

Managing Wildlife with Experimental Rigor? Why Not?

"Wildlife Management as Scientific Experimentation" – a pseudonymous article in the Winter issue (Vol. 11, No. 4, 1983) came late to *Park Science* attention, but so intriguing are the ideas therein presented that it is reviewed here in some detail.

Under the collective pen-name of John Macnab, four wildlife managers from four different countries, (Canada, U.S.A., Australia and Africa) propose that wildlife management schemes are in reality experiments – that their validity rests on ecological *assumptions* rather than *facts*, and that instead of calling these assumptions by the often misleading name "principles," the management schemes should be set up "with a modicum of logical rigor (that) will test those assumptions."

The authors note that wildlife managers manipulate systems to achieve a managerial objective rather than to find out how the system works. As a result, little attention is given to experimental controls: "the 'experiment' is often unbalanced, factors are confounded, replication is unusual, and tight hypotheses are rare or absent." If the manipulation fails to achieve the desired effect, the tinkering is modified, the objective is redefined, or the project is "quietly forgotten" – without anyone's having extracted the management insights that such a "mistake" could have furnished. "This is not merely a great pity," the authors state, "but a waste of information."

A more useful, efficient, economical approach to management would involve three prerequisites:

First, that the management treatment be run as an experiment, following the rules of experimental design (controls, replication and balance where needed);

Second, that the assumptions on which the man-

agement action is based be identified and stated as hypotheses;

Third, that the effects of manipulation be measured and the results reported – *particularly* if the outcome is *not* the result that was expected.

"The rejection of a hypotheses is not a disaster, but an advancement of knowledge," says John Macnab.

The article goes on to describe three management treatments that might be used to test ecological assumptions: the first by the use of manipulative management (the harvestable surplus model), the second by the use of custodial management (ungulate dynamics), and the third a combination of the first two (the fence effect).

The suggestion advanced by Macnab is that wildlife management at its best is scientific experimentation and that the major change required is for managers and scientists alike to treat their assumptions as hypotheses. Management treatments could then be tested by use of experimental controls or more than one level of treatment, replication would become a common practice, and rejection of a hypothesis would no longer be viewed as a failure but as a contribution to understanding.

"Inevitably," the authors conclude, "the present distinction between research and management would blur, research and management being forced into a tighter working association. Because the manager would be encouraged to state and test assumptions and to report the results, he/she would be operating on a more challenging professional level. Professionalism is attained not by strident proclamation, but through the quality of the thinking that the manager brings to bear upon the task."