

## COMMENTARY

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THE CONFERENCE, what I've learned, and what it has achieved. To me, a major accomplishment has been shortening this enormous disconnect that has existed between the medical human health issue around lead and the wildlife issue around lead. This is a major accomplishment, I can assure you. So, shortening this disconnect is tremendous.

Also, the array of papers dealing with upland game bird species and birds of prey, have meant that in those different categories of wildlife lead toxicosis, we can now see that there is really a single toxic lead syndrome that manifests itself in different ways in those different categories of birds. So the different constituencies that dealt with waterfowl and upland game birds really are one in addressing this single toxic lead syndrome. That is another success as far as I am concerned.

From the human health side, I think we also need to recognize that there are within Canada and the United States, and perhaps also in parts of Mexico, native people whose consumption of wild game far, far exceeds that of the non-native segment of the population. I have spent months living with the Cree and Inuit in Canada and I can attest to the enormous importance of shot birds and shot mammals to their daily food existence.

The paper that we saw last in the conference, the paper dealing with consumption of shot game in Alaska, I think needs to be taken a step further so that we say, "What is the lead burden presented to these people. What are the consequences of potential lead ingestion to people who have very little option in terms of their red meat consumption across the year." Also remember, these are people who are often economically disadvantaged. That is another dimension that needs to be considered because they don't have the freedom to go elsewhere and import the sort of food luxuries that we can. So, if we have this chance to develop a theme around native people, potential lead intake and use of non-leaded ammunition, that would be a tremendous future section in a conference.

I've been impressed by the amount of science that has been given over to scavengers, birds of prey and secondary lead toxicosis. This is a tremendous step forward. And also, when we look across the papers, we have seen the reliance upon isotope ratio analysis. Not that it, of itself, proves a source of lead was the contributor, but that it enables us to explain a potential use of lead that may not be, or is, contributing to the lead problem in birds. So that sophistication in the science is good, simply be-

cause it gives us a chance to remove a level of criticism from some naysayers.

I knew The Peregrine Fund invited members of the hunting and ammunition community, but they to a large extent chose not to show so that, to your credit, they were invited. I hope that in future meetings they do attend because they are part of the equation in the resolution process and they need to be here. We need to understand their production concerns and their economic business concerns, so that we can seek compliance, and go forth, where it is possible.

We also need disciples. Despite the fact that Chris Parish is a fantastic guy, he is just one guy. And we can easily overuse him, I'm sure. I'm not a Christian religious sort, but I was told that Jesus Christ had a ratio of 12 to 1, 11 to 1 if you exclude Judas. So I think that we need to have a segment of our society that basically is there communicating our ideas to the various segments that need to be informed, educated, and convinced.

An important point is that this Conference is going to produce a book. I would urge all who have contributed to actually contribute their papers to this book because having a tangible product is so important. I can't tell you the number of times I've consulted the 1992 proceedings of the Conference in Europe convened and authored by Debbie Pain. It's almost a bible to me and I look at how useful that has been in bringing forth change in Europe. I think this book will have a similar profile in North America because there we have the repository of

information. We can use it, we can wack people over the head with it. It's that important.

I think that even though we are scientists, and we like to be "pure," let's be prepared to talk to the media whenever it is possible. We might be misquoted, but then we can go back to the media and correct it. And as Oscar Wilde said, "The worst thing about being quoted, is not being quoted."

I would urge people, also, to consult with politicians. Let your Senators and Congresspersons know your address. It's a good investment in personal relationships. It's a good investment in the political process. And I hope that, in future years, we can see a greater involvement of the scientists with the policy makers; and I'm not saying that to try and get subsequent invitations. John Schulz made a fantastic contribution in terms of describing the complexities of the policy process. We need to have more done on that front. What is going to be the nature of the policy-option horse that we ride? We need discussion around it. And let's face it, saying so does not make it so, we need analysis in that area.

*Biography.*—**Vernon Thomas, Ph.D.** is an associate professor at The University of Guelph, Canada. His principal interest is the application of science to situations where human activities impact wildlife and the revision of policies related to these management problems. Dr. Thomas is currently leading research on the problem of lead toxicity in wildlife, specifically how it affects waterfowl and loons.