

Thomas W. Owens
Senior Honors Project
August, 1979
Dr. Donald VanMeter, Advisor

AN ANALYSIS OF THE BALL STATE NATURAL RESOURCES CURRICULUM

This Honors Project is being completed for full credit toward the completion of the Ball State University Honor's Program, and fulfills the requirements for ID 499, Senior Honors Project.

The information contained herein is the result of work involving a questionnaire sent to graduates of the Ball State University Natural Resources Department, requesting information about the department's curriculum and other information.

This information was then compiled and analyzed on its own merit. Then, for further comparison, a Master's Thesis by Pam Popovich, completed in June, 1979, for the Natural Resources Department, was used. Popovich's thesis dealt in part with some of the same material sought by the questionnaire sent out for this Honors Project, and thus served as a good comparison base.

OBJECTIVES

This project was begun with the hope that information gained from it might be used to help strengthen the Natural Resources curriculum, if the department's graduates' feelings showed areas of weakness.

In order to accomplish this, questions to obtain the needed information were formulated. Classification of employment, weaknesses and strengths of the department's curriculum, and other types of employment held by the graduates were just a few of the questions asked. Accompanied in Appendix A is a copy of the questionnaire.

There were three general goals which the questionnaire sought to establish. First, the number of graduates who obtained employment in a Natural Resources-related field was desired. Secondly, the questionnaire sought to establish if the curriculum presented the students with sufficient background (training) for them to enter a Natural Resources-related field. The third goal sought to find the number of Natural Resources graduates who entered the specific field which they majored in while at Ball State University.

On the questionnaire, questions one, seven, ten and eleven applied directly to the first goal mentioned above. Questions four, five, six and eight applied to the second goal, and questions three, nine, and ten applied to the third goal.

In order to obtain the information from the department's

graduates, a survey-questionnaire was sent out to them in early May. Some 240 questionnaires were mailed in conjunction with the department's newsletter, NR Update, requesting the afore-mentioned information.

The newsletter originally was intended to be sent out in early to mid-April, but due to problems with the mailing system, the questionnaires-newsletters were not received by the graduates until mid- to late- May. The questionnaires were sent out by third-class mail, which caused the big time delay. The third class mail received last priority by the Ball State mail service, then as it was received by the various local postal offices, it also received the lowest priority, and was delivered as time permitted. This accounted for the time delay.

THE QUESTIONNAIRE

In order to obtain the best results from the survey, three books on surveying were consulted. The three included QUESTIONNAIRES: Design and Use, by Douglas R. Berdie and John F. Anderson, PROFESSIONAL MAIL SURVEYS, by Paul Erdos, and Surveys, Polls, and Samples: Practical Procedures, by Mildred Parten.

The questionnaire used was designed to enhance response. Thus, it was short, easy to answer (using checks, or short answers), and limited to one page. This should increase the validity and reliability of the responses, according to QUESTIONNAIRES: Design and Use.

It was felt that mail questionnaires would be the best for the information sought, since most of the graduates had left the Muncie area. Addresses of Natural Resources Department graduates were obtained from the Alumni Office. Since the questionnaires-newsletters were mailed third-class, if they were non-deliverable, they were not returned. Therefore, there was no way to check to see how many graduates actually did or did not receive the questionnaires.

The questionnaire was also designed to increase the ease of completion by the respondent, since the graduates could complete them at their liesure.

Tabulation of the results also was considered in the design, as scoring and tabulating was facilitated by the design (Professional Mail Surveys).

According to QUESTIONNAIRES: Design and Use, the questionnaire had sufficient "sponsorship," defined as being endorsed by someone familiar to the target population. Dr. VanMeter, who has taught in the Department longer than anyone but the current chairman, should have been known by most of the graduates. The graduates were instructed to return the completed questionnaires through Dr. VanMeter and the Department of Natural Resources.

Included with the questionnaire was a short letter, called the "Letter of Transmittal," explaining the purpose of the questionnaire, asking for the graduates' help in completing the study, and a short explanation of why they were included. This should have also added significance to the questionnaire (Surveys, Polls, and Samples).

Basic questionnaire techniques, such as numbering questions, inserting "white space" into the design to help make the questionnaire appealing to the eye, and including instructions for completing the form, were followed, as outlined in Professional Mail Surveys.

The value of the results obtained from the questionnaire can be considered as minimal, due to the percentage of responses. Since only 17 questionnaires were returned of the 240 sent out, the results are not necessarily representative of the entire sample (QUESTIONNAIRES: Design and Use).

There were strict cost limitations on the project.

Thus, it was decided to include this questionnaire along with the newsletter (NR Update) sent to Natural Resources department graduates. The newsletter was sent out by third class mail. It was taken to the Ball State postal service the last week of April. Since it was third class mail, it received low priority, though it is not known exactly when it left the Ball State vicinity. When it arrived at the various local postal offices, it also again received lowest priority, and was delivered as time permitted. This accounted for the time delay, since no questionnaires were received completed until the last week of May. It was noted by some of the respondents that they did not receive the questionnaire until May 23 or so.

It should be noted that in the "Letter of Transmittal," the graduates were asked to return the completed form as soon as possible. However, earlier in the letter, it was noted that I would be graduated May 19. This was no doubt the cause of some questionnaires not being returned, and also violated a rule in Professional Mail Surveys, regarding the inclusion of a date to return completed forms by. As two respondents mentioned, the questionnaires were sent after the date requested "just in case you hadn't finished your project." However, there is some justification for the inclusion of a deadline date. At the time the questionnaires had supposed to go out, there was still the possibility of completing the project by

the May 19 graduation date.

Also along the line of cost limitations, the respondents did not receive a prior-addressed, stamped envelope to return the questionnaire. This could have significantly decreased responses (Professional Mail Surveys).

There also was no follow-up techniques used to increase response rate (Surveys, Polls, and Samples), again because of the cost involved, as well as limitations on time, as mentioned above.

COMPLETED QUESTIONNAIRES

The results of the questionnaire have been totaled and placed into tables on the following pages. Again, one must remember that the information resulting from the questionnaire is meant to help strengthen the Natural Resources Department, but the results from this survey can be considered as not necessarily representative of the graduates as a whole. This is due to the relatively small percentage of responses. There were some 240 questionnaires sent out, and only 17 were returned completed.

In looking at the results, one should be reminded of the goals of the project (see page 2). Thus, the results of the questions pertaining to the same goal have been grouped together, and will be the basis of any interrelationships found.

Questions one, seven, ten and eleven applied to the first goal-that of determining the number of graduates who obtained employment in a Natural Resources-related field. Table 1 shows the classification of jobs which the graduates presently hold.

TABLE 1
PRESENT JOB CLASSIFICATIONS

Area of classification	Number
Water	0
Air	1
Soils	1
Planning	3
Teaching	1
Recreation	2
Communications	1
Energy/Minerals	0
Other	8

Included in "other" were campground manager (2), salesman, technical, conservation construction, private environmental consultant, president of a fishery.

Table 2 shows the classification of the graduates' first jobs.

TABLE 2
GRADUATES' FIRST JOBS

Classification	Number
Natural Resources-related	14
Clerical	1
Utility Company	1
Business Management	1

As is readily apparent, the vast majority of the respondents did gain employment in an area closely related to their major field of study in college.

From Table 3, it can be seen that the graduates did not stay in their first job, since thirteen (13) of them have held jobs other than their first one.

TABLE 3
GRADUATES' OTHER EMPLOYMENT

Classification	Number
Teaching	2
Clerical	1
General Labor	3
Other	7

Included in "other" responses were photography, waiter, utility company, sewage treatment plant operator, golf course superintendent, biological research technician, and private consultant.

Table 4 shows the various options offered by the Department during the time of those surveyed, and the number who chose to follow the curriculum prescribed by each.

TABLE 4
UNDERGRADUATE OPTIONS

Option	Number
Water	0
General	15
Fishery	2
Interpretation	0
Communications	0
Resource Geography	0

These graduates would have been under one of the six options noted above. In 1978, however, the Department expanded its major offerings to nine options. The nine include water quality, general, natural resources planning, fishery resources, communications, natural resources interpretation, soil science, outdoor recreation management, and environmental protection.

By looking at all of the information received and noted in the first four tables, one can see that the Department's graduates were very successful in obtaining employment in a Natural Resources-related field. Also, by comparing tables 1 and 4, the type of option chosen by the graduate, as far as area of curriculum, was closely related to the type of work entered into. There were 15 general options' responses, and of the graduates' present jobs, 9 would probably be classified under the "General" category. Also, quite a few of the "other" responses in the other employment question could very easily be classified as "general" and somewhat Natural Resources-related.

The above information also dealt with the third goal set forth earlier-that of determining the number of graduates who entered the specific field which they majored in. Going a bit further on this, we also looked at the options chosen while undergraduates, and any correlation between the options and specific area under which the graduates' present job is classified as.

Another area that the questionnaire dealt with was whether the curriculum provided sufficient training to qualify the graduates for the type of employment they desired. Table 5 shows the results of this question.

TABLE 5
"Do you feel your studies at Ball State gave you sufficient background and training to qualify you for the Natural Resources job you desired?"

Responses	Number
Definitely yes	2
Mildly yes	11
Barely enough	1
Mildly no	2
Definitely no	1

Another way to judge the adequacy of the curriculum might be by the number of graduates who sought further education after graduation. Table 6 gives this information.

TABLE 6
GRADUATES' FURTHER EDUCATION

Responses	Number
Yes	6
No	11

If yes, what type

Master's	4
Other	2

If yes, in Natural Resources field

Yes	3
Other	3

It is interesting to note that of the four responses giving the training a "barely enough" or worse rating, two pursued further education (both in Natural Resources field), and the other two did not pursue any other type of education.

From Tables 5 and 6, it can be assumed that the Department's graduates feel the training given by the Department is adequate, even though some chose to continue their education. This positive rating by the graduates speaks positively of the department, as can be evidenced by the next set of information obtained from the questionnaire.

The graduates were asked to evaluate some of the strengths and weaknesses of the department and its curriculum. Table 7 shows the strengths, and Table 8 the weaknesses, as determined by the graduates.

TABLE 7
STRENGTHS OF CURRICULUM

Diverse subjects	10
Close relationships with instructors	13
Opportunities for practical experience	3
Employment placement opportunities	2
Knowledgeable instructors	9
Other	3

Included in "other" responses were "Instructors that are experienced in actual projects, not just schooling," "Excellent field trip experience," and "General atmosphere of the University."

TABLE 8
WEAKNESSES OF CURRICULUM

Have to take too many irrelevent courses	5
Grading too hard	0
Grading too easy	3
Practices taught not the same as those used in actual practice	7
Not enough chance for specialization in one area	8
Other	9

Included in "other" responses were "Does not help in giving job leads," five stating that "More courses with practical experience in the field are needed," "Facilities are poor (Lucina)," two stating that additional courses (chemistry, math, physics, computer science, report writing, and interpersonal communications) need to be made mandatory, and one that said, "Some teachers in my days at BSU were poor teachers."

From tables 7 and 8, it would appear that the graduates again are rather positive about the Natural Resources curriculum, as noted before. Diverse subjects and the instructors seemed to be the biggest strengths as judged by the graduates. The major areas of weakness seemed to center on the lack of field experience, not having more "specialized" options, and teaching of outdated practices no longer used.

The realignment of the curriculum in 1978, mentioned earlier, seems to reflect both the strengths and weaknesses. The expansion to nine options gives the student more interaction with the instructors, while keeping (and adding) the diverse subjects that the respondents to this survey

seemed to like so much. The realignment should also give students the opportunity to specialize in a particular area, and should also give the department a chance to offer even more field experiences. Since the Department is less than 10 years old, it surely has had some flaws and growing pains. The realization of this, and steps taken to strengthen the Department, has occurred and the students (both present and future) will benefit from the experiences of those students of the past.

PREVIOUS-STUDY COMPARISION

For comparision purposes, a Master of Science Thesis by Pam Popovich was used. Popovich's thesis dealt with the history of the Ball State University Natural Resources Department, with some specifics on information from its graduates. (It should be noted that knowledge of the Popovich thesis did not become available until June, 1979, when it was completed. Had previous knowledge been ascertained, the Honors Project questionnaire could have profited by Popovich's earlier efforts and suggestions.) (Popovich sent her questionnaire to graduates in June, 1976.)

Of particular interest were the following questions on Popovich's questionnaire: 1, Present occupation; 2, How does your present occupation relate to Natural Resources courses taken; 3, Other jobs; 4, Do you feel your course of study with the Department of Natural Resources prepared you for the employment you desired?; and 5, What were the strengths of the program.

Closely related questions were asked on this Honors Project, and these areas will be used for comparision to see what, if any, changes occurred in the three years that transpired between the time the two surveys were conducted.

In both surveys, the majority of the respondents chose the general option. In Popovich's research, she found nearly 60 percent of the respondents' current jobs

were Natural Resources-related, and most would apply most closely to the general heading, rather than a specific one (such as fishery, soils, etc.). This concurs with results found in the results of this Honors Project. The vast majority of the respondents could align themselves with the general option.

Popovich found the respondents also felt that more practical experience was needed in their educational program, as well as advanced courses in all areas and some other basic science courses. This also concurs with the responses given by the respondents to this Honors Project questionnaire.

Finally, the Popovich thesis brought out the strengths of the department as felt by the graduates at the time of the survey. The major strengths of the department were the positive aspects of the faculty. The "faculty's personal interest in students," "wide variety of views from courses and faculty," and field study experiences were responses mentioned most often.

The results of the two questionnaires agree on the major strengths of the Department, in that various aspects concerning the instructors was the most often mentioned strength.

Major weaknesses of the Department as ascertained by the graduates in the Popovich study include the over-generalized, over-simplified nature of the courses and requirements. More in-depth study was also listed as an

area that needed improvement in the department.

The Honors Project results showed that field experience needed enlargement, there was not enough opportunity for specialization, and that some of the practices taught are out-dated. This concurs somewhat with the Popovich study.

SUMMARY AND FINAL COMMENTS

So where does all of this take us? Hopefully, it will be evaluated and some action taken upon the results, whether it be changes or the knowledge that Ball State does indeed have a fine Natural Resources curriculum and department.

The results appear to be very similar to those found by Pam Popovich in her Master's Thesis, completed June, 1979. The fact that two studies, done at different times by different people, point to the same results has something to say. Taken by itself, this Honors Project and the results of it, might not be very significant due to the number of respondents. However, the results bear out another study, and both lend credence to the other.

What do the results say? I would agree with the results that Ball State has an excellent department, but of course there are areas that could stand to be improved. These areas include increasing field experience opportunities, giving more chance for specialization in given areas, and working more closely with its graduates. The first two items mentioned have been given sufficient attention by the realignment of the curriculum in 1978. Of course, no respondents could evaluate the results possible from the realignment, and that points to the need for further study and evaluation involving the graduates, as they should be in the best position to know what the strengths are, and what needs to be changed.

APPENDIX A

Dear Graduate,

My name is Tom Owens, and I am a senior with a double major in Natural Resources and Journalism. I am also on the University Honors Program, and for my Honors Project (a culmination of my studies) I am conducting a survey of Ball State's Natural Resources Department graduates.

The accompanying questionnaire is the basis for my research. I hope to gain some insight into the type of training the Department offers (as judged by you in retrospect), some of the curriculum's strengths and weaknesses, and the percentage of Department graduates who have found employment in a Natural Resources-related field. Of course, the main purpose of this study is for my Honors Project, but it could also help the Department in the planning of its curriculum, and also in staying in contact with you.

Time is rapidly running out on me, since I am to be graduated May 19. So, I'm asking that you spare five minutes of your time, fill out the questionnaire, and return it to me, Tom Owens

c/o Dr. Donald VanMeter
Department of Natural Resources
Ball State University
Muncie, IN 47306

If you could please mail the questionnaire back to me by May 4, I can begin to compile the results as soon as possible.

Thank you very much for your time and cooperation, and I hope to be hearing from you in the very near future.

Sincerely,

Tom Owens

HONORS PROJECT QUESTIONNAIRE

1. Was the first job you accepted after graduation from Ball State in a Natural Resources-related field Yes _____ No _____
If no, what field was it in Military _____ Clerical _____
Teaching _____ General Labor _____ Other(specify) _____
2. Date of your graduation from Ball State Undergraduate _____
Graduate degree _____
3. Departmental Option at Ball State
Water _____ General _____ Fishery _____
Communications _____ Resource Geography _____ Soils _____
4. Do you feel your studies at Ball State gave you sufficient background and training to qualify you for the Natural Resources job you desired
Definitely yes _____ Mildly yes _____ Barely enough _____
Mildly no _____ Definitely no _____
5. What are some of the strengths of the Ball State curriculum
_____ Diverse subjects
_____ Close relationships with instructors
_____ Opportunities for practical experience
_____ Employment placement opportunities
_____ Knowledgeable instructors
_____ Other(please specify) _____
6. What are some of the weaknesses of the Ball State curriculum
_____ Have to take too many irrelevant courses
_____ Grading too hard
_____ Grading too easy
_____ Practices taught not the same as those used in actual practice
_____ Not enough chance for specialization in one area
_____ Other(please specify) _____
7. What other types of employment have you held besides your present one
Teaching _____ Military _____ Clerical _____
General Labor _____ Other(specify) _____
8. Have you done any type of further education after obtaining your undergraduate degree from Ball State Yes _____ No _____
If yes: Master's _____ PhD _____ Other _____
in Natural Resources Field _____ or Other _____
9. What field is your present job classified in
Water _____ Air _____ Soils _____ Planning _____
Teaching _____ Recreation _____ Communications _____
Energy/Minerals _____ Other(specify) _____
10. Is your present job the one you accepted immediately after graduation
Yes _____ No _____
11. How long have you held your present job
0-1 year _____ 1-3 years _____ 3-5 years _____
5-8 years _____ 8 or more years _____
12. How old are you 20-25 _____ 26-30 _____ 31-35 _____ over 35 _____
13. Please check one Male _____ Female _____