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WILDLIFE DISEASE—A 15 YEAR MICROFICHE PUBLICATION EXPERIMENT—CONS, PROS, FUTURE?

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WILDLIFE DISEASE is alive and growing. Several color and black and white manuscripts have been accepted for publication in 1975. This will necessitate increasing the budget over that of previous years. At the 1974 Wildlife Disease Association (WDA) meeting, the Council recommended "Establishment of a committee to evaluate the wishes of the general membership regarding the retention of Wildlife Disease (our microfiche journal)." This review will provide background and, hopefully, provoke you to communicate your views to the Editor or any member of the Editorial Board, which constitutes the above mentioned committee (see inside cover this issue for names, and *J. Wildl. Dis.* 1973 Vol. 9 (4) for addresses). To help you make an evaluation of microfiche publication, a questionnaire and two issues of WILDLIFE DISEASE are enclosed with this issue of JOURNAL OF WILDLIFE DISEASES (the two journals will hereafter be abbreviated as WD and JWD, respectively). You may also wish to dust off your back issues of WD. Then locate a quality microfiche viewer in your library, ask the librarian to instruct you in its proper use, and give the microfiche a perusal. You will be surprised to realize that microfiche are not all that difficult to use, and that an important volume of information is contained in the 66 issues of WD.

Several questions need to be answered. How much do we use WD? Is the journal serving the needs of the membership or merely an academic exercise? How much does it cost to publish? What budget increase will be needed to finance the expanding publication load and inflationary costs? What are the advantages, disadvantages, and future of microform publication?

HISTORY

Dr. Carlton M. Herman began the experimental microform publication of WD in 1959 with a three year grant from the Council of Library Resources and National Science Foundation (administered by AIBS). This pioneer effort was begun at a time when most scientists thought a microfiche was a small fish (and many still do). The purpose was to publish longer articles (tabular material, bibliographies, monographs, surveys, etc.) that were too lengthy for publication in macroprint journals. According to the Council of Biology Editors, microform (microfiche, microfilm) constitutes a bona-fide format for the publication of original research data. An exception is the description of a new species which must appear in macroprint. After various trials of 3 x 4 inch opaque and transparent microcards, the standard 4 x 6 inch, 60 frame, negative image, 24X reduction, transparent microfiche was adopted in 1965 to follow the recommendation of the Council on Scientific and Technical Information (Cosati).⁹ To date, 66 issues and approximately 3800 pages have been published in WD covering various areas of the wildlife disease field. Most of these articles were too long to have been published elsewhere, and would have been lost to science. A case in point is the life work of A. C. Walton (deceased)-1964. The Parasites of Amphibia. *Wildl. Dis.* 39 and 40: 434 pp.

The first 57 issues of WD were published in black and white at irregular intervals. Dr. Herman retired as editor in 1972 after releasing the first primary publication of original research data using color microfiche (Karstad, L. 1972. Color Atlas of Wildlife Pathology 1. Amyloidosis in Wild Waterfowl. *Wildl.*

Dis. 58: 52 p., 37 figs.) The second color edition was produced in 1974 (Presidente, et al. Pathologic Features of Experimental Infection in White-Tailed Deer, No. 63: 59 p., 32 figs.), and two others have been accepted for publication in 1975 (Proctor, et al. Duck Plague in Free-Flying Waterfowl; and Greiner and Bennett, Pictorial Guide to Avian Malaria 1.). One black and white manuscript is scheduled for publication in 1975. Four additional color manuscripts and one black and white manuscript are in preparation (Table 2). Instructions to authors are found in this issue of JWD.

FINANCES

Each member of WDA receives both the Journal of Wildlife Diseases (JWD) and Wildlife Disease (WD). Additional reprints can be purchased by the author

at \$0.25 for each black and white fiche and \$1.00 for each color fiche; the cost to others is \$0.50 and \$2.00, respectively. Because of inflation, I am requesting that reprint charges should be increased as follows: to authors—\$0.40 for black and white and \$1.25 for color; to others—\$0.65 and \$2.25, respectively. This modest increase of \$0.15 and \$0.25 is the first to be recommended in about 10 years and should help to offset costs without overpricing reprints.

Production Costs

Costs for a mailing list of 1400 members and subscribers (plus 300 surplus reprints stored at Ames) are given in Table 1. The production costs for the 1974 calendar year of JWD are included for comparison. Reprint expenses and sales are not included because of difficulties in making comparisons.

TABLE 1. Production Costs of Wildlife Disease and Journal of Wildlife Diseases.

Expense Category	JWD—Macroprint Black & White Calendar Year 1974	WD—Microprint Black & White Issues 59, 60, 61 & 62—1973	WD—Microprint Color Issue 63 1974
Printing	\$12,825	\$895	\$1,199
Mailing, Postage, Envelopes	1,522	318	200
Editorial Expenses	1,568	315	109
Total Costs (A)	\$15,915*	\$1,528*	\$1,508*
Total Pages (B) Published	492	307	59
Cost Per Page A/B	\$32.34	\$4.97	\$25.60
Cost Per Fiche	—	\$4.97 x 60 = \$300*	\$25.60 x 60 = \$1,536*

*all figures rounded to nearest dollar

As shown in Table 1, macroprint is 6 times more expensive to produce than microfiche. The estimated production costs for one black and white fiche is \$300 and one color fiche is \$1,536. Color fiche at \$25.60 per page is lower in cost than black and white macroprint

(\$32.34 per page), but considerably cheaper than the estimated \$500 average cost of one macroprint color page. Beginning with issue No. 64, postage will be saved by mailing WD in the same envelope with JWD at no extra cost. With approval of Council, authors are

now being asked to help finance their color publications, if they have grant funds, and pledges totalling \$1,950 have been given. It is anticipated that future reprint sales may help to provide revenue. This is particularly true for certain issues that should stimulate wider than usual reader interest, for example, Grei-

ner and Bennett, Pictorial Guides to the Avian Haematozoa 1. *Haemoproteus*, *Leukocytozoon*, and *Trypanosoma* (in press) and 2. *Plasmodium* (in review). To encourage reprint sales, color editions of WD are being announced in appropriate scientific journals.

TABLE 2. Current and Projected Budget Needs for Wildlife Disease, 1974-76.

Expense Category	Estimated Expenses
A. Funds Budgeted, July 1974 to July 1975	\$3,650 A
B. Publication Costs, 1974 to 1975	
Published Papers	
Presidente, et al., No. 63, 1 c. f.*	1,536
McDonald, No. 64; McCraren et al., No. 65, two papers, 1 b. & w. f.**	300
Greiner and Bennett, No. 66, 1 c. f.* (in press, April 1975)	1,536
Total	\$3,372 B
Balance (A-B)	278
C. Additional Publications Scheduled for 1975	
Proctor, et al., Duck Plague in Waterfowl, 1 c. f.*	1,536
Greiner and Bennett, Avian Haematozoa, 1 c. f.*	1,536
Stromberg and Crites, <i>Camallanus</i> in fish, 1 b. & w. f.**	300
Mace, Bibliography of <i>Diectophyma</i> , 1 b. & w. f.**	300
Total	\$3,672
Balance	278
Funds Needed	\$3,394 C
D. Pledged Contributions by Authors (\$300, \$750 and \$900)	\$1,950 D
E. Total Additional Funds, Needed, 1975 (C-D)	\$1,444
F. Estimated Costs for Future Publications in Preparation, 1975-1976	
Cosgrove, Atlas of Diseases of Small Mammals, 2 c. f.*	\$3,072
Herman, et al., Malaria in Birds, 1 c. f.*	\$1,536
Presidente, et al., Experimental <i>Fascioloides</i> in Deer, 1 c. f.*	1,536
Huizinga and Budd, Parasitic Diseases of the Yellow Perch, 1 c. f.*	1,536
Geraci, Bibliography of Marine Mammal Diseases, 2 b. & w. f.**	600
Total	\$8,280

*1 c. f. = one color fiche

**1 b. & w. f. = one black and white fiche

As shown in Table 2, an additional sum of \$1,444 is being requested to complete publications accepted for 1975. At the current level of charge, the sale of reprints provides a small income; not included here for lack of complete information. It is difficult to anticipate future expenses because of variable numbers of manuscripts received. Publications in preparation are shown in Table 2-F. Based on past history, it can be expected that 2 to 4 additional black and white manuscripts will be received in 1975-76. This would raise the budget estimate to a minimum of \$8,880 and maximum of \$9,480. Since these manuscripts will probably be published over a two year period, and adding \$520 for inflation, a projected budget of \$10,000 for two years or \$5,000 each year is requested. This is an increase of \$1,350 over the fiscal 1974 budget. This estimate could be reduced somewhat if authors are encouraged to pledge publication support from grant funds, and if reprint sales are successful.

CONS

The main disadvantage of microfiche publication is "reader resistance" expressed by persons inexperienced with the reduced format and use of microfiche viewers. When told about the latest issue of WD, a reply by some members has been "Interesting, but who reads it?" Admittedly, microform requires extra effort to read, and is particularly difficult for a person who is untrained in the use of a microfiche viewer (reader), or has none at his immediate disposal. Often microfiche collections are relegated to a dark corner of the library, provided with inferior quality viewers, and lacking in trained personnel to assist the reader. Most scientists come from a generation that did not use microform in their educational experience. However, younger generations are using microform in the classroom and in audio-tutorial programs at universities. Since there are only three contemporary microfiche journals that publish original research data exclusively in microform

(Wildl. Dis., Amer. Chem. Soc. J., and Amer. J. Computational Linguistics), most research laboratories do not possess a microfiche viewer.⁶ Without a viewer, the interested reader may resort to using a dissecting microscope, a discouraging substitute for a quality, large screen viewer. We do not have accurate information as to how often WD is used, but it has been suggested that most members probably file the microfiche without reading them.

The argument that WD is not actively read is probably true, but can be criticized. Material published in WD is highly specialized and is mainly used by those involved in a special research area. It is not the kind of material that you relax with in the evening, as you might with a copy of JWD. It is of interest to realize that according to Gabriel⁸ "50 percent or more of titles in any large periodical collection are used less often than once a year, and as much as 80 to 90 percent of all use is concentrated in a very small portion (less than 25 percent) of the total periodical list". Librarians, plagued with spiraling costs and space problems, are pushing hard for simultaneous publication of microform and macroprint, to allow the purchase of microfiche copies of infrequently used journals.⁹

The microfiche format tends to "turn off" some potential writers who apparently feel that their ego involvement is being reduced along with the microprint. The overall trade-off is: reduced costs and space saving vs. overcoming resistance to using the microform medium.

PROS

The main arguments in favor of microfiche publication are the storage of large amounts of data in a small space and substantial savings on production, mailing and replacement costs. These points will be amplified in the following discussion.

More than 10,000 page-images can be stored on microfiche in a space 4 X 6 inches. The same number of JWD macroprint pages would occupy 10 inches of shelf space. Since microform uses a pho-

tographic reduction process and no printing is involved, production costs are shown to be about 1/6th that of macroprint (Table 1). Others report savings of up to 12 times (using 90 frames), although cost comparisons with macroprint are not given.^{1,3,6} Six microfiche containing 360 images can be air mailed within the United States for about 20 cents. If printed on paper, the same pages would cost about \$4.00 to air mail.¹ If lost or stolen from a library, a 60 page fiche can be replaced for about \$0.75-\$1.00, which is considerably less costly than replacing back issues of macroprint journals.

The dual publication of longer articles in micro and macroform (also called the synopsis journal) is being used by the American Chemical Society.^{5,6} In this system, an informative 1 to 2 page synopsis is given in the macroprint journal, and the entire paper with extensive graphs, tables, etc. is reproduced on microfiche. The reader can either purchase the fiche, or arrange to have pertinent microfiche material photocopied on paper (hard-copy) by a central clearing house. If data are placed on I.B.M.-sized microfiche, this system offers the advantage of computer-assisted filing and retrieval (computer-output-microfiche).⁶

The savings with color microfiche are substantial when the per page charge of \$25.60 for microfiche is compared with the average charge of about \$500 per page of color macroprint. The color microfiche enables production of the color atlas of histopathology, and pictorial keys for the identifications of microorganisms, serological reactions, etc.

Duplication of color microfiche is less expensive than 35 mm color slides. For example, the cost for 50 copies of a fiche containing 59 color images is about one tenth the cost of 2,950 duplicate color slides (at \$0.25 each). The low cost enables the production of "in house" study fiche for use in audio-tutorial teaching.⁴ It would also be possible for WDA members to share their "favorite disease" 35 mm slides by combining the best into an "in house" microfiche. The fiche could be sold on a limited, non-

profit basis to interested members, but not distributed to the entire membership. Members interested in this idea may obtain information from Eastman Kodak Co.¹

Several portable, desk-top viewers (the so-called "cuddlies") are now available for under \$100: Kodak "Ektalite", Bell & Howe "Briefcase", Office of Education "DSAA", Taylor-Merchant "300", and Washington Industries "Informant". The latter two models can be used to project color microfiche on a screen for lecture presentation. A vast array of higher priced viewers are available; some with photocopy capability.² Other inexpensive hand viewers in the \$25 range are being designed for release in the near future.⁶ The technology is available and in use by industry, business and education; however, scientists have been slow to realize the potentials of microfiche publication.

FUTURE

Judging from the increasing numbers of manuscripts scheduled for publication or in preparation, it appears that WILDLIFE DISEASE is serving the needs of the WDA membership. Inflation is driving up publication costs and budget increases will be needed to publish a backlog of manuscripts.

WD was begun in 1959 when micropublishing was relatively unknown. Now that micropublishing is being widely used, WD is in an excellent position to continue leadership. Several recent requests from editors and information services concerning the publication history of WD indicate that other societies are exploring microfiche publication. This prompted me to review the WD microfiche experiment.

I propose that we explore the dual or synopsis publication of longer articles in WD and JWD (see Pros above).⁶ Certain longer papers containing extensive tabular or graphical information would be best suited to this method. A 1 or 2 page synopsis would be printed in JWD with reference to the entire paper on microfiche. Only one title would be

used and the article would be clearly cross-referenced in both journals. Most readers would be content with the synopsis. However, those interested in the complete paper could purchase the microfiche (at cost) from a central clearing house. Although expensive hardcopies could be made from the microfiche at the clearing house with a viewer-copier. Synopsis publication may sound futuristic today, but will it be in 10 years when our shelves are jammed to capacity?

Microfiche is currently not an approved format for publication of new species descriptions. Another problem is that scientists in many parts of the world may not have access to microfiche viewers. Dr. Roy C. Anderson, a member of the WDA Editorial Board, has suggested a solution to these two problems. When the original microfiche article is published in WD, the author (but not the membership) be given the optional opportunity to purchase macroprint copies of his article. These paper reprints could be made using a viewer-copier, but the technical details of cost and production are not available at this writing. The author could then send macroprint copies of his paper to specialists in his area. This may satisfy the requirement of the International Commission on Zoological

Nomenclature that descriptions of new species must appear in macroprint and be widely distributed. In addition, Dr. Anderson made the futuristic suggestion that WD could be used to publish a series of short articles (in the JWD format) and perhaps eventually replace JWD as the main journal. I shall add here that librarians would like to see this happen now, not in 10 years.

We need to know your positive and negative reactions to this article. Please respond with the enclosed questionnaire. With the support of the WDA Membership and Council, I am willing to continue editing and developing WD. However, if there is no support, then I shall abide by that decision.

In this time of increasing expenses and shrinking funds, we need to carefully evaluate the potentials of micropublishing; rather than dwelling on the minor inconvenience of "reader resistance". As we examine the history of WILDLIFE DISEASE at the 15th year, we stop as travellers pondering a choice of direction at a triple intersection: the left leads to a dead end, the middle down the well-travelled road, and the right towards new horizons of usefulness of the microform medium. The future direction of WILDLIFE DISEASE is in the hands of the membership.

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