating that a deer was involved.

It is not just the cost of human life that this trial seeks to limit. The value of prevention of a non-injury accident in a rural location is estimated at £2,060. There are additional costs if a ranger must visit the site, kill the deer if necessary, and incinerate the carcass, too. These additional costs are in the range of £35 to £300, which is charged to the relevant district council.

To extrapolate these numbers to the B1106, through the King's Forest, gives a value of prevention of at least £36,000 a year for non-injury accidents alone. Over the whole county the value of prevention is at least £425,000 a year, again, just for non-injury accidents.

For injury accidents, the estimated value of prevention increases to £18,840 for a slight injury and £184,040 for a serious injury, not including the ranger's costs. The figures are based on the Highways Economic Note no1, 2002.

It must be noted that the actual numbers of deer injured or killed through DVC will always be higher than the number recorded, as bodies are not always recovered by forest rangers.

Much of NDCP's data at present comes from carcass up-lifts, accident records from the police, and insurance companies, but the information available concerning the deer itself is usually limited. Those persons in the best position to provide the most accurate information on considerations such as species and sex of the animal, and whether it was killed outright by collision or needed to be dispatched, are usually the local deer managers, hunt-kennels, vets, RSPCA/SSPCA and others.

Nevertheless, using data from the NDCP, an estimate can be made of the number of non-injury accidents occurring. Throughout Suffolk there have been 289 injured or killed deer recorded over the last 18 months.

Hence the Suffolk County Council West Area Road Safety Team (WARST) has proposed the installation of rumble strips in locations where deer are regularly crossing the carriageway, in order to reduce the number of DVC in the county.

The presence of rumble strips produces enough noise and vibration to deter deer from crossing

In particular, on the B1106 through the King's Forest – a length of road approximately 5km long – there have been 25 injured/killed deer recorded over the same period. It is this road which is proposed as a trial site in order to assess what effect this traffic-management measure might have on deer road-crossing behaviour and, in turn, accident rates.

This location is ideal because there is a considerable number of DVC on this route and it is a B-class road with a moderate volume of traffic. A route with a high volume of traffic would not be suitable, since the constant vehicle presence would restrict the opportunities for deer to cross safely.

Additionally, the length of forest is long enough for the trial area and the control area to be located in similar habitat, adjacent to each other. This reduces the variables for the control area and therefore improves the accuracy of resulting comparisons.

David Hooton, deer liaison officer for The Deer Initiative Eastern Region, and the person who will be responsible for the practicalities of monitoring the trial, also lives within the King's Forest.

WARST has proposed the theory that laying rumble strips in locations where deer are regularly crossing the carriageway may reduce the number of DVC in Suffolk. The hypotheses are that the presence of rumble strips will reduce vehicle speed, improve driver awareness of the potential presence of deer, and possibly also produce enough noise and vibration to deter deer from crossing while cars are present.

In order to provide conclusive evidence to prove all or some of these hypotheses, it will be necessary to monitor the trial site. A comprehensive monitoring programme should include speed surveys, video surveillance of deer behaviour and monitoring of DVC records.

Surveillance of deer behaviour is required, in particular, to determine whether their crossing activity is delayed for longer where traffic passes over rumble strips or at the control areas.

The speed surveys are to be carried out by the Suffolk County Council surveys team and the monitoring of DVC records by WARST and NDCP. As rumble strips are relatively cheap to install, the investment in the video-surveillance system and the monitoring will be the biggest costs of the first phase.

The monitoring costs include up to £7,000 for the purchase of two video camera surveillance systems. The equipment has a time-lapse function which records at eight frames per second, allowing 24 hours of monitoring to be viewed in good detail over three hours.

Hiring the equipment was not possible but, as the systems will remain the property of the county council, it is planned to reuse them for future projects requiring video surveillance, including possibly traffic monitoring.

The first phase will see the installation of rumble strips, signing and monitoring equipment, and several periods of video surveillance.

This is expected to start shortly and be completed in March 2005. A speed survey will be carried out before the construction work begins, and again after its completion.

The second phase will run from April to November 2005, and will involve further monitoring of deer be-

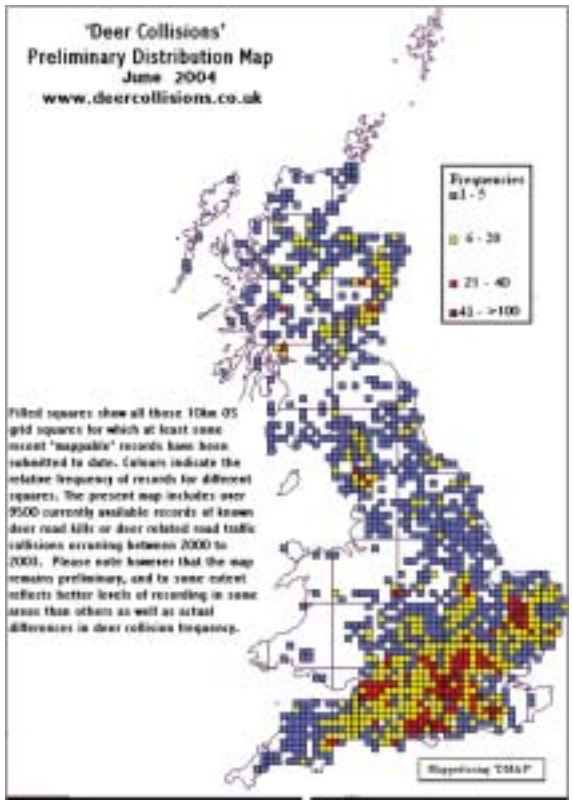

Figure 1: An Ordnance Survey map produced by the Deer Collision Project showing data recently submitted

haviour and accident records, and another speed survey. Although the monitoring costs are significantly greater than the construction costs, the importance of the monitoring cannot be undervalued if the rumble strips are proven to be effective. There are several other locations within Suffolk alone where they can be implemented at a comparably low construction cost.

If the rumble strips prove to reduce the number of DVC, it is also hoped they can be used on other minor, non-truck roads, to reduce the number of collisions with other animals, including badgers and foxes.

There are limited numbers of badgers and foxes within the King's Forest, so their response to the rumble strips cold be picked up by the video surveillance. If not, further trials may be undertaken in locations where badgers and/or foxes are more common.

The rumble strips trial will be a first for the UK and possibly the world, but it has road safety repercussions much greater than its scale. ■

Alexandra Wilson was road safety engineer at Suffolk County Council. Dr Jochen Langbein is a deer ecologist and deer-vehicle collision consultant to the Deer Initiative.

Deer Collisions Project

The National Deer Collisions Project was launched in 2003 in order to develop a national register for deer-related traffic accidents throughout England, Wales and Scotland, and to undertake research into the effectiveness of various, different preventative measures at the roadside.

Its key objectives are:

- To assess the true scale and geographical distribution of the problem within mainland UK;
- To investigate key factors which affect deer accident risks;
- To assess the effectiveness of different measures employed to reduce animal road kills;
- To identify local deer accident black spots where future mitigation efforts should be targeted;
- To increase public awareness of deer-related traffic collisions and how to avoid them.

The project is administered by the Deer Initiative on behalf of the Highways Agency and Scottish Executive. They have provided financial support for the project, together with the National Forest Company, Woodland Trust, and The Deer Study & Resource Centre. The study is overseen by Deer Management Consultants Dr Jochen Langbein and Prof Rory Putman, together with David Hooton, Deer Initiative liaison officer for the east of England.

During the first 12 months of the project, records on over 12,000 different deer-vehicle collisions or deer found dead at roadsides since January 2000 have already been submitted to the study. Preliminary findings show the emergence of regional patterns.

The initial 12 months of this project had always been planned as a period over which to raise awareness about the project and establish the data-collection networks. Hence the figures only represent a low percentage of the full toll of casualties.

Nevertheless, preliminary mapping of those 10,000 or so records received to date with adequate location details (*Figure 1*) already confirms how very widespread the issue of deer-vehicle collisions is throughout most parts of mainland Britain

The filled squares on the map show all those 10km Ordnance Survey grid squares for which at least some recent records have been submitted.

The greatest concentration of records in Scotland comes from the northeast and the Highlands. In England, the highest rates have so far been logged around Greater London and the home counties, where extremely high traffic flows coincide with high numbers of deer, as well as a high percentage of woodland cover. Relatively high numbers of deer collisions have also be reported throughout most of southern England, East Anglia, and Cumbria.

To put these numbers into perspective, it is worth noting that more than 250 deer carcasses were uplifted by council road cleansing teams alone in individual counties such as Aberdeenshire and Hampshire during 2003.

Even so, these figures refer only of those incidents where requests were made to remove a carcass. Hence it is possible, at this stage, that the present distribution map also reflects rather better levels of reporting in some areas than in others.

Though this map summarises preliminary results merely at the low resolution of 10km squares, many records received can already be mapped much more closely. It is intended to use the more-precisely referenced records during the next stage of analysis in order to help identify locations with the highest deer collision risk, and so where mitigation measures might best be targeted.

Submissions of information are still required for 2004/5. A date is essential, together with an OS grid reference, remembering to give east-ing before north-ing to avoid too many deer collisions being logged in the sea. Alternatively, a simple description of the location, such as two miles west of [place] on the [road/number] can be used with the date.

The more information which can be provided, the better – such as the species of deer, roadside habitat, time of day, mitigation measures and so on.

Records can be submitted online via the website and should include any incidents, even of just deer carcasses seen by the roadside. There are procedures in place to identify duplicate records, and it is important not to assume that someone else will already have reported it.

● *Contact the Deer Collisions Project for further information. DeerCollisions, PO Box 465, Bury St Edmunds, IP28 6XD. E-mail: info@deercollisions.co.uk or web: www.deercollisions.co.uk*