Term Paper - Wildlife Biology 419

The purpose of the paper is to offer you a better perspective of the scientific process, particularly as it relates to wildlife biology. As you may already know, once a study is completed a report, or "paper", is usually written. Among government agencies such reports are often internal, but the most interesting work is prepared for publication in peer-reviewed journals. After extensive revisions, careful proof-reading and proper formatting, this paper is submitted to an appropriate journal. The selection of the journal depends on many factors. Given that a study can only be published in one journal, a choice must be made between seemingly suitable journals. For example, it may not be clear whether a paper on say "Habitat choice by congeneric mustelids during winter" would be more appropriate in the J. of Wildlife Management, J. of Mammalogy, J. Biological Conservation, or J. of Animal Ecology, to name a few. The first consideration is perhaps choosing a journal whose readers are indeed the intended audience. The paper may have to be re-written slightly, or completely, depending on the intended outlet, both to agree with the journal format and to emphasise or de-emphasise different aspects of the study.

Once a paper is submitted, the journal's editor reads it over superficially (or perhaps just reads the abstract) and if he/she thinks it is suitable material for the journal, sends it to 2 or more "experts" in the field. The degree of expertise of these "experts" ranges from that of the editor's M.Sc. student, who just happens to be handy, to that of the world's pre-eminent scholar in the field, who may be half a world away. The selection of reviewers is not easy; editors often rely on individuals who have recently published similar work in the same journal.

These reviewers then peruse the paper, judging the originality, adequacy of the methods, style and grammar, implications on the field, statistical soundness, etc. Then, usually within a month, they submit a report to the editor and one to the authors, via the editor. The reviewer's report summarises the paper, clearly states its strengths and weaknesses, and suggests whether the paper should be accepted for publication as it is (very uncommon), accepted but with minor revisions, accepted with major revisions, rejected with an offer to resubmit, or rejected without recourses. The report for the authors is perhaps less critical or direct, but it is similar in content, without the section of whether the paper should be accepted, and with the added emphasis on suggestions that would help to improve the paper, should the authors end up submitting it to the same or another journal.

It is this reviewing process that we will be trying to simulate here, with a few changes. You will choose one from among several papers that I have selected. These papers are interesting, relatively short, light on statistics, and relevant to some of the topics covered (or that will be covered) during class. The papers will actually take you beyond what I can possibly cover, will give you a glimpse of the range of activities involved in the field, and I hope that you will actually read more than just the one you choose to review. You are invited to write a report in which you will summarise the paper, comment on the relevance and interest of the issue addressed, assess the adequacy of the methods, evaluate the results, and consider the potential implications, including those addressed by the authors in their discussion and those that you may believe that they missed (or chose not to discuss). Your paper shall start with a summary (which is not the same as copying the abstract) of the paper you are reviewing, which will provide the reader with sufficient information to comprehend the ensuing discussion. In the discussion you

may wish to address some of the following issues (note I did not write "answer some of the following questions"), applying all the biological knowledge you have accumulated so far in your life, which may also include whatever you have learned in this course:

Are the goals clearly stated?
Is it a worthwhile question?
Is there any sort of hypothesis?
Are the objectives placed in a greater framework?
Are the methods adequate for addressing the stated goals?
Can the design be improved upon?
Is the study correlational or experimental?
Do the results support the hypothesis?
Was there at all a possibility for rejecting the hypothesis?
Was the discussion relevant or tangential?
How does the study relate to some other general principles?
Do you buy it?
Are there any questions left open?
How would you address these questions?

The paper is to be written in English (do I need to elaborate?) and typed. Length is not an issue, but I suppose that somewhere between 1000 and 3000 words would be suitable. If, however, you are able to say all you want to say in 500 words, by all means, do so. On the other hand, if you need 5000 words to express yourself, that is fine too, as long as you do so concisely. Scientific writing and speech are laden with verbosity and loquacity (see how easy it is!). As Calvin says, sarcastically, of course, "the purpose of (scientific) writing is to inflate weak ideas, obscure reasoning and inhibit clarity. With a little practice it can become an intimidating an impenetrable fog". Be direct and concise; do not be tempted by grandiloquence (I am doing it again!!).

You may find it helpful to check other sources to properly understand the paper and its significance. You may even choose to include these in your discussion. If you do so, please reference these properly. In your references section, if you have one, use the J. Wild. Manage. format. If despite your resourcefulness and the vast support of our libraries you still have problems with VERY specific items, see Brent and I (in that order). Be aware that the request "Please explain the paper" will not elicit a favourable response.

The paper will be graded by BOTH the TA and myself. The purpose of this is two-fold. First, I wish to instil upon you the idea that differences of opinion do exist in science. One of us may find some point made in your paper absolutely insightful, whereas the other may find the same point rather obvious. I envision that the more interesting and thought-provoking papers will stimulate readers in different ways. Second, I want you to see beyond academic rank and realise that when the instructor and TA disagree, the instructor is not necessarily always right. Judge the idea, not the source. Brent may not have a Ph.D. and whatever experience is associated with it, but otherwise he is as qualified a biologist as I am, and his specific expertise lies in a slightly different sub-field. Of course, the goal is that you keep this in mind also when listening to other lectures, seminars, expert testimony at trials, TV pundits, etc. Your papers will be returned to

you with 2 sets of comments and 2 grades (the mean will go on your record). Unless you are a handwriting analysis expert, you will not know who gave you which grade.

I will accept only up to 3 persons per paper; there are enough papers for you to have some choice. Discussions amongst you are expected and encouraged, especially among people reviewing different papers (you will learn more that way), but it would be better if the final work is carried out individually. You may choose to submit your work as a pair or trio, in which case you will **split** the grade, which will also occur if the grader finds evidence of too much co-operation. It is therefore best if you and your spouse, army buddy, or best friend choose different papers to review.

You will have one week to decide on your paper, after which you may log your choices individually with me at your convenience. Do so via e-mail. That way the order of precedence will be clear and unhindered by your ability to find me. I will reply usually immediately, either approving the choice or informing that someone else has already taken your paper, in which case you will have to choose another one. You will then have 2 weeks to work on it.

A few words about format: make it double spaced with 12 point font, number all pages sequentially, on the top right.

The schedule is as follows:

Feb 24th Today.- start deciding what to do
March 2.- Starting after class (not before 13:25, just so you do not leave class early). Log in your choices
March 16th.- Immediately before class. Hand in the paper

The list of papers is:

Anderson, J. T., Smith, L. M. and Haukus, D. A. 2000. Food selection and feather molt by nonbreeding American green-winged teal in Texas playas. J. Wildl. Manage. 64: 222-230.

Baines, D. and Summers, R. W. 1997. Assessment of bird collisions with deer fences in Scottish forests. J. Appl. Ecol. 34: 941-948.

Bowyer, R. T., Van Ballenberghe, V., Kie, J. G. and Maier, J. A. K. 1999. Birth-site selection by Alaskan moose: maternal strategies for coping with a risky environment. J. Mammal. 80: 1070-1073.

Coup, R. N. and Perkins, P. J. 1999. Field Metabolic rate of wild turkeys in winter. Can. J. Zool. 77: 1075-1082.

Ferreras, P. and Macdonald. 1999. The impact of American mink *Mustela vison* on water birds in the upper Thames. J. Appl. Ecol. 36: 701-708.

Hilderbrand, C. V., Schwartz, C. C., Robbins, C. T. and Hanley, T. A. 2000. Effect of hibernation and reproductive status on body mass and condition of coastal brown bears. J. Wildl. Manage. 64: 178-183.

Key, C. and Ross, C. 1999. Sex differences in energy expenditure in non-human primates. Proc. R. Soc. Lond. B 266: 2479-2485.

Kulken, T., Leighton, F. A., Wobeser, G. Danesik, K. L., Riva, J. and Heckert, R. A. 1998. An epidemic of Newcastle disease in double-crested cormorants from Saskatchewan. J. Wildl. Diseases 34: 457-471.

Kuzyk, G. W., Dehn, M. M. and Farnell, R. S. 1999. Body-size comparisons of alpine- and forest-wintering woodland caribou herds in the Yukon. Can. J. Zool. 77: 1019-1024.

Larivi□re, S. and Messier, F. 1998. Denning ecology of the striped skunk in the Canadian prairies: implications for waterfowl nest predation. J. Appl. Ecol. 35: 207-213.

Lougheed, L. W., Breault, A. and Lank, D. B. 1999. Estimating statistical power to evaluate ongoing waterfowl population monitoring. J. Wildl. Manage. 63: 1359-1369.

Read, J. L. 1999. A strategy for minimizing waterfowl deaths on toxic waterbodies. J. Appl. Ecol. 36: 345-350.

Samelius, G. and Aklisaukas, R. T. 1999. Diet and growth of glaucous gulls at a large Arctic goose colony. Can. J. Zool. 77: 1327-1331.

Samuel. W. M., Pybus, M. J., Welch, D. A. and Wilke, C. J. 1992. Elk as a potential host for meningeal worm: implications for traslocation. J. Wildl. Manage. 56: 629-639.

Stander, P. E. 1998. Spoor counts as indices of large carnivore populations: the relationship between spoor frequency, sampling effort and true density. J. Appl. Ecol. 35: 378-385.