

## Addressing “The Wisconsin Study”

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As pointed out by Dr. Christine O’Keefe in the article published on [www.StrayPetAdvocacy.org](http://www.StrayPetAdvocacy.org) (“[Feral Cat Predation and Its Impact on Wildlife – Searching for the Truth](#),”) the topic of cat predation on wildlife (birds in particular) has become a battleground of competing studies and experts. According to Dr. O’Keefe, “A study supporting any stance can be found, and are often cited and quoted without seriously analyzing the actual study.” After reviewing the body of published works on cat predation, Dr. O’Keefe concludes, among other things, that there is no strong support for the viewpoint that cats are a serious threat to wildlife, except in certain instances of fragile populations in isolated or fragmented ecosystems.

It has come to the attention of Stray Pet Advocacy that several wildlife and bird conservation groups repeatedly use one particular “study” to support their claim that free-roaming cats pose a serious threat to bird populations. It is referred to as “The University of Wisconsin Study,” or “The Wisconsin Study,” and its authors are John Coleman and Dr. Stanley Temple. The authors have published four articles on the subject of predation by rural free-ranging cats on birds in Wisconsin. One study, a survey of free-ranging cats used to estimate the number of free-ranging cats in Wisconsin, was published in a scientific journal where submissions are subject to the peer-review process. (“Rural residents’ free-ranging domestic cats: a survey,” *Wildlife Society Bulletin* 21: 381-390 (1993).) *However, the authors subsequently published several articles (see below) in which they attempt to project the potential impact of free-ranging cats on the bird population in the state of Wisconsin. There are many critical problems with these published estimates. Yet these estimates continue to pass as legitimate research as presented by the groups whose interests those numbers serve, despite the fact that the data from the relevant study was never published (“How Many Birds Do Cats Kill,” *Wildlife Control Technology*. Jul-Aug 1995: 44). The authors themselves identify their estimates of cat predation on birds as guesses (“On the Prowl,” *Wisconsin Natural Resources* 20(6):4-8), and one of the authors, when interviewed on the subject, indicated that “Those figures were from our proposal. They aren’t actual data; that was just our projection to show how bad it might be.” (Elliott, J. 1994. “The Accused.” *The Sonoma County Independent*, March 3-16). It is time to critically address these studies and the numbers they present.*

### A Note Regarding the Science & Publication of Research Studies

In order to critically address the published works of Coleman and Temple, it is important for the reader to have an understanding of the purpose of scientific research publication, the process of scientific study review, and the role peer review plays in the publication of scientific research.

According to *An Introduction to Critical Analysis of Publications in Experimental Biomedical Sciences* (Rangachari, 1994-2001), “Scientists publish research reports for a variety of reasons. Ideally, a research report is a free communication by a scientist or a group of scientists informing their peers about a set of novel findings that either provide answers to puzzling problems or raise issues that are of academic or practical interest. At the opposite extreme lie reports that serve merely to add to the curriculum vitae of the investigators and have little or nothing important to

say. Most often, the situation lies between these two extremes.” This author goes on to provide a summary of the scientific review process and a checklist for the critical evaluation of a scientific paper. The checklist provided by P.K. Rangachari is as follows:

## CHECKLIST

*as provided by P.K. Rangachari in “An Introduction to Critical Analysis of Publications in Experimental Biomedical Sciences.” <http://www.science.mcmaster.ca/biopharm/critanal.htm>*

### **Introduction**

1. Did the authors indicate why the study was undertaken?
2. Was the background information provided adequate to understand the aims of the study?

### **Methods**

1. Were the methods described in sufficient detail for others to repeat or extend the study?
2. If standard methods were used, were adequate references given?
3. If methods were modified, were the modifications described carefully?
4. Have the authors indicated the reasons why particular procedures were used?
5. Have the authors indicated clearly the potential problems with the methods used?
6. Have the authors indicated the limitations of the methods used?
7. Have the sources of the drugs been given?
8. Have the authors specified the statistical procedures used?
9. Are the statistical methods used appropriate?

### **Results**

1. Were the experiments done appropriate with respect to objectives of the study?
2. Do the results obtained make sense?
3. Do the legends to the figures describe clearly the data obtained?
4. Are the data presented in tabular form clear?
5. Are the legends to the tables clear?
6. Has appropriate statistical analysis been performed on the data?

### **Discussion**

1. Were the objectives of the study met?
2. Do the authors discuss their results in relation to available information?
3. Do the authors indulge in needless speculation?
4. If the results obtained were statistically significant, were they also biologically significant?
5. If the objectives were not met, do the authors have any explanation?
6. Do the authors adequately interpret their data?
7. Do the authors discuss the limitations of the methods used?
8. Do the authors discuss only data presented or do they refer consistently to unpublished work?

## References

1. Do the authors cite appropriate papers for comments made?
2. Do the authors cite their own publications needlessly?

## Abstract

1. Is the abstract intelligible?
2. Does the abstract accurately describe the objectives and results obtained?
3. Does the abstract include data not presented in the paper?
4. Does the abstract include material that cannot be substantiated?

First, is the study free of bias? According to “High School Students’ Critical Evaluation of Scientific Resources on the World Wide Web,” (Nathan Bos, University of Michigan-Ann Arbor *Accepted for publication in the Journal of Scientific Education Technology*. [http://www-personal.si.umich.edu/~serp/work/critical\\_evaluation.pdf](http://www-personal.si.umich.edu/~serp/work/critical_evaluation.pdf) (10/31/03)), when analyzing any study, it is important to begin by knowing who funded or sponsored the study. Why? To determine if there may be any potential biases to the study as a result of the funding. Organizations funding research that are dedicated to a certain “constituent” or outcome are likely to fund a study and a group that in the past has shown their findings to be in line with the goal of the funding agency. Frequently, a funding agency reserves the final right of refusal of publication of the study results, which can also result in biased research.

Was the study published in a scientific journal? This is critical for validating the results of the study. This is not to say that a published study has no flaws or that its conclusions are inherently correct. But, according to “[Systematic Critique – the art of scientific reading](#)” (PDF file) (©2002 *Biomedical Scientist*: February 2002 [http://www.ibms.org/pdf/reading\\_systematic\\_critique.pdf](http://www.ibms.org/pdf/reading_systematic_critique.pdf) (10/31/03)), when a study is submitted for publication to a peer-reviewed journal, the entirety of the study is subject to scrutiny. That includes the original hypothesis (for instance, what effect cats have on bird populations), the materials and methods used to study the hypothesis, and the results and the conclusions of the study. Each of these areas is carefully examined in a peer-review process. The authors are required to address each concern raised by the reviewers, either by changing or modifying the text to comply with the comments of the reviewers (who are examining both the methodology and the conclusions of the study and may not agree with the research conclusions as presented by the study authors); or by persuasively arguing why their original statements/conclusions are correct. The editors of the journal ultimately have the power to decide if the authors have adequately addressed the concerns of the reviewers or not. If they have, the article is published (usually with numerous modifications, it’s very rare a paper gets accepted in its first form). If they have not, the article is not published. If the reviewers believe adequate controls or proper methodology were not used in the study, the study will not be published. **So when a research study is not published in a peer-reviewed journal, it has not gone through the rigorous screening process by people in the same field.** Essentially, within the scientific community there is a reluctance to rely heavily on unpublished studies, because their validity or scientific rigor cannot be adequately addressed.

Do the authors of any given work reference their own material? Are proper reference citations used? Dr. P.K. Rangachari warns that needlessly quoting your own studies to support your findings is generally unacceptable for obvious reasons. We note one very important caveat to this: if you are the only scientist/researcher conducting research in the particular field. If you have been breaking new ground and have the only published studies in your field of research, there is no choice but to reference your own work. But citing your own work to support conclusions when other studies in the same field of work have been published is simply unacceptable. Also, citing “other studies” that support your findings is not acceptable either. Any credible work will properly cite all reference material.

Are projections made on the basis of single-point studies or averages of multiple studies? One of the tactics frequently used by bird conservationist activists is to extrapolate the implication of a study on small numbers of animals to large populations of animals. This practice is deceptive, inaccurate, and statistically unacceptable scientifically. This is an extremely important point. We provide an illustration of the problem, as applied to cat predation on birds.

***For further reading on the subject of critical analysis of scientific research, please visit:***

“[An Introduction to Critical Analysis of Publications in Experimental Biomedical Sciences](#)” ©1994-2001 P.K. Rangachari. *If you have trouble with the above link, please copy and paste this web address directly into your browser: <http://www.science.mcmaster.ca/biopharm/critanal.htm>*

“[Systematic Critique – the art of scientific reading](#)” (PDF file) ©2002 *Biomedical Scientist*: February 2002 for further reading on the critique of scientific research reviews. *If you have trouble with the above link, please copy and paste this web address directly into your browser: [http://www.ibms.org/pdf/reading\\_systematic\\_critique.pdf](http://www.ibms.org/pdf/reading_systematic_critique.pdf)*

“[High School Students’ Critical Evaluation of Scientific Resources on the World Wide Web.](#)” Accepted for publication in the *Journal of Scientific Education Technology* Nathan Bos, University of Michigan-Ann Arbor. *If you have trouble with the above link, please copy and paste this web address directly into your browser: [http://www-personal.si.umich.edu/~serp/work/critical\\_evaluation.pdf](http://www-personal.si.umich.edu/~serp/work/critical_evaluation.pdf)*

**WARNING: EXAMPLE FOR PURPOSES OF ILLUSTRATION ONLY!** I rigorously observed the feral colony of cats that I care for over a period of 16 months. The colony ranged from six feral cats and one stray to 12 feral cats and one stray cat at its peak. There were 12 cats and one stray in the colony for five months, from September 2002 to January 2003. The total observation period was from June 2002 to October 2003. There is a birdfeeder located on the property, near where the feral cats are fed. Over the 16-month period, a total of three bird kills by one cat were observed. From this, is it scientifically appropriate to estimate that for the observation period there were an average of 7.1 free-ranging cats, and that the one cat that hunted represented 14.1% of the population of cats? No. There were from six to 13 cats, one of which hunted birds. But this method of statistical averaging is what some studies do – and it is a method some wildlife conservation groups use to extrapolate “information” based on the numbers provided in the studies.

Continuing the example, if we were to attempt to predict the number of bird kills in the U.S. based upon this single colony observation using extrapolation from averaging the “percentage of hunting cats” and the number of bird kills observed in this study, the methodology would be as follows.

- 1) Estimating the number of cats in the U.S. The number of free-roaming cats in the U.S. is estimated to be 60 – 100 million (according to Alley Cat Allies, [www.alleycat.org](http://www.alleycat.org) ). The mean estimate is therefore 80 million cats. According to the Pet Food Institute, the number of owned cats in the U.S. is estimated to be 65 million. It is estimated that 40% of owned cats are allowed outside (the citation here: a “study”). Combining those estimates, we arrive at a projection of 106 million free-ranging cats in the U.S.
- 2) Next, we need to determine the number of cats in the U.S. that hunt birds. Extrapolating from this observation (by using averages calculated from those observations), 14.1% of cats hunt birds. 106 million free-roaming cats in the U.S. x 14.1% = 15 million free-roaming cats in the U.S. that hunt birds.
- 3) With the single colony observation that three birds were killed by bird-hunting cats over a period of 16 months, in order to “predict” the number of bird deaths by free-roaming cats in the U.S, that observation is applied to the number of free-roaming cats that hunt birds. Thus, the “15 million free-roaming bird-hunting cats” in the U.S. is multiplied by the 3 birds kills observed = a potential 45 million birds killed every 16 months by cats in the U.S. Then, if we choose to ignore the seasonality of hunting patterns, bird migration and nesting patterns, we can then reduce this “conclusion” to a monthly average in order to come up with an annual “bird kill” statistic. This would be the potential 45 million birds killed every 16 months divided by 16 to derive a monthly number (2.8 million), then multiply that by 12 to arrive at an annual estimate (33.6 million).

Based on assumptions, extrapolation, “other studies,” and the observation of predatory behavior of one colony of cats on birds, we can predict that 33.6 million birds are killed each year in the United States by free-roaming cats. **WARNING: THIS IS NOT AN ACTUAL PREDICTION.**

Unfortunately, this is exactly the type of methodology many groups use to create numbers to support their claims that cat predation of birds is an ecological nightmare. Imagine any one of the variables to change – even slightly.

Assume we manipulate numbers to indicate that the percentage of owned cats that roam is 60%, not 40%. The extrapolation methodology outlined above then predicts a drastically different number of annual bird kills by free-roaming cats, namely, 37.8 million – as opposed to the original 33.6 million predicted.

Assume the number of cats that hunted was three, not one. Again, using all the other “original” statistics, the prediction of annual bird kills blossoms to 100.9 million.

Assume the number of bird kills was ten, not three. Using all the other “original” statistics and

observations, the prediction of annual bird kills balloons to 112 million.

Combine all three of these changes to create a “high value” estimate in order to “illustrate” how “bad” the potential problem “could be.” The prediction of annual bird kills now leaps exponentially – to 377.5 million.

As illustrated, by changing any of the variables; it is easy to manipulate the outcome of the prediction. By selectively using statistics, it is easy to tailor outcomes to just about any desired conclusion. This is why proper documentation of sources and proper methodology are critical to any credible study, conclusions and projections.

### **Addressing “The University of Wisconsin Study”**

In our opinion, extrapolations of unrealistic bird-kill numbers based on the “University of Wisconsin Study” have done more damage to an actual scientific understanding of cat predation on birds than any other work. The numbers on cat predation of birds published and circulated by many wildlife and bird conservation groups that are ascribed to “The University of Wisconsin Study,” or “The Wisconsin Study” misuse and/or misquote the numbers published in several articles by the authors of the study. Further, the works of these authors are some of the most frequently cited by bird and other wildlife conservationists, despite the fact that the number most frequently cited is:

- 1) Identified by the authors themselves as a “guess.” (Coleman, J.S. and S.A. Temple. 1996. “[On the Prowl](http://www.wnrmag.com/stories/1996/dec96/cats.htm).” *Wisconsin Natural Resources* 20(6):4-8 <http://www.wnrmag.com/stories/1996/dec96/cats.htm> ).
- 2) The “high value” guess in a range that included low, intermediate and high values (Coleman, J.S. and S.A. Temple. 1995. “How Many Birds Do Cats Kill?” *Wildlife Control Technology*: 44 and Coleman, J.S. and S.A. Temple. 1996. “[On the Prowl](http://www.wnrmag.com/stories/1996/dec96/cats.htm).” *Wisconsin Natural Resources* 20(6):4-8 <http://www.wnrmag.com/stories/1996/dec96/cats.htm> ).
- 3) Was used as a scare-tactic by the authors to highlight the potential problem of cat predation on birds. (Elliott, J. 1994. “The Accused,” *The Sonoma County Independent*: March 3 –16).
- 4) Derived by the use of unpublished data. (“[On the Prowl](http://www.wnrmag.com/stories/1996/dec96/cats.htm).” *Wisconsin Natural Resources* 20(6):4-8 <http://www.wnrmag.com/stories/1996/dec96/cats.htm> ).
- 5) Derived by the use of extrapolation from one published study. The authors indicate in “On the Prowl” that “other studies” support their claim for the percentage of cats’ prey that is birds, however they provide no references. But in “How Many Birds Do Cats Kill,” the authors cite one study, which is very deceptive. Further, what the authors do not point out is that there have been many studies on this subject, and the range of published study results is statistically VERY large; much larger than the range they provide in the text of any of their articles. (See below.)

The original “University of Wisconsin Study”, a four-year study completed in 1992, was conducted by John Coleman (a wildlife ecologist with the Great Lakes Indian Fish and Wildlife Commission stationed in Madison, Wisconsin), and Professor Stanley A. Temple (who teaches and conducts oversees research projects in the Department of Wildlife Ecology at the University of Wisconsin-Madison). The study was never published; thus never subjected to the process of peer review, which draws into serious question the validity of the work. Without having been subject to the peer review process, the data is not considered reliable. Nonetheless, the authors use the data as if it were published. They mention in one article that the data was not published (“How Many Birds Do Cats Kill?” *Wildlife Control Technology*. July-Aug 1995:44 – published in 1995). They do not mention that fact in their next article (“On the Prowl.” *Wisconsin Natural Resources* 20(6):4-8 – published in 1996). Finally, in their last article (“Cats and Wildlife: A Conservation Dilemma.” University of Wisconsin Cooperative Extension Publication – published in 1997), the authors boldly cite their own guesses (basically implying they were not guesses), and thus misrepresent the data by essentially implying it was based on published research.

Though the study results were never published, there are four articles written by the authors on the subject of cat predation on birds. One of the articles was co-authored by Scott R. Craven.

- Coleman, J.S. and S.A. Temple. 1993. Rural residents’ free-ranging domestic cats: a survey. *Wildlife Society Bulletin* 21: 381-390.
- Coleman, J.S. and Temple, S.A. 1995. “How Many Birds Do Cats Kill?” *Wildlife Control Technology*: 44.
- Coleman, J.S. and S.A. Temple. 1996. “[On the Prowl.](http://www.wnrmag.com/stories/1996/dec96/cats.htm)” *Wisconsin Natural Resources* 20(6):4-8. <http://www.wnrmag.com/stories/1996/dec96/cats.htm>
- Coleman, J.S., Temple, S.A., and Craven, S.R. 1997. “[Cats and Wildlife: A Conservation Dilemma.](http://wildlife.wisc.edu/extension/catfly3.htm)” <http://wildlife.wisc.edu/extension/catfly3.htm> University of Wisconsin Cooperative Extension Publications. Madison, WI. <http://wildlife.wisc.edu/extension/>

In the articles, “How Many Birds Do Cats Kill?” and “On the Prowl,” the authors outline the method used to “guesstimate” the impact of rural cat predation on birds in the State of Wisconsin. Unfortunately, in “Cats and Wildlife: A Conservation Dilemma,” (1997. University of Wisconsin Cooperative Extension Publications, Madison, WI), the authors present the summary estimates that are based on extrapolation and cite their own previously published articles – causing the data to appear as “scientific” research as opposed to the speculation that it really is. But as the authors themselves write in “How Many Birds Do Cats Kill” and “On the Prowl,” “No one has collected enough data to definitively predict the number of birds killed by rural free-ranging cats,” yet they go on to “guess,” as they themselves word it in “On the Prowl,” low, intermediate and high guesstimates. The numbers used to guesstimate are discussed, but it is not clear if the numbers used in their assumptions are from single studies or averages of multiple studies. In “How Many Birds Do Cats Kill?” the authors cite only one study to support one of the numbers used in their guesstimate, but write in the text that “other studies” support their claim (for the percentage of birds that cats kill) despite citing just the one study. In “On the Prowl,” the authors simply do not provide references. The problems with this presentation are self-evident.

## Reviewing the Numbers

To arrive at their estimates of annual bird kills in Wisconsin, the authors outline the assumptions used.

- 1) To estimate the number of free-ranging cats in rural Wisconsin (from “On the Prowl”): “Cat populations are tough to gauge accurately. U.S. Census data track those cats that people claim to own as pets, and the numbers are impressive. From 1970 to 1990, the number of urban and rural cats tabulated in the census rose from 30 million to 60 million. Nationwide, approximately 30 percent of households “own” cats. In rural areas, where free-roaming cats often are not regarded as pets, and not recorded by the census, as many as 60 percent of households keep cats on their property. In Wisconsin alone, with 550,000 rural households, we estimate the number of barn cats and outside cats may be as high as two million.”

*Note that the estimate for the percentages of rural homes that keep cats on their property is uncited in this article. In fact, in their article “How Many Birds Do Cats Kill,” the authors cite their own work.*

- 2) To estimate the percentage of cat kills that are birds (from “On the Prowl”): “We further estimate 23 percent of their diet consists of birds. This figure is consistent with other studies indicating roughly 20-30 percent of free-ranging cat kills are birds.”

*Note that the reason for the estimate is uncited, and the “other studies” supporting their estimate are uncited. In their article “How Many Birds Do Cats Kill,” the authors indicate the basis for their assumption is their “unpublished data,” and they make the same statement about “other studies” supporting their estimate, but provide only one reference citation. Further, our research into the topic indicates that there are at least 17 credible studies on the subject worldwide. The range found in these studies [Ref 1] is from 3.7% to 27%. The average of the studies (using the Australia native/introduced results as separate values) is 15.0%. **However, there is a very important caveat to a majority of these study results:** most of the findings are from studying feces, stomach contents or owner-reported rates of predation (i.e. the prey the cat brought home and the owner saw). (O’Keefe, C.” Feral Cat Predation and It’s Effects on Wildlife-Searching For the Truth.” ©2003 [www.StrayPetAdvocacy.org](http://www.StrayPetAdvocacy.org) [http://www.straypetadvocacy.org/html/predation\\_studies\\_reviewed.html](http://www.straypetadvocacy.org/html/predation_studies_reviewed.html) (10/31/03)). These study results assume that ALL birds consumed were killed by the cat. Observational studies of cat predation suggest that at least a portion of the birds eaten by cats were already dead. (“Cats Assistance to Sterilize as cited in Hartwell, S. “The Great Australian Cat Dilemma,” <http://www.messybeast.com/ausdilemma.htm> 10/31/03). So these rates are very likely over-estimates, which is supported by DIRECT OBSERVATION of cat predation as just noted. The lowest rate listed, about 3.7%, was derived by direct observation of a single cat in Michigan (Bradt, G.W. “Farm Cat as Predator.” 1949. *Michigan Conservation* 18:4 (1949) 23-25). A study in Brooklyn, observing feral cats for 180 hours, identified 1 bird kill by a cat. (Cited in Girash, D.M. “Stray and Feral Cats in the City of Windsor,” Presentation to Windsor City Council, April*

2, 1998. <http://www.jazzpurr.org/1998Position.htm> 10/31/03). Additionally, Castillo spent 193 hours observing 80 feral cats over 1 year, and only saw 2 birds caught and killed by ferals. (Castillo, D. "Population estimates and behavioral analysts of managed cats (*Felis catus*) colonies located in Miami-Dade County, Florida parks." MS thesis, Department of Environmental Studies, Florida International University, Miami, F., 2001). But the bottom line is that credible, published work indicates that a range of about 3.7% to 27% of free-ranging cat's diet is birds – not the range of 20% - 30% used by Coleman and Temple in their low-high range of estimates.

- 3) To estimate the number of bird kills per cat per year (from "On the Prowl"): "The number of animals killed by an individual cat varies greatly from zero to much more prey than a cat can consume. One rural cat was recorded to have killed 1,690 animals in an 18-month period. On an annual basis, studies record low estimates of 14 animals per free-ranging urban cat to at least one animal per day for rural cats. Other studies reported 28 kills per year for urban cats and 91 kills per year for rural cats."

*Note that the estimates refer to uncited studies, and unnamed prey. In "How Many Birds Do Cats Kill" the authors do provide citations, though not complete references. In fact, the way the authors have presented this information is extremely misleading. The Bradt (Michigan, 1949) study referred to in the articles by Coleman and Temple is quoted by them as "one rural cat was recorded to kill 1,690 animals in 18 months." This is an extremely misleading representation of Bradt's work in the context of their articles. In fact, this farm cat brought home 1,628 mammals and 62 birds over 18 months. According to Ellen Perry Berkeley, "With restrained triumph, the article suggested that this "positive statistical record," while perhaps not typical, casts doubt on the negative reputation of the domestic cat, "a scapegoat with few to speak up on his behalf." As Coleman and Temple present the findings of Bradt, it would appear that the cat killed 1,690 birds. But the fact is that just 3.7% of the cat's prey was birds. Coleman and Temple misuse Bradt's work by ignoring the sentiments and conclusions of the author's published work (that cats are a "scapegoat" as predators of birds). This is not surprising, however, as Temple says in an interview about the articles that the data "isn't data" (Elliott, 1994) and that the estimates are guesses (Coleman and Temple, 1995). Despite these facts, the authors continue to present the data as if it is data and the estimates as if they aren't guesses.*

- 4) Coleman and Temple simply equate prey eaten or brought home with "cat kills." This could easily result in a gross overestimate of cat kills, as cats are opportunistic hunters and may eat or bring home birds (or other prey) that were already dead.
- 5) The authors do not include in their formula the calculation for the percentage of cats that hunt. Cats are opportunistic hunters, and in many rural areas of the country, people become aware of feral cats because of their presence in garbage cans. In fact, as Dr. O'Keefe indicates in her article, "[Feral Cat Predation and Its Impact on Wildlife – Searching for the Truth](http://www.StrayPetAdvocacy.org)," (hosted on [www.StrayPetAdvocacy.org](http://www.StrayPetAdvocacy.org): [http://www.straypetadvocacy.org/html/predation\\_studies\\_reviewed.html](http://www.straypetadvocacy.org/html/predation_studies_reviewed.html)), "multiple studies have found that 36-56% of owned cats

hunt (Fougere, 2000; Perry 1999; Reark, 1994)". This further suggests that even the low guesstimates for the impact of cat predation on birds in Wisconsin is grossly overstated.

Finally, after presenting this "information," in "On the Prowl" the authors go on to state, "Here are our **best guesses** at low, intermediate and high **estimates** of the number of birds killed annually by rural cats in Wisconsin based on the formula: (number of rural cats) x (number of kills/cat/year) x (% of kills that are birds)." They omit this admission to guessing in "How Many Birds Do Cats Kill."

The formula they use for the "low value" is: (lowest population estimate) x (twice kill rate by urban cats) x (low percentage of kills that are birds) 1.4 million cats x 28 x 20% = 7.8 million birds killed by rural cats.

*Note: The basis for the population estimate was not referenced in "On the Prowl." In "How Many Birds Do Cats Kill," they cite their own work as the basis for the population estimate. The kill rate used here is uncited in "On the Prowl," but references two studies in villages, not cities, in "How Many Birds Do Cats Kill?" as the basis for using "twice kill rate by urban cats" in their "low estimate" formula. Again, we point out the problem of extrapolating small studies to large area projections. Further, if we factor in their oversight of not using a percentage of cats that kill in their low-estimate formula (using the low estimate of 36% in studies of the subject as cited earlier), the authors' low-end guesstimate should be lowered to 2.8 million birds killed by rural cats in Wisconsin. If we additionally use the more accurate low estimate of 3.7% of kills that are birds (encompassing all the studies on the subject as the basis for the low, intermediate and high estimates), this dramatically reduces the authors' low estimate of birds killed by rural cats in Wisconsin to just 522,000. We feel it important to note this is not how we would project these numbers – we are simply "correcting" the work of Coleman and Temple within their own methodology for guessing.*

The formula used for the "Intermediate value" estimate is: (mean population estimate) x (intermediate kill rate) x (higher percentage of kills that are birds) 1.7 million cats x 91 x 25% = 38.7 million birds killed by rural cats in Wisconsin.

*Note: Without disputing this kill rate, if we factor into this equation the number of cats that hunt, simply using the average of 51% for the intermediate guesstimate reduces the authors' intermediate guesstimate to 19.5 million birds killed by rural cats in Wisconsin. However, if we factor in the average of cat kills that are birds as outlined in bullet 2 above (15.0%), the new guesstimate using the authors' own methodology for calculating the intermediate value is reduced to 11.8 million birds.*

The formula used to calculate the "High value" estimate is: (highest population estimate) x (highest kill rate) x (highest percentage of kills that are birds) 2 million cats x 365 x 30% = 219 million birds killed by rural cats.

*Note: Again, without disputing the kill rate, if we factor into this equation the number of cats that*

*hunt, the authors' guesstimate is reduced to 142 million birds killed by rural cats in Wisconsin. Again factoring in the average of cat kills that are birds as outlined in bullet 2 above (27%), the new guesstimate consistent with the authors' methodology for calculating the high value is reduced to 128 million birds.*

Please note that in our theoretical revisions to these guesstimates of bird kills by free-ranging cats in rural Wisconsin as provided by Coleman and Temple we did not appear to dispute the estimate used for the number of kills per cat per year. This is not to say we do not take issue with the numbers used by the authors of this article. As presented by the authors in their work, these estimates appear to be arbitrary, despite being presented as if an actual estimate based on something. Simply referencing other studies does not change the fact that the cited studies may not be an appropriate basis on which to create these projections. These articles by Coleman and Temple were published – but not in scientific journals subject to a peer review process. Certainly some of the data was based on unpublished work, further reducing the credibility of their guesstimates.

In fact, in an article, “The Accused,” (*The Sonoma County Independent*, March 3-16, 1994), author Jeff Elliot quoted Dr. Temple. “Doctor Stanley Temple, co-author of this frequently quoted work, seemed exasperated when asked again to rehash his findings. ‘The media has had a field day with this since we started,’ he sighed. ‘Those figures were from our proposal. They aren’t actual data; that was just our projection to show how bad it might be.’”

So in the end, one of the authors of the infamous “Wisconsin Study” debunks these estimates published by pointing out that the numbers presented aren’t actual data. Yet wildlife conservation groups, in particular the Cats Indoors program of the American Bird Conservancy, continue to propagate the myth that there was a University of Wisconsin study that indicates that free-ranging cats may be killing 219 million birds in the state of Wisconsin alone. There was a University of Wisconsin Study – it was never published (and the numbers cited were projections based on the study, not the conclusions of the study). Critical analysis of the study and extensive research into the available literature on cat predation raises serious doubts as to validity of these findings. And so the question remains – why is this study used so frequently to support the idea that feral cats are decimating wildlife (especially bird) populations? Is it because it’s easier to accept what “experts” say when it supports your point of view than it is to critically evaluate the studies? When such numbers are used to support or deny programs and funding availability – or even eradication of living creatures – we feel it is **imperative** that they stand up to scientific scrutiny. In this case, the numbers published that were extrapolated from “The University of Wisconsin” study do support the conservation groups’ position with the strongest numbers, but the projections based on the study simply do not stand up under such scrutiny.

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Ref 1:

Australia- Native bird species-4%, Introduced species-24%  
(<http://www.animalsaustralia.org/default2.asp?idL1=1274&idL2=1311>).10.31.03

Pennsylvania – 15% (mammals and birds, not just birds alone)  
([www.geocities.com/meowerpower\\_99.geo/aboutferals/predation.htm](http://www.geocities.com/meowerpower_99.geo/aboutferals/predation.htm)). 10/31/03

From Berkeley-

1940 Oregon-18.9% birds

1941 Oklahoma-4%

1949 Michigan-about 1%

1951 California-25.2%

New Zealand-4.5%

Australia (Comant and Brunner)-5.2%

Berkeley, Ellen Perry. 2001. *Maverick Cats: Encounters with Feral Cats*. Revised and Updated. Shelburne, Vermont.: The New England Press.

Kutt- Australia-16%

Kutt, A. "Spatial patterns of distribution, abundance and diversity in the vertebrate fauna assemblages of the Desert Uplands bioregion, northern Queensland. ([http://savanna.ntu.edu.au/education/students/alex\\_kutt.html](http://savanna.ntu.edu.au/education/students/alex_kutt.html))  
10.31.03

The Mammal Society-Britain-25%

Woods, M., McDonald, R.A. and Harris, S. "Predation of wildlife by domestic cats in Great Britain." Written for the Mammal Society (<http://www.ingentaconnect.com/content/bsc/mam/2003/00000033/00000002/art00003>).  
10.31.03

Mesopredator study in Nature-27%

Crooks, K.R. and Soule, M.E. 1999. "Mesopredator release and avifaunal extinctions in a fragmented system." *Nature* 400:563-566.

Australia- 27%

[Barrat 1997, Barrat 1998 \(see Predation article for these citations\) as cited in](#) “Feral cat-bird interactions explored in new studies.” The Animal Policy Report Vol. 14, No. 1, March 2000, ed. Gary J. Patronek, VMD, Ph.D. ([http://www.tufts.edu/vet/cfa/14\(1\)nws.pdf](http://www.tufts.edu/vet/cfa/14(1)nws.pdf)) 1031/03

BM Fitzgerald- Average 21%

Fitzgerald, B.M. 1988. Diet of domestic cats and their impact on prey population. In *The domestic cat: The biology of its behavior*. eds. D.C. Turner and P. Bateson. Cambridge: Cambridge University Press.

Reark (Australia)-

Native-7%

Introduced-19%

Reark Research Pty. Ltd. 1994. “The Metropolitan Domestic Cat: A survey of the population characteristics and hunting behavior of the domestic cat in Australia.” Prepared for the Petcare Information & Advisory Service ([www.petnet.com.au/reark/reark.html](http://www.petnet.com.au/reark/reark.html)). 10.31.03

Mona Island-9%

Garcia, M.A., Diez, C.E. and Alvarez, A.O. 2001. “The Impact of Feral Cats on Mona Island Wildlife and Recommendations for their Control.” *Caribbean Journal of Science*. 37: 107-108.