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Columns

The Directors' Desk

Standardizing the data on wildlife–vehicle collisions

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THERE ARE FEW MORE dramatic manifestations of human–wildlife conflict than squealing brakes, a sickening crunch, flying gravel, and then silence except for the weakly spasmodic scrabbling of a semipulverized deer as it lies dying on the side of a highway. The scientific analysis of wildlife–vehicle collisions is an applied science of increasing importance throughout the industrialized world, but it is yet woefully deficient in theoretical underpinnings and standardized methodology. The overarching discipline of road ecology has only recently gained formal recognition through the publication of the first definitive book on this topic by Forman et al. (2003). And until now, there has not been a target journal in which research on the problem of wildlife–vehicle collisions can be highlighted and developed within a focused readership.

Human–Wildlife Conflicts provides a forum for the presentation and discussion of peer-reviewed research on a variety of related topics, among which the problem of wildlife–vehicle collisions deserves the attention it has been allocated in the current issue.

In the spirit of stimulating some cross-cutting discussion on how to advance research into mitigating the problem wildlife–vehicle collisions, I will venture the suggestion that a first step is to develop a common currency, or standardized unit, by which data on wildlife–vehicle collisions can be expressed to allow comparisons across study areas, mitigation treatments, wildlife species, time periods, etc. At present, it is typical for such data to be expressed as the frequency of collisions reported (or road-kills encountered) per unit



Johan T. du Toit

distance of road, or the frequency of collisions reported per year within an administrative area (e.g., a county). This makes it almost impossible to interpret any patterns that might appear, because even if the density of the wildlife species of interest (e.g., deer [*Odocoileus* spp.]) remains relatively stable and if drivers are no less vigilant, there are changes in the traffic volume on any particular road and in the road networks in any particular

county. Also, if we compare the frequencies of deer–vehicle collisions across zones of human settlement, we are likely to find an increase as we move from the rural areas into the suburbs. But does this mean the suburbs have (a) higher densities of deer, (b) roads with inadequate deer crossings and road signs, or (c) deer-naïve drivers? It probably means there is simply a higher traffic volume on suburban roads where accidents are better reported.

The problem of variability in reporting is an intractable one, but some variables can be controlled for, such as road type, road distance, traffic volume, and time period. So, for any particular road type (unpaved, paved single lane, paved double lane, highway, etc), it should be possible to express collision or road-kill data as the frequency of incidents per unit road distance per unit traffic volume per unit time; for example 1.13 collisions/10 km/1,000 vehicles/month. Also, it is likely that reporting accuracy co-varies with road type, because incidents on highways are likely to be reported with similar accuracy across states but with different accuracy from incidents on rural single lane roads, even within the same county. Within road types, therefore, a standardized unit will

provide a robust index that will never represent the absolute values but will allow meaningful patterns in wildlife–vehicle collision data to emerge. This should allow us to advance much more quickly towards comparative analyses to test the efficacy of different mitigation measures and to guide management interventions. I look forward to watching the “traffic” on this topic in future issues of *Human–Wildlife Conflicts*.

Literature cited

- Forman, R. T. T., D. Sperling, J. A. Bissonette, A. P. Clevenger, C. D. Cutshall, V. H. Dale, L. Fahrig, R. France, C. R. Goldman, K. Heanue, J. A. Jones, F. J. Swanson, T. Turrentine, and T. C. Winter. 2003. *Road ecology: science and solutions*. Island Press, Washington, D.C., USA. *

Keeping up with all those deer

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THIS ISSUE of *Human–Wildlife Conflicts* deals with an important topic: deer–human conflicts. Wildlife biologists face a dilemma over managing deer populations. On the one hand, deer are the foundation of our state agencies concerning hunting and license revenues. On the other hand, however, deer populations in many states have increased to the point that hunting is not serving as the regulatory tool that it has been in the past. Changes in habitat, urban sprawl, and hunting pressure have contributed to large populations of deer. Excessive deer populations have serious ramifications, including impacts on agriculture, private landowners, and, most tragically, on human life, as fatalities due to deer–vehicle collisions increase. To compound the problem, large deer populations have the potential for transmitting disease that could be devastating to local, even regional, deer populations. The articles in this issue of *Human–Wildlife Conflicts* address this important conflict.

I want to summarize some key issues that face the Berryman Institute and what we are doing to address them. In the coming year, we plan to completely overhaul our website so that it is more useful to our clientele. However, without the “money in the bank,” we are reluctant to open the website for submission of research



Bruce D. Leopold

proposals. Congress remains supportive of the Berryman Institute, but broader issues concerning “what is an earmark” and reducing the deficit have delayed confirmation of the FY 2008 budget. Many individuals submitted research proposals last year. We have them on file, and we will allow those proposals to be resubmitted.

Our outreach program continues to grow and address the needs of Wildlife Services personnel through the outstanding leadership of Ben West, who serves as the Berryman Institute’s national outreach coordinator. Ben is conducting a nationwide assessment of Wildlife Services’ outreach needs, and this will definitely help us programmatically for the next 5 years. We also are considering providing some of our courses via the Internet. Hopefully, the addition of distance learning will be helpful to those employees of Wildlife Services who cannot physically attend one of our workshops.

The Berryman Institute has a unique and very productive relationship with 2 key land-grant institutions, Utah State University and Mississippi State University, and an important federal agency, Wildlife Services. Together, we can mutually address vital issues, such as deer–human conflicts, facing virtually every citizen of the United States. *