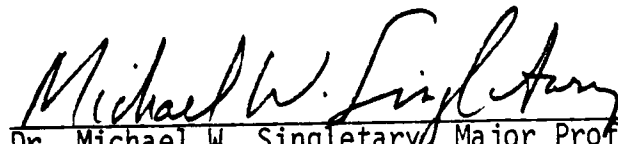


To the Graduate Council:

I am submitting herewith a thesis written by Lucia Dianne Andrews entitled "Accuracy in Natural Resource Management Articles: A Mail Survey." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Communications.

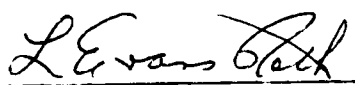

Dr. Michael W. Singletary, Major Professor

We have read this thesis
and recommend its acceptance:





Accepted for the Council:


Vice Chancellor
Graduate Studies and Research

ACCURACY IN NATURAL RESOURCE MANAGEMENT

ARTICLES: A MAIL SURVEY

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Lucia Dianne Andrews

June 1983

1 180028

For Edward R. Buckner, who helped
to slay a few of the dragons.

ACKNOWLEDGMENTS

The author is grateful to Dr. Michael W. Singletary, associate professor, College of Communications, for his counsel and encouragement throughout the stages of this work; to Dr. Paul G. Ashdown, associate professor, School of Journalism, for his enthusiasm; to Dr. Edward R. Buckner, professor, Forestry, Wildlife and Fisheries, for his patience; to Miss Margaret Cook, the Communications graduate student's best friend, for her assistance in typing and meeting deadlines; and to my parents for their confidence.

ABSTRACT

The purpose of this study was to determine accuracy rates of newspaper articles about natural resource management, to pinpoint sources of errors, determine types of errors, and ways to prevent those errors from occurring in natural resource management stories.

A sample of 118 news stories about natural resource management from five Tennessee daily newspapers was examined for accuracy by the persons quoted in the story. News sources were mailed a questionnaire, a photocopy of the story, and a postage-paid return envelope. The response rate was 64.5%.

It was found that 44.0% of newspaper articles about natural resource management contain inaccuracies. Of errors reported, 53.9% of the errors were subjective (involving judgment) and 44.9% of the errors were objective ("mechanical"). The types of errors made in natural resource management reporting were found in approximately the same numbers as those in general news reporting. The most frequent errors were said to be errors of fact, omission, and misquotation.

Fewer than half (40.3%) of the respondents said that the errors which occurred in natural resource management stories were, to some degree, serious.

The press release and the face-to-face interview were cited as ways to increase accuracy of newspaper articles about natural resource management. Journalists who cover natural resource management stories should gain experience and/or expertise in natural

resource management. Natural resource managers should learn news values and the news-gathering process.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION AND JUSTIFICATION.	1
II. REVIEW OF THE LITERATURE.	6
Articles on General News Stories.	6
Articles on Science-Related Stories	9
Articles on the Psychological Approach to Accuracy. . . .	13
III. METHODS	16
IV. RESULTS AND DISCUSSION.	23
V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.	45
Recommendations	53
BIBLIOGRAPHY.	55
APPENDICES.	59
APPENDIX A.	60
APPENDIX B.	72
APPENDIX C.	77
APPENDIX D.	80
VITA.	82

LIST OF TABLES

TABLE	PAGE
1. Educational Background of Respondents	24
2. News Source Perceptions of Newspaper Coverage of Natural Resource Management	26
3. Errors Ranked by Frequency of Occurrence.	28
4. Method Reporter Used in Obtaining News Stories.	36
5. Number of Pre-Publication Contacts Initiated by Reporter ("How Many Times did the Reporter Contact You Prior to Story's Publication?").	38
6. Number of Contacts Initiated by News Source ("How Many Times did You Contact the Reporter?")	40
7. Percentage of News Sources Who Read Story Before Publication ("Did You Read the Attached Story Before Publication?") . .	41

CHAPTER I

INTRODUCTION AND JUSTIFICATION

Much has been written about the presence of noise in the communication process. Noise has been defined as "interference of any kind, physical or psychological, along the channel" (Witt, 1973, p. 60). One source of noise is that of the inaccuracy of a news story or parts of that story. While it would seem that several inaccuracies appearing in a news article would cause a breakdown in the message sent by a source to a receiver, many studies have shown that this does not affect reader comprehension. One study showed that news copy had to be "extremely deviant" before the errors made a significant difference to message recall and believability of the story (Singletary, 1980, p. 6).

Natural resource managers frequently think that newspaper coverage of natural resource management issues is not only "extremely deviant," but very harmful to their profession. Natural resource managers are caretakers of our forests, wildlife, water, minerals, and land. They make decisions based on the information they can obtain about a particular resource and then carry out that decision based on the wants and needs of the people concerned. Natural resource management issues are the subject of numerous newspaper articles.

Natural resource managers complain about being misquoted, of having a complicated issue reduced to a cut and dry "why don't they

get on with it" criticism, or of having a newspaper article be factually inaccurate. George Cheek, a former executive vice president with the American Forest Institute, once wrote:

In a fairly hot argument with an editorial writer for the Washington Evening Star, the subject of "climax forests" kept recurring. It finally occurred to me that the editor was using the adjective to mean superlative, extraordinary--the epitome of beauty and health.

Fortunately, we were face to face. I hadn't used the words in a letter (Cheek, 1976, p. 16).

Natural resource managers feel very strongly about accuracy in newspaper reporting because they must rely on newspapers to communicate with the public. It is frequently crucial that the reporting of natural resource management stories be accurate. Natural resource managers commonly seek public involvement in their decision-making process. This must come from a public informed about technical data and other background fundamentals of issues. If the public input is based on incorrect or misleading information, then the manager may have to choose the least effective course of action. As Charles Connaughton, former vice president of resources with the Western Wood Products Association, aptly put it: "Foresters must be closely allied with informed public opinion. Properly directed this opinion will be a tremendous force, but if ignored or misdirected public opinion can be very disruptive and easily set the cause of sound forest practice back seriously" (Connaughton, 1973, p. 42).

Informing the public of the technical data is often the most critical aspect in the reporting of natural resource management news. This often poses problems in that the "technical jargon must be reduced accurately to lay terms" (Singletary, 1980, p. 2). Few

newspaper readers are going to understand words and phrases such as multiple use, sustained yield, silviculture, microenvironment, watershed, strip-mining, or rotation. Interpreting the natural resource terminology for newspaper readers is not easy. The reporter must find words that are understandable to the lay-person while satisfying the natural resource manager. As a result, the reporter will often make mistakes. These mistakes are blamed for an inaccurately informed public with whom the natural resource managers--not the reporter--has to deal.

Most newspaper readers place a great deal of confidence in newspaper articles. They also tend to believe what they read and most people manufacture their view of the world largely from raw material supplied by the mass media (Neal & Brown, 1976). These readers often think that "the article must be true or it would not have been printed." If inaccurate information appears in print, it can damage an individual, an organization, or the natural resource management profession. Concerned citizens often make what they think are informed decisions about natural resource management issues based on inaccurate newspaper reporting. This "view of the world" is all-important to the natural resource manager who is trying to operate in the best interest of society.

During the late sixties and early seventies, "Insecticides, population growth, water pollution, and myriad other complex, highly technical issues came to the forefront of public scrutiny" (Fazio & Gilbert, 1981, p. 19). The public insisted on playing a greater part in the decision-making process which affected the environment.

Natural resource managers turned to the mass media to educate and inform the public on natural resource issues. And a 1981 study found that the newspaper was rated highest of all media in importance by natural resource I and E personnel (Fazio & Gilbert, 1981, p. 174). While recognizing the importance of newspapers, natural resource managers also recognize that "inaccuracy and overmagnification are dangerous because people tend to act on the basis of their information" (Neal & Brown, 1976, p. 10). This becomes especially important because "in the long run the policy direction, scope and success of a natural resource management program is pretty well determined by public opinion" (Connaughton, 1973, p. 41).

Because of the ecological, economic and political complexity of many natural resource management stories, error rates will likely be higher than for news stories of other less-complex subjects. Previous studies of accuracy have shown newspaper stories to be 40% to 60% accurate (Tillinghast, 1982). This author hypothesizes that newspaper articles about natural resource management news will have less than a 50% accuracy rate. More stories will be inaccurate than accurate. The low accuracy rate is hypothesized because of the technical jargon of the natural resource profession, the lack of reporters with training in natural resource management issues, and the lack of natural resource managers with training in journalism.

This study uses Marshall's definition of accuracy. Accuracy is defined as "a situation in which the respondent news source

makes no statement to the effect that the story is in some part inaccurate" (Marshall, 1977, p. 165).

The purpose of this study will be to determine accuracy rates for newspaper articles about natural resource management, to pinpoint sources of errors, determine types of errors, and ways to prevent those errors from occurring in natural resources management stories. Are the natural resource managers' allegations of a high incidence of inaccurate reporting true? If newspaper articles about natural resource management are indeed inaccurate, who is at fault--the natural resource managers or the reporters? What kind of "noise" is occurring in the communication process--factual errors, sensationalism, or biased reporting? An understanding of where the "noise" or breakdown occurs in the communication process should help professionals in both natural resource management and journalism better serve their respective publics.

Despite the findings of numerous researchers, accuracy rates have not been improved. Previous studies of accuracy have not reduced inaccuracies. The news source still does not know the most accurate way to communicate a story to a reporter. Many natural resource managers, fearing misquotation, refuse to talk to reporters (Fazio & Gilbert, 1981). Perhaps this investigation of one profession dependent on newspapers for information dissemination will produce usable results for those professionals. This researcher hopes to improve accuracy rates in newspaper articles about natural resource management.

CHAPTER II

REVIEW OF THE LITERATURE

Articles on General News Stories

Researchers have found approximately half of all general news stories to have one or more errors. Charnley (1936), in the first accuracy study, found that 54% of objective news stories from three Minneapolis dailies were accurate. Charnley developed the technique for determining the degree of error in factual reporting and establishing kinds of errors made, their frequency and their source. He designed a questionnaire with classifications of possible errors, and with blanks under each heading in which the errors might be described. The questionnaire was sent to news sources quoted in stories randomly selected from three Minneapolis daily newspapers. The story to be checked was attached to the questionnaire. The news source was also asked to name the "source from which the writer of the story obtained his information" (Charnley, 1936, p. 396).

The questionnaires were mailed to 1,000 news sources; the response rate was approximately 60%. Charnley concluded that "perhaps more than half of the simple factual news stories appearing in daily papers are completely free from error; and that errors occurring most frequently are those in meaning, in names and in titles" (Charnley, 1936, p. 400).

Numerous researchers have replicated Charnley's study and obtained similar results. Brown (1965) found that 59.5% of news

stories in 42 Oklahoma weeklies were accurate. Berry (1967) found that 46.3% of news stories in three California newspapers were accurate. Berry categorized errors as "objective" (names, ages, dates, etc.) or "subjective" (omission of fact, faulty headlines) and found that "objective" errors were more frequent in spot news stories than in anticipated stories.

Blankenburg (1967-1968) found 40.1% of stories accurate in a rural and suburban daily newspaper. And Marshall (1977) examined two daily Tucson newspapers and found 46.7% of the Tucson newspaper stories accurate.

Lawrence and Grey (1969) expanded the technique by conducting personal interviews on accuracy with reporters and news sources. The researchers sent 140 questionnaires to persons mentioned in 100 local news stories that appeared in the Redwood City Tribune. They later interviewed 19 news sources and the 12 reporters who wrote the stories. "A significant finding in this exploratory study was the fact that both news sources and reporters cited insufficient background information (on the part of the reporter) as the main cause of many subjective inaccuracies which had appeared" (p. 755). The other major cause of subjective error was news desk and editing practices and policies. Newsmakers felt that reporters depended on "sensationalism," overemphasis in phrasing, and lack of personal contact. Reporters, on the other hand, stressed their time constraints.

In a similar study, Tillinghast (1982) examined news accuracy perceptions of news sources, reporters, and editors on the amount of

error, its causes and the conditions that create it. He had editors evaluate news stories in terms of deadline pressures and then mailed news articles and questionnaires to news sources. The returned articles were then evaluated by the reporters who wrote the stories. The questionnaires revealed that 47% of the 270 locally produced news articles contained errors. Reporters disputed 78% of the error claims, but Tillinghast reports that "overall error is probably higher than reporters will, or can, admit" (1982, p. 22).

In 1968, Scanlon used an interview technique to determine the accuracy of 200 stories from two Ottawa dailies. The news stories were covered again and then judgments were made as to their accuracy. His findings suggest that the accuracy rate is highest by reproducing press releases and by restraining reporters from getting involved in the story. Social page stories were 90% accurate and sports stories were 77.3% accurate. Scanlon asserts that this high rate of accuracy is attributed to the level of knowledge of the reporter in the area covered. "It may be possible to reduce errors by developing specialized reporters who understand the significance of the subject they write about" (1972, p. 590).

Ross in a 1959 study said that the problem of accurate reporting was a result of the "standard news story formula" (p. 335). He stated that "the way to more accurate and adequate journalism is the use of greater variety in presentation" (p. 336).

Ryan and Owen (1977) investigated eight major metropolitan dailies' coverage of nine social issues: health, housing, education,

crime-law, poverty-welfare, ecology, mass transportation, racism-sexism and drug abuse. Questionnaires, cover letters, articles and return envelopes were sent to 247 news sources. The response rate was 80.6%. The study determined that "the mean number of errors reported per story in this study was 3.88" (p. 32). The researchers deduced that "the high mean number of perceived errors per story indicates that news of social issues (like science news) is more complex and, perhaps, more difficult to cover" (p. 32).

Articles on Science-Related Stories

Stories concerning the complex area of science reporting have been repeatedly used in accuracy studies. Cole in a 1975 study entitled "Trends in Science and Conflict Coverage" concluded that science writers write more accurate science-related stories than reporters not familiar with science. "It would seem probable that a science-related conflict might be more correctly perceived by the science writer and reported accurately, fairly and understandably to the public" (p. 471).

Ryan (1975) examined scientists' patterns of response to 42 kinds of errors in science articles. "Questionnaires and science news clippings were mailed to 242 scientists cited in the articles as major sources" (p. 333). A response rate of 79.8% was obtained. Ryan hypothesized that two types of perceived errors, "objective" and "subjective," would emerge from an R factor analysis. The results of his analysis "lend support to Berry's two category view of perceived errors in that all interpretable 'objective' errors,

except one, clustered into Factor 3 (spelling, typographical), and all interpretable 'subjective' errors clustered into Factors 1 and 2 (overemphasis, overstatement, exaggeration and understatement, underemphasis) (p. 336).

In a 1953 study, Tarleton investigated the reporting of science news and reader comprehension. He used the Flesch formula to determine reading ease of 40 newspaper stories. Four of the 40 stories tested were found to have inaccuracies. The errors were classified as ambiguous statements, misinterpretation of results, factual, and incorrect use of terminology. Three of the four inaccurate stories were said to be in a "difficult Flesch range" (p. 71). The fourth story was classed as "very difficult." Tarleton concluded that reporters "are doing a good job of science writing insofar as accuracy is concerned" (p. 71).

Johnson (1963) found that editors used different dimensions of judgment in judging science news stories than scientists or readers. The scientist, science writer, and reader were found to use the same dimensions of judgment in judging science news stories.

Tichenor, Olien, Harrison and Donohue (1967-1968) studied the extent to which certain specified characteristics of the source and channel subsystems are associated with the accuracy of science news reporting. Seventy-three science news articles were selected from 14 midwestern metropolitan daily newspapers, each with a circulation over 100,000. In a field survey, each article was presented to 15-

20 respondents. Each respondent reviewed two articles. Separate statements of content were obtained by the respondents. After this procedure was completed, the scientist source judged the audience statements according to their accuracy. Interviews with the news sources and reporters were then conducted. "Nearly two-thirds of the audience recall of the average article in the study was generally acceptable to the scientist quoted" (p. 676). This proportion of acceptability was used as a measure of communication accuracy.

The interviews revealed that while scientists criticized science reporting in general they were satisfied with the articles which quoted them. The greatest perceived problem was over-emphasis of the unusual. Second was omission of relevant information which was closely followed by misleading headlines. The researchers provided support for Lawrence and Grey's (1969) finding that objective inaccuracies appear to be of the most concern to scientists. The results of the study indicated that "communication accuracy was higher for articles assigned by editors than for articles originating with public meetings" (Tichenor et al., 1970, p. 683). Articles written from press releases were cited as above average on communication accuracy. And "among scientist variables examined, the strongest correlates of communication accuracy were administrative role performance, perception of strict organizational policy for research reporting and perception of accuracy in newspaper reports" (Tichenor et al., 1970, p. 683).

In a different approach to science reporting, Tankard and Ryan (1974) set out to "provide evidence on the kinds of errors frequently committed in science news reporting" (p. 219). The authors' intent was to "probe more deeply into the scientists' reactions to stories about their work than it is possible to do with a single question on the general accuracy of a news report" (p. 220). They measured the general attitudes toward science reporting of a sample of scientists whose work had been described in the press. Tankard and Ryan also explored nine variables (such as science content category, origin of report, circulation of newspaper, etc.) thought to have an effect on the perceived accuracy of science news reporting. Twenty newspapers with 50,000 circulation east of the Mississippi were used. Science articles were clipped over a three-month period. The clippings along with a four-page questionnaire were sent to each news source. "The respondent was asked to check which, if any, of 42 kinds of errors occurred in the story quoting him, and indicate the number of times each error occurred (p. 221). The response rate was 84.3%.

The sources reported the mean number of errors as 6.22 per story. Eighty-two percent of the scientists thought that the headlines on science stories were misleading, while 77% felt that news stories frequently omitted information critical to understanding. The data showed that "a substantial majority of the scientists agreed that newspaper coverage of science news is important for the scientist and the public" (p. 225). It was also shown that a majority of the scientists indicated criticism of newspaper handling

of science news. Only one of the nine variables tested--whether or not the scientist read the story before publication--proved significant. Only 8.8% of the science articles tested were described as error free. The authors concluded that the "greater number of errors reported for science articles (6.22) may be due to the greater difficulty and complexity of science news" (p. 334).

In 1976, Pulford attempted to replicate Tankard and Ryan's study using a sample of 166 science articles from nine major daily newspapers in Texas. The main source cited in the story was sent a three-page questionnaire, a photocopy of the article and a postage-paid return envelope. An average of 2.16 errors per story was reported. Misleading headlines accounted for 32.2% of the errors; misstatements of fact for 28.0% of the errors; relevant information about inferences drawn omitted for 24.5% of the errors; investigator misquoted for 24.5% of the errors. Pulford concluded that "reporting and editing performance on science topics seems to be weakest in headline writing" and that "a large portion of the errors which occur seems to deal with omissions of information from stories" (p. 121).

Articles on the Psychological Approach to Accuracy

Several communication researchers have used a psychological approach in examining the communication process and accuracy.

Greenberg and Tannenbaum (1962) investigated the effects of cognitive stress on the communication process. Cognitive stress was defined as threats to the beliefs, perceptions, and attitudes

of an individual. One group of subjects was exposed to a threatening attack of a strongly-held belief, another group received a supportive treatment, and a third group received no treatment. Following the treatment, each subject was asked to write a message dealing with the topic under consideration. "The stress-induced subjects not only require more time in which to complete a task, but also produce their messages at a slower pace than in the absence of stress" (p. 173). The stress-induced subjects also made significantly more errors. The supportive treatment was found to "increase facility of communication" (p. 173). The authors concluded that cognitive stress reduced communication efficiency.

In a similar study, Bettinghaus and Preston (1964) conducted an experiment "based on the assumption that individuals will experience cognitive inconsistency when asked to compose and write a statement contrary to a previously held belief" (p. 399). The results indicated that "an individual under cognitive stress might be less accurate" (p. 402).

In 1963, Wales, Rarick, and Davis conducted an experiment in which "students read some copy and were immediately given a multiple-choice recall test" (p. 342). The results indicated that "significantly more students committed error in the direction of exaggeration than committed error in the direction of minimization" (p. 342).

Mertz, Miller, and Ballance (1966) examined the influence of closed mindedness on the receiver. Closed minded individuals were said to be highly resistant to change, whereas open minded individuals

were more susceptible to change. That is, open or closed mindedness affects the encoding process and message recall. The authors concluded that the results of this study suggest that accuracy is affected by the personality characteristics of the receiver.

Other investigations into the psychological sources of inaccuracy have included Kernan and Heiman's 1972 experimental study of the role of neurosis in information. They concluded that the neurotic personality type was likely to distort information. Madden (1971) studied the relationship between authoritarianism and editorial decision-making. He found that high and low authoritarians differed in news judgment. Madden concluded that an editor's judgments can be influenced by his/her personality. And, in 1959, Pool and Shulman studied reporters' fantasies toward their audience as a predictor of accuracy in their news stories. Pool and Shulman showed that the accuracy of writing is low for both good news and bad news when the news is not in agreement with the tone of the reporter's fantasies. They stated that a reporter with unusually supportive audience images may have great need for support from reference persons and that persons with critical imagery may engage in a mental debate with opponents.

CHAPTER III

METHODS

The Charnley method was used to test the accuracy of newspaper articles about natural resource management in five Tennessee dailies--the Chattanooga Times, the Knoxville News-Sentinel, the Knoxville Journal, the Nashville Tennessean, and the Nashville Banner. These newspapers were selected because of location--they were all within a three-hour drive of The University of Tennessee, Knoxville. In addition each newspaper was willing to make news clipping files available to the author.

Natural resource management articles were defined as those with a major focus on water, fisheries, forests, wildlife, forest recreation, or land management.

The author visited the morgue of each of the five newspapers used for the study and obtained photocopies of news stories about natural resource management (see Appendix A for examples) published between February 1 and December 31, 1982. Articles were not obtained if they had been published before February 1982 because it was thought that news sources would not remember facts about certain stories beyond a year. Articles were catalogued in the morgues under headings such as trees, water, pollution, land, Tennessee Valley Authority, environment, soil, state parks, national parks, and land management.

The newspaper morgues had on file 120 natural resource management news articles, each of which quoted at least one news source. A photocopy of each article was obtained. If a news story appeared in more than one newspaper all stories were included in the sample. This was done because, while the stories were basically the same, each had a different headline and had been edited by a different news staff.

The total number of different sources mentioned in the 120 news stories was 127. Many news sources were in more than one news story, four prominent news sources were quoted in six or more news articles. Thus, some sources received more than one questionnaire. Several news stories quoted more than one source.

City directories, telephone directories, the Tennessee Valley Authority office of information, and the Tennessee Blue Book were used to obtain mailing addresses for the news sources. Mailing addresses could not be determined for seven of the news sources, thus seven articles and news sources were deleted from the sample and the total number of articles used for the study was 113. The number of news sources quoted in the articles was 120.

A three-page questionnaire was developed which would gauge the accuracy of each story. The questionnaire was pretested using 34 University of Tennessee students enrolled in a forest policy class. These students were chosen for the pretest because of a familiarity with natural resource issues and because the students represented several disciplines within the natural resource management field--wildlife management, fisheries science, forest

recreation, and forest resource management. A news story about natural resource management was attached to the questionnaire and distributed to each student. The pretest indicated that the questionnaire should be expanded to allow for more space for open-ended responses. The revised questionnaire consisted of two 8-1/2 x 14 inch sheets of paper with questions printed front and back (four sides) (see Appendix B).

The questionnaire was divided into five sections. Part One contained four statements concerning newspaper coverage of natural resource management. Respondents were asked to indicate the degree to which he or she agreed with each statement. The four statements were: (1) "Newspaper coverage of natural resource management news is important for the public." (2) "News about natural resource management is generally accurate." (3) "Headlines of natural resource management stories often are misleading." (4) "Crucial information is often omitted from news of natural resource management."

Part Two addressed the accuracy of the article which was attached to the questionnaire. The respondent was asked "Are there errors in the attached story?" If the answer was no, the respondent was directed to skip to Part Three. If an inaccuracy was indicated, the respondent was asked to indicate the type of error made, the number of times it was made, and to give a brief description of the error. The questionnaire listed 19 types of errors which could occur in a news article. The final question in Part Two asked the respondent to rate the seriousness of the inaccuracies.

In Part Three, the respondent was asked to refer to the attached article before answering the questions. Question 1 asked the respondent, "Would you describe the attached story as: entirely accurate, generally accurate, somewhat inaccurate, largely inaccurate, entirely inaccurate.

Question 2 asked, "Was anything left out of the story that you consider necessary for a clear understanding of the subject?" If the answer was yes, the respondent was asked to explain the omission.

Questions 3 through 7 dealt with reporter-source contact in developing the article. They were: (3) "How did the reporter get the story?" (4) "How many times did the reporter contact you prior to story's publication?" (5) "How many times did you contact the reporter?" (6) "Are you acquainted with anyone on the newspaper staff?" (7) "Did you read the attached story before publication?"

Part Four contained four questions about the reporters who cover natural resource management. The questions were: (1) "Do most reporters who cover natural resource management know enough about the subject to write a story accurately?" (2) "What kind of job do most reporters do in covering natural resource management?" (3) "Whether you think most reporters who cover natural resource management do a good job or a bad job, what is your biggest complaint about reporters?" (4) "Do you have any thoughts on ways to improve accuracy rates?"

Part Five, the last section of the questionnaire, concerned demographic data on the respondent. The four questions were:

(1) "What is your sex?" (2) "What is your position title?" (3) "What is your highest completed degree?" (4) If you have a college degree, what was your major?"

The respondent was also asked to fill in his or her name and address if he or she desired a copy of the results of the survey.

An application was made to The University of Tennessee Dean of Research for permission to use human subjects in the study. Permission was granted (see Appendix C).

Cover letters under the letterhead of the College of Communications Research Center (see Appendix D), photocopies of natural resource management news articles, questionnaires, and stamped return envelopes were mailed on February 25 and 26, 1983 to the 120 different news sources quoted in the 113 articles. Cover letters were addressed to each news source by name. Because some news articles quoted more than one source, the total number of questionnaires mailed was 188.

Over the next seven weeks, 118 completed questionnaires were returned from 74 sources. Four questionnaires were returned because of an undeliverable address, and one was returned by a news source who did not feel qualified to participate in the study; these were deleted from the sample. Since the total number of questionnaires mailed was 183, the response rate was 64.5%.

No follow-up mailing was attempted, but telephone calls were made to twelve sources who received multiple questionnaires to encourage their participation. This may have introduced some bias

in the study, though it was felt that it would add no more bias to the study than if the respondent called the author seeking additional information concerning the survey. The caller asked the source if he or she had received the questionnaires, and stated that participation in the study would be appreciated.

Asking a news source to recall facts about a news story published as much as a year earlier involves the risk of forgotten detail. Many things could have happened during that year to influence the responses of the news source. The news source, for example, may have been very angry about an inaccuracy at the time of publication, while several months later it is of little concern. To reduce the effect of the time lapse, a photocopy of the news article being tested was attached to each questionnaire. Only one news source indicated a problem remembering the circumstances involving the news story.

This study does not address the question of reporter reaction/response to inaccuracies identified in his/her news articles about natural resource management. The assumption was that if an error of a technical or complex nature was made only the natural resource management news source could point out the error and indicate its seriousness. On the other hand, if the story involved quotes, judgments, or interpretation, then the reporter and source might disagree. Another consideration was the high probability that reporters would take a defensive position when defending news stories. As Tillinghast reported, "The fact that older, more experienced

reporters are more likely to admit error than their younger, less-experienced colleagues suggests overall error is probably higher than reporters will, or can, admit" (Tillinghast, 1982, p. 22). Since the efficacy of such an examination was not thought to be high, reporter perceptions of accuracy were not studied.

CHAPTER IV

RESULTS AND DISCUSSION

The respondents represented a broad cross-section of professionals in natural resource management. While only 10.2% were female, this is a likely representation of the natural resource management profession, as women are fairly new to the profession. It is important to note that some respondents received more than one questionnaire and that each questionnaire was tallied regardless of source.

While it would seem probable most natural resource management news sources would have a major in a natural resource field, this was not the case with the respondents of this study. Forty percent of the news sources had obtained a college degree in liberal arts (see Table 1). Forestry majors accounted for 12.4%, law 11.4% and planning 9.5%. Only 3.8% of respondents had a college degree in communications despite the fact that 14.9% were employed in positions classified as public affairs, public information, or media coordination.

The news sources who returned questionnaires had a variety of position titles, including: senator, homemaker, commissioner of conservation, university professor, fire prevention forester, information officer, director of public lands and energy division, wildlife officer, attorney, judge, scientist, superintendent of a national park, park ranger, and "retired old-timer."

TABLE 1
Educational Background of Respondents

Field of Study	Number of Respondents (N=105)
Liberal Arts	40.0%
Forestry	12.4
Law	11.4
Planning	9.5
Engineering	7.6
Wildlife	4.8
Communications	3.8
Business	1.9
Agriculture	1.9
Fisheries	1.0
Education	1.0
No Response	<u>4.8</u>
	100.1%*

*Rounding error.

Eighty-two percent of the respondents were from Tennessee, 6.7% from Georgia, 5.4% from Washington, D.C., 1.4% from Wyoming, 1.4% from Indiana, 1.4% from Montana, and 1.4% from Arizona.

News sources strongly agreed (83%) with the statement "News-paper coverage of natural resource management is important for the public" (see Table 2). Six percent agree, 0.8% were neutral and no respondents disagreed.

Fewer than half said natural resource management stories were generally accurate. Forty-four percent agreed with the statement "News about natural resource management is generally accurate" while 27.1% were neutral, 28.8% disagreed.

Most respondents (59.3%) were dissatisfied with the headlines used for natural resource management stories. In response to the statement, "Headlines of natural resource management stories often are misleading," respondents indicated: 12.7% strongly agree; 46.6% agree; 22.0% neutral; 18.7% disagree.

Although more than half the respondents (54.2%) agreed that crucial information is often omitted from natural resource management news stories, 21.2% of the respondents disagreed--the highest expression of disagreement. The percentage of respondents strongly agreeing was 21.2%, with 33.0% agreeing and 24.6% neutral.

Fifty-two of the 118 news articles (44.0%) included at least one error. Sixty-six stories (55.9%) contained no errors. This was a higher number of error-free stories than was expected. The numbers of errors were distributed as follows: one error per story, 8; two

TABLE 2

News Source Perceptions of Newspaper Coverage
of Natural Resource Management

	(N=118)				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Newspaper coverage of natural resource manage- ment for the public	83.0%	16.1%	.8%	--	--
News about natural resource management is generally accurate	--	44.0	27.1	28.8	--
Headlines of natural resource management stories often are misleading	12.7	46.6	22.0	18.7	--
Crucial information is often omitted from news of natural resource management	21.2	33.0	24.6	21.2	--

errors, 15; three errors, 10; four errors, 8; five errors, 0; six errors, 3; seven errors, 2; eight or more errors, 6.

Of errors noted, there were slightly more subjective errors (53.9%) (see Table 3) than objective errors. This breakdown shows that while 44% of stories contained at least one error, almost half of these were of a mechanical nature.

Incorrectly stated factual data and/or information accounted for 36.5% of the errors. The respondents' explanations of these errors generally revealed that the errors were not of a technical nature, but more frequently simply an error in fact. The low number of technical errors could have resulted from the 40% of sources who had a liberal arts degree rather than a degree in a natural resource field. The sources might not stress technical information as would someone with a technical background. Comments included:

*"Red water would only possibly appear in drinking water coming from wells or springs."

*"Article said 'selective timber cutting'--this is inaccurate."

*"Columbia (Dam) not solely for recreation, but also for water supply."

*"I have not finished the book that the article says I have written."

*"Smoke tree's girth should be 4 feet and 10 inches."

*"Add 'several dollars,' not 'several hundred dollars.'"

Omission of information was the second most common type of error (11.1%). Explanations of the importance of errors included:

TABLE 3
Errors Ranked by Frequency of Occurrence

Error Types	Frequency of Errors (N=189)
<u>Objective</u>	
Errors of Fact	36.5%
Name Wrong	2.6
Organization or Firm Wrong	1.6
Typographic Error	1.6
Title Wrong	1.0
	<u>44.9</u>
<u>Subjective</u>	
Omission of Information	11.1
Misquotation	7.4
Overemphasis	6.9
Inaccurate or Misleading Headline	6.9
Speculation Treated as Fact	5.8
Essential Information Not Included	5.8
Story Sensationalized	5.3
Story Not Fairly Written	4.2
Underemphasis	.5
	<u>53.9</u>
Other	1.0
	<u>99.8%</u>

*"The writer neglected to mention that all previous public participation programs on the wilderness question has been strongly anti-wilderness. This information, which had been supplied to the newspaper, was important in that it could lead the reader to reach an incorrect conclusion." This comment suggests that there was a lack of contact with the news source. The reporter obviously did not understand or agree with the news source that the information should have been included in the story.

*"The story did not explore the legal background of mineral-leasing in wildernesses. Many readers mistakenly believe that this activity is illegal. This omission fosters the impression that the leasing issue arose as the result of a change in government policy."

*Another respondent said a story "left out participation of Tennessee Ornithological Society and Tennessee Conservation League in Project."

*Another said: "Omitted the organization for which I work."

Another frequently noted source of error was misquotation; 7.4% of news sources cited an inaccurate quotation as occurring in the natural resource management story. Some examples are:

*"The 'gone to Texas' phrase is the reporter's, not mine, although it is true."

*"I told him about people burning debris, he wrote that the problem was people dumping smoldering debris."

*"'Field operators' is a term I did not use."

*"The misquotation as to the number of raccoon hunters in east Tennessee was unfortunate in that it will be used by the hunters in

the future as an example of TWRA's lack of knowledge about their 'sport' and numbers."

*"Quotations on two unrelated points of the story were joined in paragraph three of column two. This creates an ambiguous situation."

Another error type, overemphasis, was cited by 6.9% of respondents. Typical of responses was the comment, "Overemphasized horse and motorcycle trails; there are no actual trails, but forest roads may be used by people." Often this error type was represented by source quotations which the source felt were overemphasized.

Inaccurate or misleading headline was the error type noted by 6.9% of respondents. This is interesting because 59.3% of respondents agreed that headlines of natural resource management stories are misleading. The headline was usually inaccurate or misleading because of a factual error in the lead paragraph. Explanations included:

*"'Starting to help' is misleading--nonhunters have helped a bit in the past."

*"Seedlings were not available at a discount."

*"Headline does not reflect major theme of story."

*"The Forest Service has conducted no poll."

Speculation treated as fact accounted for 5.8% of the errors.

Sources wrote:

*"Fees do not apply to campground maintenance."

*"The continued sampling was to confirm presence of cyanide not seek its source."

*"Pertains to FOE data presented as scientific fact."

Respondents said that 5.3% of the news stories were sensationalized. Comments included:

*"These were preliminary findings and that needed more emphasis."

*"Implication is that human health endangered."

Respondents also said that 4.2% of the stories were not fairly written. This error type was rather broadly interpreted to mean a number of things, some of which were:

*"Department of Conservation comments on the audit, though included in the audit report and Department of Conservation testimony at the public hearing were ignored in the article." This statement suggests that the information was omitted because of reporter bias.

*"TVA implied as 'bad guy.'"

*"Slanted toward SOCM--writer had already made up her mind."

The other error types--number wrong, typographic error, title wrong, etc. together accounted for 9.9% of the errors. Source comments are not necessary, as the error type is indicative of the error made.

Fewer than half (40.3%) of the respondents said that the errors which occurred in natural resource management stories were, to some degree, serious. When asked to indicate the seriousness of the inaccuracies respondents replied: not serious, 36.5%; moderately serious, 17.3%; serious, 11.5%; very serious, 11.5%; no response, 23%.

While news sources in natural resource management complain bitterly about inaccuracies in general (Barker, 1982), the respondents

in this survey did not think that the errors that actually occurred were serious. This is consistent with the finding that 44.9% of the errors were objective errors. Objective errors are generally viewed as being less serious than subjective or judgment errors. When a respondent did indicate the degree of the seriousness of the error, he/she explained why. Comments included:

*"The combined effect of the errors caused confusion and deprived readers information necessary to make informed decisions."

*"Not serious, unless someone is now looking for a book that doesn't exist yet."

*"Not very serious, but generally contributes to negative image of the department."

*"Moderately serious. The wilderness issue interests a large number of people and inaccurate information has posed a substantial hindrance to national public debate."

*"Relatively minor, but should be corrected in future stories so not to confuse public."

*"Common and serious in that reporters do not understand other aspects of issue."

Respondents who indicated an inaccuracy in the story nevertheless described the story as: generally accurate, 71.2%; somewhat inaccurate, 21.2%; largely inaccurate, 7.7%. The error-free stories were described by respondents as being: entirely accurate, 40.9%; generally accurate, 53.0%; no response, 6.0%. These findings suggest several questions. Why would 71.2% of respondents who indicated an error in a story describe that story as "generally accurate?"

Since many respondents said that the errors were not serious, it is likely that the errors would have only minor effect on the story. The respondents seemed to think an error that is not serious is not going to affect the story greatly, so the story is "generally accurate." The respondents also seemed to equate a few errors per story (the mean number of errors per story was 1.6%) with the phrase "generally accurate."

On the other hand, why would 53% of respondents describe error-free stories as "generally accurate?" It could be that some news sources were reluctant to describe any news story as "entirely accurate." Several respondents indicated that while the news story in question was accurate, this was not true of most of the stories he/she was involved with. If a source had been involved with an inaccurate story on a previous occasion, there would have been some motivation to check "generally accurate." These results appear inconsistent since only 44% of respondents felt that news about natural resource management was generally accurate.

Stories containing inaccuracies (44%) had a higher percentage of information left out of the story which was considered necessary for a clear understanding of the subject. In these inaccurate stories, 69.2% of respondents said information necessary to understanding was omitted; 30.8% of respondents reported that necessary information had not been left out. Examples of omissions in stories with errors were:

"Failed to mention that interpretive staff is also a ranger work division."

*"There was no effort made to inform that demonstrators illegally entered private property and committed personal acts of pollution without regard for those innocently involved."

*"No mention of TWRA's attempt to reestablish natural nesting by transplanting young eaglets into Tennessee . . . by method known as 'hacking.'"

In error-free stories, 16.7% of respondents said information was left out, 74.2% of respondents said no information had been omitted, and 9.0% of respondents did not respond to the question. In analyzing why respondents would state that necessary information was left out of an error-free story, it appeared that respondents did not understand the question. The comments, "though coverage of speech is accurate, an in-depth study of surface mining progress would be better" and "The coverage of the speech was accurate; however, more in-depth, challenging questions would have resulted in a balanced story about the problems and successes associated with strip mining." show that the omitted information was not really necessary but, according to the source, would have made the story better.

Other responses included:

*"Only a portion of the results were presented."

*"Details regarding the audit were omitted."

These responses indicate that the news sources wished for more information, but did not view the omission as an error.

While 85.9% of respondents indicated that necessary information was omitted from the news stories in the sample, only 54.2% agreed that "crucial information is often omitted from news of natural resource management."

In an attempt to measure the most accurate way of relaying information to a reporter, the questionnaire asked "How did the reporter get the story?" The results were separated into stories with errors and stories without errors in order to determine the most accurate way of working with a reporter (see Table 4).

In stories with inaccuracies the telephone interview alone was the most cited method of news gathering (48.1%). The telephone in combination with other methods was cited in 67.3% of new stories with errors. Telephone reporting is sometimes more hurried and superficial than face to face, on-the-scene reporting. The use of the telephone, while a prevalent news gathering method, seems to lead to inaccuracies. This is because the report cannot note the source's gestures, facial expressions, or understanding of the questions. Visual feedback is often very important to a reporter's interpretation of a source's answers and this is impossible in the telephone interview. Correct spelling is often difficult over the telephone because many letters sound alike.

In stories without errors, the phone interview alone was also the most common news gathering method (22.7%), but the press release was also cited as a frequent means of getting a story to a reporter (18.2%).

The press release was involved in only 15.3% of the stories with errors, suggesting the press release reduces errors. This is in keeping with the results of numerous other stories.

The press release was a source of information in 24.3% of the error-free stories. The telephone interview was a source of

TABLE 4
Method Reporter Used in Obtaining News Stories

Method	Stories With Errors (N=52)	Stories Without Errors (N=66)
Phone Interview	48.1%	22.7%
Don't Know	9.6	10.6
Phone Interview and Press Release	5.8	6.1
Phone Interview and Face to Face Interview	5.8	0.0
Face to Face Interview	3.8	12.1
Other	3.8	6.1
Press Release	3.8	18.2
Phone Interview and Reporter at Event	3.8	1.5
Initiated by Source	3.8	1.5
Reporter at Event	1.9	4.5
Face to Face and Press Release	1.9	0.0
Phone Interview, Reporter at Event, and Press Release	1.9	0.0
Reporter at Event and Face to Face	1.9	3.0
Phone Interview, Reporter at Event, and Initiated by Source	1.9	0.0
Reporter at Event and Press Release	1.9	0.0
Press Conference	0.0	1.5
Face to Face and Press Conference	0.0	1.5
No Response	<u>0.0</u>	<u>10.6</u>
	99.7%	99.6%

information in 35.3% of the error-free stories and the face to face interview was the news gathering method for 16.6% of error-free stories. Natural resource managers should be aware that inaccuracies are likely to occur in stories resulting from a telephone interview. The news source should make an effort to follow up a telephone interview by sending the reporter a press release containing the information given over the telephone. Face to face interviews should also be used whenever possible.

In stories with errors, respondents indicated that the reporter contacted them only once prior to the story's publication (57.7%) (see Table 5). This one contact was probably a telephone interview. In stories where respondents said the reporter made no contact, the story probably resulted from a news release. In only 7.7% of the stories did the reporter contact the news source twice before the story's publication.

For stories which did not have errors, 42.4% of the respondents indicated that the reporter did not contact them before the story's publication. This clearly suggests that the press release results in more accurate news stories. One reason for this is the fact that public relations professionals may take more time, know the issues, etc. Once a reporter gets involved in the story a higher percentage of errors occur. This, however, could be because the news source wrote or played a part in the press release and it would be unlikely that he/she would judge the press release inaccurate. There was one contact initiated by the reporter in 31.8% of the stories, two contacts in 7.6%, and three contacts in 1.5%.

TABLE 5

Number of Pre-Publication Contacts Initiated by Reporter
 ("How Many Times did the Reporter Contact You
 Prior to Story's Publication?")

Number of Contacts	Stories With Errors (N=52)	Stories Without Errors (N=66)
None	28.8%	42.4%
One	57.7	31.8
Two	7.7	7.6
Three	0.0	1.5
More than Three	1.9	0.0
No Response	<u>3.8</u>	<u>16.7</u>
	99.9%	100.0%

Another question, "How many times did you contact the reporter?" showed that in stories with errors 82.7% of the respondents had not contacted the reporter; 7.7% of the respondents had one contact; 3.8% had two contacts; and 1.9% had three contacts (see Table 6). While a news source is not expected to contact the reporter, many do in order to provide additional information or to check on the status of the story. Stories without errors had similar contact patterns: the news source did not contact the reporter, 69.7%; one contact, 13.6%; two contacts, 1.5%. This suggests that in the few cases where the source did contact the reporter, the number of erroneous stories decreased in the eyes of the source.

The responses to the question "Are you acquainted with anyone on the newspaper staff?" are not included in this analysis because the question was unclear to respondents. The respondents did not know what was meant by "the newspaper" and the often did not know which newspaper had published the story.

None of the respondents who indicated errors in the story had read the story before publication (see Table 7). However, in stories without errors, only 3.0% of the respondents had read the story before publication. While these results are not significant, it can be suggested that if a news source reads a news article before publication, the source is more satisfied with that story. The likelihood of the source reading the story before publication is slim, however, due to time constraints and other journalistic considerations.

About two-thirds of respondents (64.4%) said that most reporters who cover natural resource management issues do not know enough about

TABLE 6

Number of Contacts Initiated by News Source
 ("How Many Times did You Contact
 the Reporter?")

Number of Contacts	Stories With Errors (N=52)	Stories Without Errors (N=66)
None	82.7%	69.7%
One	7.7	13.6
Two	3.8	1.5
Three	1.9	0.0
More than Three	0.0	0.0
No Response	<u>3.8</u>	<u>15.2</u>
	99.9%	100.0%

TABLE 7

Percentage of News Sources Who Read Story Before Publication
("Did You Read the Attached Story Before Publication?")

	Stories With Errors (N=52)	Stories Without Errors (N=66)
Read Story	0.0%	3.0%
Did Not Read Story	98.0	86.4
No Response	<u>1.9</u>	<u>10.6</u>
	99.9%	100.0%

the subject to write a story accurately. Thirty-three percent thought that reporters did know enough about the subject to write an accurate story and 2.5% did not respond to the question. This suggests that accuracy rates could be increased if reporters had experience or expertise in natural resource management.

Only 4.2% of the respondents thought that most reporters do an excellent job in covering natural resource management. Twenty-eight percent of the news sources thought that the reporters do a good job; 50.8% thought the reporters do a fair job; 15.3% thought they do a poor job; 0.8% thought they do a very poor job, and 0.8% did not respond to the question.

A written response was requested for, "Whether you think most reporters who cover natural resource management do a good job or a bad job, what is your biggest complaint about reporters?" Some of the wide-ranging responses were:

*"Sometimes leaves the public with little understanding of the issue at hand."

*"Unless it's a major story, they often don't have the time to dig into the story for background information."

*"These are very complex issues and too many papers force their natural resource reporters to cover too many other issues, too."

*"Headlines do not give as accurate a picture as the story itself."

*"Press deadlines seem to interfere with solid preparation."

*"They press for comment even when you have told them you haven't received official advice on matters under discussion."

*"They are frequently more interested in getting something 'quotable' than in waiting for factual information to become available."

*"In the natural resource area, reporters tend to overly sensationalize issues."

*"Generally, they do not have enough time to do in-depth work."

*"They tend to oversimplify complex situations."

*"Walking a mile in a forester's moccasins for an afternoon, just doesn't appeal to a lot of reporters."

*"They want 'instant answers' that are easily quotable on highly complex matters that require full explanation."

*"Most reporters endeavor to be fair and do a good job, biggest complaint--lack of background experience or knowledge of overall subject matter."

*"When a natural resource story becomes 'big news' it is taken from reporters with natural resource experience and given to state or national reporters with no background."

A final question asked the respondent to list any thoughts on ways to improve accuracy. A general feeling was that reporters needed to have strong backgrounds in science and natural resources to report accurately on these issues. Press releases were often cited as a key to increasing accuracy, many felt telephone interviews "leave too much room for mistakes and misquotes." Other thoughts on ways to improve accuracy rates included:

*"Sources should always be honest, accurate, and complete in relaying information."

*"On the site coverage."

*"Contact and read article to major source before publishing."

*"Reporters verify information with sources prior to printing."

*"Build contacts with natural resource managers and conservation groups."

*"Better training for resource management personnel in dealing with the media."

*"Allow sources who were interviewed to review article--possibly over phone."

*"I believe that people who provide information to reporters have as much responsibility as the reporters."

*"Land management agencies providing more in-depth back up information as a supplement to news releases."

*"Require a basic ecology course for college journalism students."

*"Cultivate contacts with reporters."

*"I can't stress enough my feeling that these issues should be left with the outdoors editors or a permanent environmental reporter should be a part of each newspaper staff."

These comments provide useful insight into ways to increase the accuracy of newspaper articles about natural resource management. They also give several guidelines for natural resource managers and journalists when working together. They are also consistent with the results of numerous accuracy studies. For example, Lawrence and Grey (1969) also found that reporters with insufficient background information were likely to make errors, especially errors such as interpretation.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The conventional method of testing the accuracy of newspaper articles developed by Charnley in 1936 was used to test the accuracy of 118 natural resource management newspaper articles. The newspaper articles were judged for accuracy by 74 natural resource management news sources.

The hypothesis that the accuracy of newspaper articles about natural resource management would be lower than 50% was not supported by the data. Accuracy was in fact higher than 50%. The high accuracy was found in part because most of the stories used in the present study were source-originated. It is unlikely that the source will find errors in such stories. A future study could examine the accuracy of reporter-originated stories.

It was found that about four of ten (44%) newspaper articles about natural resource management contain inaccuracies. The percentage of error-free stories (55.9%) was consistent with that of other general news accuracy studies. Other error-free percentages were: Charnley (1936), 54%; Brown (1965), 59.5%; Berry (1967), 46.3%, and Blankenburg (1967-1968), 40.1%. However, the percentage of error-free stories in this study was determined to be less than previous studies of science news accuracy. Tankard and Ryan (1974) found that only 8.8% of science news stories were error-free while Pulford (1976) found that 29.4% were error-free. The low percentage of error-free

stories in studies of science reporting are attributed to the greater difficulty and complexity of science news. Tankard and Ryan also used a greater number of possible error types than previous general news accuracy studies.

Studies that have examined accuracy of science reporting have found a higher than average number of perceived errors per story-- Tankard and Ryan (1974) found 6.22 and Pulford (1976) found 2.16. Whereas Charnley (1936) found .77; Brown (1965) .86; Berry (1967) 1.52, and Blankenburg (1967-1968) 1.17 in reporting of general news. This study found a mean error rate of 1.6 which indicated that natural resource management stories are more like general news stories than science stories. It would seem that natural resource management stories are not as technical as science stories. Complexity of issues does not seem to affect error rates in the present study--though some respondents indicated that they desired more information about complex issues in newspaper stories.

The types of errors made in natural resource management reporting are found in approximately the same numbers as those in general news reporting. This supports the view that natural resource management news does not really differ from general news and that the news gathering process is the same for both. Thus, natural resource managers should follow the tenets of good public relations when working with reporters.

The most frequent errors were said to be errors of fact, omission, and misquotation. Errors of fact are considered to be objective errors while omission and misquotation are subjective

errors. Because a judgment is involved in the subjective error, it is generally seen as the more serious error. In stories with errors, 53.9% of the errors were subjective and 44.9% of the errors were objective. Thus, the 44% error rate is not as serious as one might initially suppose. In an effort to reduce these errors, natural resource managers should give written explanations (via the press release) of complex issues and factual data which are crucial to reader understanding.

As stated earlier, the technical nature of many natural resource management stories does not play a significant part in accuracy. Accuracy rates appear to be affected more by the method of news gathering. The telephone interview was cited as being responsible for errors. The press release and the face-to-face interview, respondents said, contributed to accurate reporting of natural resource management news.

The press release was also found to be the most accurate news gathering method by Charnley, Scanlon, and Marshall. However, the news source in the present study was probably involved with the press release and would thus rate it as accurate.

While it is cheaper and faster to use the telephone to gather news, errors commonly result. Tichenor, Olien, Harrison and Donohue (1970) found that news gathered from two or more face to face interviews resulted in more accurate stories than news obtained by the telephone or some other means. Berry also found that the telephone interview was among the least accurate method of news gathering. The

present study reached the same conclusion. As one respondent stated: telephone interviews "leave too much room for mistakes and misquotes." Blankenburg (1967-1968) suggested that the news source may be influenced to be less critical of a story (and thus find fewer errors) if the source has met the reporter in person rather than as an unknown voice met over the telephone. Reporters should seek a face to face interview when possible.

While an examination of the number of contacts between the reporter and the source was not conclusive, it suggested the press release increases accuracy and the telephone interview reduces it.

A majority (64.4%) of respondents said that reporters who cover natural resource management issues do not know enough about the subject to write a story accurately. As one respondent summed up: "I'm concerned about honest, well-intentioned writers who aren't qualified to cover the kinds of stories which originate in the natural resource field." Respondents said reporters should make an effort to gain experience and/or expertise in natural resource management issues and concepts if such reporting is a common assignment for them. One respondent said that reporters should consider "spending an afternoon walking in a forester's moccasins."

Just as reporters should attempt to study natural resource management, natural resource managers should learn how to work with newspapers. "The style of most natural resource managers is stiff and formal, full of jargon, and generally written for peers" (Fazio and Gilbert, 1981, p. 170). They need to learn to write policy positions which are brief, readable, and jargon-free (Barber, 1982).

Natural resource managers should hold workshops on media relations and seek out newspaper reporters and editors for information on ways to increase communication. They should visit a newsroom and learn the duties of the news staff--learn that a reporter does not write headlines or copy edit a story.

Natural resource managers must realize and understand basic news values. Media tours should be enjoyable and filled with opportunities for good stories and photographs. The reporter's time is valuable and should not be wasted.

News sources in natural resource management must also understand the deadlines and time constraints forced upon reporters. While the broadcast media can change reports as circumstances change, a newspaper can not. Many things can happen between the time a story is given to a reporter and the time the newspaper is delivered. This time lapse can not be blamed for inaccurate reporting.

Several respondents in the present study did not seem to understand that if a forest fire had burned 60 acres when the paper went to press but had burned 300 acres by the time the paper was delivered it was a limitation of the newspaper and not an error of fact.

If an error does occur in a story, the news source should call the reporter and point out the error in a constructive way. This will not only help the reporter to understand an issue more clearly, but can also help the natural resource manager understand why the error was made so that the error can be avoided in the future.

Better communication should be a goal of both journalists and natural resource managers.

Newspaper publishers should also consider the advice of one respondent, "A permanent environmental reporter should be a part of each newspaper staff." The respondents felt that a lack of time devoted to developing the story resulted in inaccuracies. An environmental/natural resources reporter would, perhaps, not only have more time, but could also initiate investigative stories about natural resource management which would give the public additional information.

Most respondents seemed satisfied with natural resource management news stories. While 44% of the stories were inaccurate, 36.5% of respondents said the errors were not serious. They were less satisfied, though, with the headlines of the stories. Headlines were said to be sensational even when the story was not. This is consistent with Tankard and Ryan's finding that scientists view the headlines of science stories as misleading. This, however, is a result of news desk editing practices and not the fault of the reporter.

The question dealing with acquaintanceship with someone on the newspaper staff provided no usable information. A more specific question such as "How well do you know the reporter who wrote the story?" would have yielded much more useful information. Accuracy researchers should also note that an investigation of the accuracy of wire stories versus locally-produced stories should result in more specific ways to increase the accuracy of natural resource management

stories. The wire services are more likely to have a greater number of specialized reporters than medium-to small-sized newspapers. A study of the backgrounds of the reporters who cover natural resource management would also be useful. Are these reporters knowledgeable about the environment, forest logging practices, or wildlife habitats? Do they understand the terminology of natural resource management?

Future studies of accuracy in natural resource management reporting could also examine television coverage of natural resource management news. Public concern about the environment has resulted in an increase in the amount of natural resource management news on television. It could perhaps be determined if cable news networks are more accurate than the major network newscasts. Has an increasingly fragmented audience affected the way that natural resource managers should handle news releases? Can a specialized audience understand technical terminology? If this were found to be true then translations of terminology would not be necessary and accuracy could possibly be increased.

Tankard and Ryan (1974) reported that if the source read the story prior to publication, he/she described the story as being significantly more accurate than stories not read prior to publication. This study did not replicate the Tankard and Ryan finding. Very few news sources (3.0%) had read the story prior to publication. In conventional journalistic practice, it is unlikely the source would have the opportunity to read a story before publication, however, several respondents indicated that this practice might enhance

accuracy. Allowing the news source to read a story before publication implies that sources view comments they do not want printed as errors. They want to read the story to make sure that no unfavorable comments are printed.

Natural resource managers must understand that in order to write a balanced and fair story the reporter must include other viewpoints. It is naive to suggest that the only accurate viewpoint is that of the natural resource manager. Several respondents in the present study said that the other sources quoted in the article were wrong--that their view was not right. This is a naive approach--even natural resource managers do not always agree on many issues. Reporters must include both sides of issues, even if one side thinks that the other is wrong.

Respondents said that news about natural resource management was important because the public needs the news in order to make informed decisions about natural resource management issues. If this news is important then it is equally important that the news be accurate, that no noise exist in the communication process to interfere with understanding.

While the Charnley method of determining accuracy is inexpensive and relatively simple, it does have limitations. Accuracy rates might be shown to be lower if the reporter is consulted. The method is not useful unless the questionnaires are returned. The questionnaire used in the present study was probably too long. A shorter questionnaire would most likely have resulted in a higher response

rate. The increased use of computers in the news room will aid the sampling process in future accuracy research. Newspaper morgues that rely on computers for storage are much more complete than those used in the present study.

This study did not determine who was responsible for causing the errors which occurred. While the news source determined the accuracy of the article, it is also possible that the news source was responsible for the errors. Both natural resource managers and journalists have a responsibility to provide accurate information about our natural resources to the public. Both should search for ways to assure that newspaper articles are accurate. The public depends on newspapers to provide information necessary to make decisions about natural resource management issues. A public uninformed or misinformed on natural resource management issues is going to demand impossible or damaging action from the managers.

Newspaper accuracy has not improved since Charnley began seeking ways to improve accuracy in 1936. It is likely, that the accuracy of natural resource management articles will only improve if the overall accuracy of newspapers is increased. As audiences become increasingly fragmented and more dependent on broadcast technology to provide information, newspapers will be forced to discover more accurate and in-depth reporting of the news.

Recommendations

The following recommendations are made as possible courses of action for journalists and natural resource managers to increase the

accuracy of newspaper articles about natural resource management:

*The press release and the face-to-face interview should be used whenever possible.

*Reporters who cover natural resource management stories should gain experience and/or expertise in natural resource management issues and concepts.

*Editors should work more closely with reporters to reduce errors in editing and in headlines.

*A reporter should be given extra time to write a natural resource management story if the reporter is unfamiliar with the subject.

*Natural resource managers should attempt to learn news values and the news gathering process.

*Natural resource managers should hold workshops on media relations.

*Natural resource managers should point out errors in newspaper articles about natural resource management in a constructive way, recognizing the weaknesses of language and the inevitability of a certain degree of error.

BIBLIOGRAPHY

BIBLIOGRAPHY

- Barber, J. C. How we can control a media burn. Journal of Forestry, 1982, 80, 700.
- Berry, F. C., Jr. A study of accuracy in local news stories of three dailies. Journalism Quarterly, 1967, 44, 482-490.
- Bettinghaus, E. P., & Preston, I. L. Dogmatism and performance of the communicator under cognitive stress. Journalism Quarterly, 1964, 41, 399-402.
- Blankenburg, W. B. News accuracy: Some findings on the meaning of errors. The Journal of Communication, 1970, 20, 375-386.
- Bowman, J. American daily newspapers and the environment. Journal of Environmental Education, 1978, 10, 2-11.
- Broberg, K. Scientists' stopping behavior as indicator of writer's skill. Journalism Quarterly, 1974, 50, 763-767.
- Brown, C. H. Majority of readers give papers an A for accuracy. Editor & Publisher, February 3, 1965, 13, 63.
- Charnley, M. V. Preliminary notes on a study of newspaper accuracy. Journalism Quarterly, 1936, 13, 394-401.
- Cheek, G. Communicating: Building from ground level zero. Forests and People, 1976, 26, 16-17, 34.
- Cole, B. J. Trends in science and conflict coverage in four metropolitan newspapers. Journalism Quarterly, 1975, 52, 465-471.
- Connaughton, C. A. The general public and forest resource management in Marlin, B. C. (ed.), The South's Third Forest--Opportunities, Responsibilities: 22nd Annual Forestry Symposium, 1973.
- Fazio, J. R., & Gilbert, D. L. Public Relations and Communications for Natural Resource Managers. Dubuque, Iowa: Kendall/Hunt Publishing, 1981.
- Funkhouser, G. R., & Maccoby, N. Tailoring science writing to the general audience. Journalism Quarterly, 1973, 50, 220-226.
- Glynn, C. J. Environmental reporters and the editors: Attitudes toward sensationalism. (Unpublished Master's thesis, University of Florida, 1979). Journalism Abstracts, 1979, 67.

- Greenberg, B. S. & Tannenbaum, P. H. Communicator performance under cognitive stress. Journalism Quarterly, 1962, 32, 169-178.
- Griese, N. L., & Blankenburg, W. B. Newspaper accuracy in four Wisconsin dailies, October 1971. School of Journalism and Mass Communication, University of Wisconsin-Madison, December 1971 (mimeo).
- Johnson, K. G. Dimensions of judgment of science news stories. Journalism Quarterly, 1963, 40, 315-322.
- Kernan, J. B., & Heiman, L. B. Information distortion and personality. Journalism Quarterly, 1972, 49, 698-701.
- Kreighbaum, H. A new challenge for mass media: Reporting the social Sciences. Science Forum, 1968, 1, 21-22.
- Lawrence, G. C., & Grey, D. L. Subjective inaccuracies in local news reporting. Journalism Quarterly, 1969, 46, 753-757.
- Madden, T. J. Editor authoritarianism and its effect on news displays. Journalism Quarterly, 1971, 48, 660-666.
- Marshall, H. Newspaper accuracy in Tucson. Journalism Quarterly, 1977, 54, 165-168.
- Mertz, R. J., Miller, G. R., & Ballance, L. Open and closed mindedness and cognitive conflict. Journalism Quarterly, 1966, 43, 429-433.
- Neal, J. M., & Brown, S. S. Newswriting and Reporting. Ames, Iowa: The Iowa State University Press, 1976.
- Pallmeyer, D. W., & Wackman, D. B. Reporting accuracy: The impact of memory and note-taking on news story accuracy. Manuscript submitted for publication, 1982.
- Pool, I., & Shulman, I. Newsmen's fantasies, audiences, and news-writing. Public Opinion Quarterly, 1959, 23, 145-158.
- Pulford, D. L. Follow-up study of science news accuracy. Journalism Quarterly, 1976, 53, 119-121.
- Ross, A. The comparative approach: Key to more effective writing. Journalism Quarterly, 1959, 36, 335-340.
- Ryan, M. A factor analytic study of scientists' responses to errors. Journalism Quarterly, 1975, 52, 333-336.
- Ryan, M., & Dunwoody, S. Academic and professional training patterns of science writers. Journalism Quarterly, 1975, 52, 239-246, 290.

- Ryan, M., & Owen, D. An accuracy survey of metropolitan newspaper coverage of social issues. Journal Quarterly, 1977, 54, 27-32.
- Scanlon, J. T. A new approach to study of newspaper accuracy. Journalism Quarterly, 1972, 49, 587-590.
- Schoenfeld, A. C. Newspersons and the environment today. Journalism Quarterly, 1980, 57, 456-462.
- Schoenfeld, A. C., Meier, R. F., & Griffin, R. J. Constructing a social problem: The press and the environment. Social Problems, 1979, 27, 38-61.
- Sellers, L., & Jones, D. W., Jr. Environment and the mass media. Journal of Environmental Education, 1973, 5, 51-57.
- Singletary, M. Accuracy in news reporting a review of the research. ANPA News Research Report, 1980, 25, 1-7.
- Solandt, O. M. Scientists and the press: How to improve communication. Science Forum, 1972, 5, 20-21.
- Tankard, J. W., Jr., & Ryan, M. News source perceptions of accuracy of science coverage. Journalism Quarterly, 1974, 51, 219-225, 334.
- Tarleton, R. Accuracy and comprehension in science writing. Journalism Quarterly, 1953, 30, 69-71.
- Tichenor, P. J., Olien, C. N., Harrison, A., & Donohue, G. Mass communication accuracy in science news reporting. Journalism Quarterly, 1970, 47, 673-683.
- Tillinghast, W. A. Newspaper errors: Reporters dispute most source claims. Newspaper Research Journal, 1982, 3, 15-23.
- Wales, M., Rarick, G., & Davis, H. Message exaggeration by the receiver. Journalism Quarterly, 1963, 40, 339-342.
- Witt, W. Communication concepts for science and environmental communications. The Journal of Environmental Education, 1973, 5, 58-62.
- Witt, W. The environmental reporter on U. S. daily newspapers. Journalism Quarterly, 1974, 51, 697-704.

APPENDICES

APPENDIX A

Audubon Council Supports Wilderness Plan

Times Staff Report

Tennessee Audubon Council on Monday expressed its support for the protection of Citico Creek and Big Frog Mountain wilderness study areas in the Cherokee National Forest.

In a statement, council president Bruce Wilkey of Signal Mountain said conservationists delivered 18,000 comments in support of the wilderness areas to the Forest Service last Friday.

"These comments were in addition to 1,000 letters previously received," Wilkey said. "We feel this is a strong statement of public opinion in support of wilderness, and we are asking the Forest Service to reverse its anti-wilderness re-

commendations in its draft environmental-impact statements."

Wilkey, whose council represents National Audubon Society chapters in Tennessee, said the Cherokee National Forest has 630,000 acres with only 8,000 acres, or 1.3 percent, protected by wilderness designations.

Wilkey said the Forest Service has acknowledged the two areas contain few recoverable mineral deposits and the demand for timber is low.

In wilderness areas, mining, timber-cutting and the driving of vehicles are prohibited, but camping and hiking are allowed.

Visitors Will Flood State Parks, Tourist Group Told

By WILLARD YARBROUGH
News-Sentinel Staff Writer

Tennessee's 51 state parks likely will be overrun by World's Fair visitors — from one end of the state to the other. The conclusion is based on a flood of inquiries by outsiders who plan to attend the Knoxville fair.

State Parks Director Don Charpio welcomes the inundation of the parks.

"All state parks, whether rustic or posh, are becoming welcome centers," Charpio told delegates to the East Tennessee Tourist Council this past week at Sweetwater and Watts Bar.

"Park personnel will welcome your brochures and encourage guests to visit local and regional attractions between visits to Knoxville."

The state also will launch something new when winter moves closer. Two guests may sleep at a park facility for the price of one, parks officials said.

The parks, including Davy Crockett Birthplace State Park at Limestone, are being spruced up. The News-Sentinel recently disclosed that park had fallen into disrepair.

"Davy Crockett is in pink condition," Charpio said. "The cabin replica doesn't leak anymore, the campground and picnic areas are in excellent condition."

"A painting of the Tennessee frontier hero, who died defending the Alamo, will grace the one-room log cabin wall. Archeological finds, discovered during excavation for a park swimming pool, are being studied by the state regional archeologist at Old Fort Loudoun State Park at Vonore. We believe the relics are those of the prehistoric Woodhill People."

At Fort Loudoun, TVA's Tish Jenkins said TVA expects to receive bids July 1 for a private recreation project on Tellico Lake near Fort Loudoun State Park. Jenkins said the projected \$8 million recreation development would include a giant marina, golf course and other facilities. A three-county agency is mapping plans for other lakeside development.

Other World's Fair-tourism developments surfacing during the three-day tourism conference included:

• Official Tennessee welcome centers will open on a 24-hour basis May 1.

• TVA's floating barge exhibits

at the fair will show off two river others in its wildlife display.

• 1000 UT-Knoxville foreign students will flood the fairgrounds and speak to groups to explain the history and culture of their native lands.

• Jonesboro, Tennessee's oldest town, is opening its own welcome center soon, with a TVA-aided slide presentation. Upstate tourism director Teresa Estep said more and more bumper stickers urge the "ugh" be added so that the original town name of Jonesborough be restored, too.

• TVA continues to promote Circle Tour by researching communities and attractions for benefit of tour brokers. Such regional tours are becoming more popular.

• Cherokee National Forest has upped campground fees at developed sites, but the highest overnight cost is \$5.

• State tourism officials already are planning ways to make Tennessee a stopover for travelers moving toward the 1984 World's Fair in New Orleans.

• Other Southeastern states are campaigning to lure Knoxville fair visitors their way. Georgia Tourism Director Ed Spruin confirmed that Knoxville billboards soon will display this gimmick: "Turn a Fair Vacation into a Great Vacation in Georgia."

• And Tourism Council delegates cheered with the announcement that the state Legislature had just approved a full tourism budget that includes a \$15,000 matching fund for each of the state's nine tourism-development regions.

Greenspeace activists hold on atop stacks

By The Associated Press

Environmentalists protesting acid rain pollution continued takeovers of smokestacks at power plants in Ohio and Indiana and an Arizona copper smelter Wednesday, as authorities waited on the ground to arrest them.

The demonstrators, members of the activist Greenpeace Foundation, clambered atop the smokestacks earlier in the week to protest utility and industrial emissions blamed for the acidic rain which can kill fish and destroy plants and crops.

There was one demonstrator on a power plant stack in Indiana, two on a power plant stack in Ohio and two on a smelter stack in Arizona.

In Madison, Ind., where temperatures dropped below zero, 27-year-old Jeff Pettersen of Wilmette, Ill., was using a sleeping bag for warmth as he maintained his perch on the tower of a 650-foot smokestack at the Clifty Creek coal-fired power plant.

"We've talked (by two-way radio) with Jeff several times and he's indicated he's fine," said Jon Hinck, a member of Greenpeace.

Pettersen and a companion climbed the tower early Monday. Police arrested the companion when he came down after a few hours and say they will arrest Pettersen also.

Indiana-Kentucky Electric Corp. spokesman Everett Schwarm said there are no plans to force Pettersen to leave his position. "It's such a hazardous operation we don't want to risk sending one of our own people up there."

Hinck said Greenpeace representatives had spoken with Schwarm and at his request had "passed on a pile of information" about acid rain.

"I think the company has mixed feeling and is showing some sympathy for the safety of the climate," he said. "But their major concern seems to be that the safety of the plant is potentially threatened."

"It's causing me a lot of distress mainly because this person is endangering his life up there," said Schwarm.

In addition, he said, a banner erected at the top of the tower "is becoming a threat to operation. If a piece of it or just a rope fell and hit transmission lines, one power unit or all the units could be tripped out."

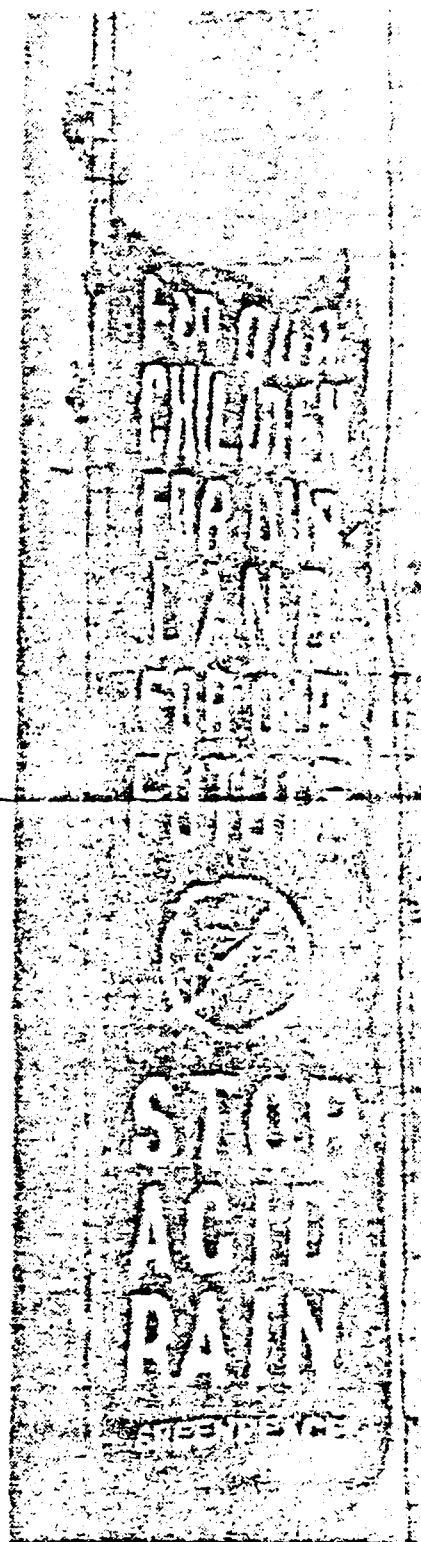
In Conesville, Ohio, the manager of a coal-fired power plant hit by a similar demonstration said he gave Greenpeace representatives a tour Tuesday night and explained measures being taken to clean emissions.

Two members of Greenpeace, James Greager, 25, of Ann Arbor, Mich., and Bob Jacksy, 26, of Toledo, remained on the 305-foot smokestack at the Columbus & Southern Electric Co. plant despite overnight temperatures that dipped to zero.

Manager Tom McClimans said the members who toured the plant were impressed with efforts to cut pollutants and told him, "If we'd have known all this before, we never would have picked your plant."

AP LASERPHOTO

Two climbers hang a banner from the 500-foot Magma Copper Co. smokestack in Tucson, Ariz., as part of a nationwide protest against acid rain.



Quest for Natural Gas Moves To Southern Counties in State

Times Staff Report

Following a year of seismic studies and competition for exploration rights, drilling rigs have started moving farther south in Tennessee — looking for natural gas.

The number of drilling permits issued annually by the state has doubled since 1979, according to Ron Zurawski, assistant superintendent with the State Oil and Gas Board. The board is part of the Geology Division of the State Department of Conservation.

The state issued 618 permits in 1979, 927 the following year and 1,228 last year. Most of those permits are in Morgan, Scott and Fentress counties, the traditional northeastern area to explore for Tennessee natural gas. But increasingly the permits are for sites farther south.

Last year the state issued seven permits for Franklin County, eight for Grundy County, 25 for Coffee County and 14 for Warren County. Marion and Sequatchie counties were listed on at least one permit each.

According to Zurawski, Amoco has com-

pleted a new untested well in Hancock County and Arco has completed an untested well in Anderson County. Drilling was finished at both sites, he said, within the past week.

At the Arco site, Zurawski said, "there has been a rumor of a fairly decent gas flare one night. We have no confirmation on that though."

Oil companies routinely keep their findings as private as possible. Most of them usually invoke a state law that allows exploration findings to be kept secret for six months before becoming public record.

Amoco and Arco, Zurawski said, have indicated they plan to drill wells later this year in Cumberland and Rhea counties.

"There's been a lot of seismic testing," Zurawski said. "Now they need to get real live rocks in their hands and study them."

Part of the renewed interest in exploration is due to a Columbia University study released in New York in 1980. That study iden-

See GAS, B2

Continued From B1

tified a geological area called the Eastern Overthrust Belt from New York to northern Alabama which might contain enough oil-bearing shell rock to make deep well explorations feasible.

"It may be five to 10 years before the area is fully tested," Zurawski said. "But the first indications show it may be promising." The geologist expects more natural gas than oil to be found, however.

Pockets of natural gas have been found in the Southeast Tennessee mountains for years but in quantities too small to make wells feasible, he said. Another problem has been most natural

gas here is under much less pressure than is needed to force it into a pipeline without additional costs.

But enough gas has been found recently, Zurawski said, to start some companies talking about extending a pipeline 20 miles to McMinnville from the main line currently closest to the area.

"So far the overthrust belt has been just promise," said State Conservation Commissioner Charles Howell. "They will have to put a lot of money in it. It's the kind of thing in which you have to plan on long term investments."

"But it's quite exciting," Howell said. "You don't know at what point in American economic history it becomes attractive as an energy source."

Watt Change May Halt Cherokee Plan

By CARSON BREWER
News-Sentinel Staff Writer

Interior Secretary James Watt's apparent about-face on oil and gas exploration in Federal wilderness areas may have been more of a "Trojan horse" than a blessing, in the view of one wilderness advocate here.

Watt last Sunday proposed protecting existing wilderness areas from mining and oil and gas drilling until the year 2000.

But Will Skelton, a Knoxville lawyer who is chairman of the Cherokee National Forest Wilderness Coalition (CNFWC), says some of the fine print in the Watt proposal probably would make it impossible to give wilderness protection to thousands of acres of the Cherokee, proposed for wilderness, but not yet officially designated as wilderness.

Skelton said this is the portion of the Watt proposal that says all wilderness study areas and areas designated for future planning be forever exempt from wilderness designation if Congress does not make them wilderness by Jan. 31, 1983.

"This to me is just totally unreasonable," Skelton said last week.

He said the U.S. Forest Service hasn't even made recommendations for some of the areas yet. He said it is very unlikely that Congress, with all the things (it) is having to consider with the economy, etc., will have time to consider the areas before the end of next year.

Skelton called Watt's move a "Trojan horse-type of thing. Actually, he is trying to gut the wilderness system, as far as any future additions to it are concerned. There is just no way these areas can be considered by Congress by the end of 1983."

Skelton also is not overjoyed with Watt's proposal to ban mining and drilling in wilderness areas just

until 2000. Under present law, no more oil, gas and mining leases can ever be issued after next year. Watt's proposal lifts the immediate threat of mining and drilling but imposes it again in 18 years.

These two changes are needed in the Watt proposal, Skelton says:

- Take out the year 2000 and make wilderness areas permanently free from the threat of mining and oil drilling.

- Allow "reasonable time" for Congress to act on areas proposed for wilderness but not yet in the system.

Only about 8000 acres in the Cherokee now is officially designated as wilderness. Far more — about 45,000 acres — is under consideration for wilderness.

The areas of the Cherokee being considered — which Watt would have Congress act upon by the end of next year or not at all — include Big Frog Mountain Wilderness Study Area, 4626 acres in Polk County; Big Frog addition, 347

acres earmarked for further planning; Citico Creek Wilderness Study Area, 16,576 acres, Monroe County; Unaka Mountain, 4700 acres in Union County, further planning; Flint Mill Gap, 7133 acres in Carter and Johnson Counties, further planning; Little Frog Mountain, 4800 acres in Polk County, further planning; Bald River Gorge, 3887 acres in Monroe County, recommended by the Forest Service for wilderness; Pond Mountain, 4368 acres in Carter County, further planning; and Pond Mountain addition, 2200 acres, further planning.

Meanwhile, Bruce Jewell, spokesman for the Cherokee, said public comment on proposals for seismic exploration for oil and gas in six areas of the Cherokee has been strongly against the idea.

Jewell said the Forest Service will consider the public comments, get up a list of alternative proposals, and "get back to the public with a draft document" before the end of this year.

TVA told to meet halfway on Ocoee

The Associated Press

OCCOEE — The Tennessee Valley Authority needs to devote more effort to reaching a compromise with Ocoee River recreation enthusiasts who are trying to save the river from a TVA power plant, two politicians said Monday.

Sen. James Sasser, D-Tenn., who is running for re-election, took a guided raft trip through the Ocoee's rapids Monday. Rep. Robin Beard, a Tennessee Republican who is campaigning for Sasser's Senate seat, plans to make a similar Ocoee raft trip June 17.

Sasser, interviewed before he began his trip, said he thinks the federal and state governments each should help reimburse TVA for its proposed 82-day per year shut-down of the Ocoee No. 2 hydroelectric plant.

TVA is doing a \$26 million renovation of the plant, but proposes to shut down the facility 82 days a year to let the Ocoee's waters flow undisturbed for river recreation. In return, the federal agency proposes to charge Ocoee River recreation businesses a commercial license fee to reimburse TVA for the lost electricity generating revenues.

Beard opposes the license fee and would like to see TVA allow the

Ocoee to run free on the proposed 82 days without charging the recreation businessmen anything, spokesman Rusty Brashear said. The Ocoee recreation generates vital spending in a rural southeast Tennessee and boosts the economy is needed, Brashear said.

TVA is renovating the hydro plant and its dam and is replacing a rotting, 4½-mile-long wooden flume along the Ocoee. The river has become popular for whitewater sports since TVA shut down the plant in 1976 for the repairs. When the plant resumes operating in February 1981, it will divert the river's water and wipe out recreation.

TVA has already spent about \$7 million on the renovation and should complete it to avoid wasting the money of TVA's electricity rate-payers, Sasser said.

Sasser said he considers the Ocoee a national resource and he thinks the federal and state governments should chip in some money toward the TVA appropriation.

"We're talking about somewhere in the neighborhood of \$250,000 a year. When you're talk-

ing about a federal budget that's about \$700 billion and a state budget that's around \$1 billion, that's not much money," the senator said.

A group that supports recreational use of the Ocoee sued TVA in March 1981 to try and halt the agency's renovation of the hydro plant. But U.S. District Judge Frank Wilson dismissed the suit last Thursday in Chattanooga, ruling that TVA had complied with his order to re-evaluate the project in light of the river's recreational uses. The plaintiffs are considering whether to appeal the dismissal.

Non-Hunters Starting To Help Pay for Wildlife Conservation

ATLANTA (AP) — The nation's hunters and fishermen, who foot the bill for most wildlife-related activities, are starting to receive some assistance.

Since Colorado first asked taxpayers to donate a few dollars of their refund to help nongame wildlife, 17 states have found the check-off to be a handy tool to raise money for conservation.

Now, conservationists in seven states are trying to get similar plans approved by their legislatures.

Nongame programs are designed to help animals that are not legal for hunters or anglers, species ranging from eagles to otters. Many game animals benefit too.

"It has worked so far and anything that works, we think, is great," said Lonnie Williamson of the Wildlife Management Institute, a Washington-based conservation group.

"What makes it significant is that donations have been growing steadily, with more money coming into the program each year," Williamson said. "Even though this year the donations were smaller, more people were donating."

"It shows that if you make it easy enough, people will give to help nongame wildlife and endangered species."

Perhaps that is the key. In states where there is no state income tax, like Tennessee, citizen donations are virtually nonexistent. Allen Gebhart, head of finances for the Tennessee Wildlife Resources Agency in Nashville, says contributions from birdwatchers and others outside traditional hunting and fishing circles "rarely exceed \$100 a year."

Nonetheless, TWRA and other state wildlife agencies are charged with protecting and enhancing all species, whether or not they are pursued for sport.

UNDER A nongame checkoff program, taxpayers may mark a box on their income tax return to donate a few dollars of their refund to the conservation program.

Response has ranged from \$85,000 in Kentucky to \$744,000 in

Colorado.

Colorado uses the money to help endangered or extinct species such as the peregrine falcon and the river otter; to preserve some 760 species of nongame animals ranging from clams to eagles, and to encourage birdwatching, photography and other uses of wildlife besides eating.

"We have one program designed to develop habitat in urban areas, to entice wildlife into city areas," said John Torres, head of Colorado's

nongame program.

"For example, we are developing an area approximately 15 miles from downtown Denver. The area supports a tremendous population of wildlife, about 300 species, everything from waterfowl to fish to deer. It's a place where a person can walk out on a Sunday afternoon and have a good chance to see or photograph a deer."

In Minnesota, the program brought in \$523,000 in 1981, its first full year of operation.

Judge rules TVA can renovate Ocoee project without permit

APR 14 1982

Tennessee Valley Authority does not need a state water permit to renovate the agency's Ocoee River power project, a federal judge ruled in Nashville Tuesday.

U.S. District Judge L. Clure Morton's decision overrules state Health Commissioner Eugene Fowinkle and state Attorney General William Leech, both of whom had said TVA would have to get a permit from the state Water Quality Control Division before TVA could operate the Ocoee No. 2 hydroelectric plant, on which repair are being made.

The federal court decision goes against the stated opinion of TVA Director S. David Freeman, but supports the official position of TVA as stated by the other two direc-

tors, the TVA Office of Power and by TVA's legal department.

"We're glad that the position TVA took was sustained by the federal court," TVA General Counsel Herbert Sanger said Tuesday.

The Ocoee River Council, a citizens group favoring use of the river for white-water rafting, and the Tennessee Water Control Board had asked the state attorney general to consider requiring such a permit and only on the condition that TVA would release waters for rafting at specified times.

S. David Freeman in January broke the 3-member board of director's unanimity by sending a letter to State Health Commissioner Eugene Fowinkle supporting the suggested requirement.

Record Attendance Reported in Smokies

The Associated Press

GATLINBURG, Tenn. — More people visited the Great Smoky Mountains National Park last month than in any ~~October in its 42-year history~~, the park's acting superintendent says. Jerry Eubanks said 1,227,300 visits were made to the park during October. About 55,900 of those were overnight camping visits. At the end of October, 7,636,900 visits had been made to America's most-visited national park. But Eubanks said park attendance remains 135,800 visits below last year's figure at this time. The 518,000-acre park straddles the Tennessee-North Carolina state line.

●

Rollens Named Cherokee Supervisor

By Times Correspondent

CLEVELAND, Tenn. — Donald L. Rollens has been named forest supervisor of the Cherokee National Forest, according to regional forester John E. Alcock. Rollens, former forest supervisor of the Medicine Bow National Forest in Wyoming, reported for duty Tuesday to the supervisor's office of the Cherokee National Forest here. Before his assignment to the Medicine Bow National Forest, Rollens was forest supervisor of both the Chequamegon National Forest in Wisconsin and the Mark Twain National Forest in Missouri. Rollens replaces M.K. Lauritsen, who has been reassigned to the forest service's national office in Washington. The Cherokee National Forest includes more than 624,000 acres in 10 East Tennessee counties. Lying along the Tennessee-North Carolina border, the forest is split into two sections by the Great Smoky Mountains National Park.

Flat Top Gets Mining Reprieve

By Andy Sher
Times Staff Writer

Residents of Flat Top have been given a temporary reprieve in their battle to prevent a company's proposed strip mining operation within a half mile of their homes. But a company stockholder said Thursday the company still intends to strip mine.

According to Steve Roberts, a spokesman for the Tennessee Division of Surface Mining and Reclamation, Southern Way Sales, which has announced plans to strip mine 110 acres on the mountain, had several "discrepancies" in its application. He said the company will have to refile the application.

"There were several discrepancies in administration — wrong names, wrong place, that sort of stuff," Roberts said by telephone Thursday. But, he said, "It was not flagrant and willful. I'm convinced it was just a misunderstanding."

He said a permit application which the company said was on file at the county judge's office "was not there."

He also said there was also a dispute over who has the right to extract minerals from the land.

"In effect, they're (Southern Way) starting from square one," Roberts said.

Residents on the mountain are against the proposed strip mining operation, saying it could alter the water tables and dry up wells — their only source of water.

Chattanooga attorney Stewart Jenkins, a stockholder in Southern Way Sales, said Thursday the company does plan to file another application "most definitely" as soon as officials decide whether to reduce the acreage for strip mining.

Jenkins said "the biggest problem" with the company's application "apparently was a breakdown in communications with our engineering firm." He said the application should have been on file with the county judge but was not.

Residents said at a public hearing held last December by the Surface Mining Division that parts of Flat Top have

been mined several times in the past by companies which later declared bankruptcy or forfeited bonds. They said several strip miners have made no attempt to reclaim the land.

Southern Way Sales has not strip mined on the mountain in the past. Company officials have stated their intentions to comply with state and federal law and restore strip-mined land.

"It's a very delicate situation," said Barbara Levy, who lives within a mile of the proposed strip mining operation. "We're afraid if they start blasting it'll ruin our water."

"One man lost his well five times and he still doesn't have any water," she said. "We're not opposed to getting energy out of the ground. We just don't want our water ruined."

Mrs. Levy said if the state grants the company a mining permit, residents will take their case to the county. Hamilton County is the only county in the state which requires its own mining permit.

APPENDIX B

QUESTIONNAIRE EVALUATING ACCURACY IN NATURAL RESOURCE MANAGEMENT ARTICLES

PART ONE:

This section contains four statements concerning newspaper coverage of natural resource management. There are no right or wrong answers; none better than others. Check the box that most closely identifies your perception of each statement.

- | | Strongly
Agree | Agree | Neutral | Disagree | Strongly
Disagree |
|--|-------------------|-------|---------|----------|----------------------|
| 1. Newspaper coverage of natural resource management news is important for the public. | () | () | () | () | () |
| 2. News about natural resource management is generally accurate. | () | () | () | () | () |
| 3. Headlines of natural resource management stories often are misleading. | () | () | () | () | () |
| 4. Crucial information is often omitted from news of natural resource management. | () | () | () | () | () |

----- PART TWO:

This section concerns the accuracy of the attached article. Please refer to the attached article and then answer the following questions.

Are there errors in the attached story? YES NO

If the answer is no, please skip to Part 3. If the answer is yes, please complete this section before completing Part 3. If inaccuracies did occur, would you please indicate the error(s) made, the number of times it was made, and a brief description of the error(s).

(Use additional paper as needed.)

<u>Error</u>	<u>No. Times Made</u>	<u>Explanation</u>
Facts	_____	_____
Headlines	_____	_____
Overemphasis	_____	_____
Underemphasis	_____	_____
Omission of information	_____	_____
Name	_____	_____
Title	_____	_____

<u>Error</u>	<u>No. Times Made</u>	<u>Explanation</u>
Organization or firm involved		
Typographic		
Number		
Time		
Date		
Location		
Age		
Quotation		
Story sensationalized		
Story not fairly written		
Speculation treated as fact		
Essential information not included		
Other, please describe		

How serious do you consider the inaccuracies? _____

PART THREE:

Please refer to the attached article and circle the correct response.

1. Would you describe the attached story as:

Entirely Accurate	Generally Accurate	Somewhat Inaccurate	Largely Inaccurate	Entirely Inaccurate
----------------------	-----------------------	------------------------	-----------------------	------------------------

2. Was anything left out of the story that you consider necessary for a clear understanding of the subject?

____ YES ____ NO If yes, please explain _____

3. How did the reporter get the story?

Phone interview	Face to face interview	Press release	Don't know
Reporter at event	Initiated by source	Press conference	Other

4. How many times did the reporter contact you prior to story's publication?

NONE ONE TWO THREE MORE THAN THREE

5. How many times did you contact the reporter?

NONE ONE TWO THREE MORE THAN THREE

6. Are you acquainted with anyone on the newspaper staff?

YES NO

7. Did you read the attached story before publication?

YES NO

PART FOUR:

This section contains four questions concerning reporters who cover natural resource management. Please circle or explain your response.

1. Do most reporters who cover natural resource management know enough about the subject to write a story accurately?

YES NO

2. What kind of job do most reporters do in covering natural resource management?

EXCELLENT GOOD FAIR POOR VERY POOR

3. Whether you think most reporters who cover natural resource management do a good job or a bad job, what is your biggest complaint about reporters?

4. Do you have any thoughts on ways to improve accuracy rates? _____

PART FIVE:

Please complete the following questions to assist in analysis of the completed questionnaires.

1. What is your sex? ☐ FEMALE ☐ MALE
2. What is your position title: _____
3. What is your highest completed degree? _____
4. If you have a college degree, what was your major? _____

If you would like a copy of the results of the study, please complete your name and address.

NAME: _____

Address: _____

APPENDIX C

THE UNIVERSITY OF TENNESSEE, KNOXVILLE
KNOXVILLE 37996-0140

OFFICE OF THE VICE CHANCELLOR FOR
GRADUATE STUDIES AND RESEARCH

404 ANDY HOLT TOWER

February 23, 1983

AREA 813
TELEPHONE: 974-3466

Lucia Andrews
P105 Andy Holt Tower
Communications
CAMPUS -0332

Dear Ms. Andrews:

The project which you submitted entitled, "Evaluating Accuracy on Natural Resource Management Articles," CRP #A-73, has been reviewed.

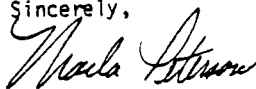
I concur with you and your Assistant Dean, Dr. Howard, that this project comes within the guidelines which permit me to certify that the project is exempt from review by the Committee on Research Participation.

The responsibility of the project director includes the following:

1. Prior approval from the Dean for Research must be obtained before any changes in protocol are instituted.
2. A statement must be submitted (Form D) at 12-month intervals attesting to the current status of the project (protocol is still in effect, project is terminated, etc.).

The Committee wishes you success in your research endeavors.

Sincerely,



Marla Peterson
Dean for Research

SCW

cc: Dr. L. Evans Roth
Dr. M. W. Singletary
Dr. Herbert H. Howard

FORM A
THE UNIVERSITY OF TENNESSEE, KNOXVILLE
Certification of Exemption from Review
for Research Involving Human Subjects
(Instructions on reverse side of form)

CRP # A-93Date Received 2/15/83

Project Director and Co-Director: Director: Lucia Andrews; Advisor: Mike Singletary

Address and Phone Number of Project Director and Co-Director: (For student projects, list both student and advisor.)
Lucia Andrews, P105 Andy Holt Tower, 974-6871
Mike Singletary, P105 Andy Holt Tower, 974-6871

Title of Project:

Evaluating Accuracy on Natural Resource Management Articles

Department: Communications

Supporting Agency and Identification Number (if known): None

Estimated starting date and completion date: Start: February 25, 1983; End: March 25, 83

Grant submission deadline: Not Applicable

I. Objective(s) of Project:

The purpose of this study is to determine accuracy rates of newspaper articles on natural resource management. The accuracy rates will be determined by the source(s) quoted in the news articles. The methodology requires that approximately 189 sources will be surveyed.

II. Subjects (selection method, population, description):

The subjects for this study are all sources who have been quoted in newspaper articles on natural resource management. Approximately 80 articles have been clipped from the Nashville Tennessean, Nashville Banner, Knoxville Journal, Knoxville News-Sentinel, and the Chattanooga Times. The sources names have been obtained from these articles.

III. Methods or Procedures:

In order to determine accuracy rates of the newspaper articles, each source quoted in the articles will be sent a cover letter, a questionnaire, a copy of the article, and a stamped, self-addressed envelope. The subjects will be determining the accuracy of the article. There is no risk involved for the subjects and participation is voluntary. While demographic data is requested, all information will be available only to project director and advisor. Completed questionnaires will not be retained beyond the final reporting.

IV. Category of Exempt Research per 45 CFR 46: 3

(See reverse side of form for Exempt Categories)

Certification: The research described herein is in compliance with 45 CFR 46 101(b) and presents subjects with no more than minimal risk as defined by applicable regulations.

Signatures:

Investigator

Lucia D. Andrews2-18-83

Date

Advisor

MW Singletary2-18-83

Date

Department Head or Chair

of Departmental Review Committee

Richard H. Howard2-18-83

Date

Dean for Research

Mark P. Titum2/23/83

Date

APPENDIX D

College of Communications

THE UNIVERSITY OF TENNESSEE, KNOXVILLE, TENNESSEE 37996-0313

Graduate Studies and
Communications Research Center
(615) 974-6651

The Communications Research Center is requesting your participation in a study designed to investigate the accuracy of newspaper articles about natural resource management. The results of this study will help journalists more accurately report natural resource news.

Questionnaires and some 200 news articles are being mailed to a sample of 133 individuals quoted as news sources. The news articles appeared in one of three Tennessee daily newspapers. The completed questionnaires will remain confidential and will be available only to myself and the head of the Communications Research Center. The presentation and analysis of data will not divulge names or otherwise compromise respondents. Completed questionnaires will not be retained beyond the period required for data analysis and presentation.

In order that the results truly reflect the thinking of important news sources in natural resource management, it is essential that each questionnaire be completed and returned. You may receive a summary of results by printing your name and address in the appropriate section of the questionnaire.

Please complete the attached questionnaire(s) and return it in the enclosed stamped, addressed envelope as soon as possible. I would be happy to answer any questions you might have. Please write or call. The telephone number is (615) 974-6871.

Your contribution to the success of this study will be appreciated greatly.

Sincerely,

Lu Andrews
Project Director

Enclosures

VITA

Lucia Dianne Andrews was born in Mobile, Alabama, on February 9, 1958, the daughter of Samuel H. Andrews III and Dianne Johnston Andrews. She attended The Julius T. Wright School for Girls in Mobile. In September 1976 she entered The University of South Alabama as an early admissions student. She transferred to The University of Tennessee, Knoxville, in September 1977 and in June 1979 received a Bachelor of Science degree with a major in Forest Resource Management.

She entered the Graduate School of The University of Tennessee, Knoxville in September 1981. She worked as a graduate assistant with the Communications Research Center during 1982-1983. She received the Master of Science degree with a major in Communications in June 1983.

Ms. Andrews worked for a year and a half for the Tennessee Division of Forestry in Cookeville, Tennessee. During 1982 she worked as a copy editor for The Daily Beacon and as a student intern for The University of Tennessee Forestry Experiment Station and Arboretum in Oak Ridge, Tennessee.

While at UTK, Ms. Andrews was elected a member of the honor societies of Phi Kappa Phi, Alpha Zeta, and Kappa Tau Alpha. She is a member of the Society of American Foresters. She was named to International Youth of Achievement in 1981.