

## 2020 Wildlife and Natural Resources Assessment

Prepared by Nate Bickford Wildlife and Natural Resources (WANR) Director

There are 5 Student Learning Opportunities (SLO). The SLO's are:

SLO 1: Students will develop a broad-based knowledge of concepts and terminology in organismal, and ecological biology.

SLO 2: Students will know the taxonomy, ecology and natural history of flora and fauna in southern Colorado and the desert southwest.

SLO 3: Students will know the principles and concepts of fish and wildlife science and how they are combined with human dimensions to make informed decisions on difficult management issues.

SLO 4: Students will develop skills in reading and interpreting the scientific literature and in presenting a synthesis of it accurately in oral and written form.

SLO 5: Students will demonstrate critical thinking and problem-solving skills using experimental design and the scientific process.

The faculty that teach in WANR have set program goals for the SLOs. Program goals for SLOs are as follows:

SLO 1: 75% of students will score above the 50% nationally on the organismal and ecological portions of the MFAT exam

SLO 2: 75% of students will score higher than 70% on taxonomy exams administered in taxonomy courses.

SLO 3: 75% of students will be scored proficient 80% to evaluate final projects in WANR 401 and WANR 305.

SLO 4: 75% of our senior students be at or higher than 80%. to evaluate literature review in WANR 401, WANR 402 or taxonomy courses.

SLO 5: 75% of students will be scored proficient on their final presentation in BIOL 493.

### **Assessment:**

SLO 1: To assess knowledge of organismal and ecological biology we will administer the GRE to each class of First Year Seminar (BIOL 171) for baseline assessment and administer MFAT exam to each class of Senior Seminar (BIOL 493). For each of these exams, only the organismal and ecological portions will be considered. The MFAT in particular is divided into Cell Biology, Molecular Biology and Genetics, Organismal Biology, and Population Biology, Evolution and Ecology. The first two will not be considered as they are not extensively covered in the WANR curriculum. Our goal is to have 75% of our senior students score at or above 50% of National percentile on the on both the Organismal Biology portion and Population Biology, Evolution and Ecology portion of the MFAT exam.

- 75% of students at 50th percentile nationally in organismal biology and ecology 64% (9/13) of students were above the 50th percentile for organismal biology and 82% of students (9/11) were above the 50th percentile for Population Biology, Evolution and Ecology. Scores on the Population Biology, Evolution and Ecology portions of the MFAT were above our goal, however we were below our goal for organismal biology. Our samples very small and this may not represent a consistent pattern.

SLO 2: Knowledge of local flora and fauna will be measured in taxonomy classes (BIOL 479 Ichthyology, BIOL 481 Entomology, BIOL 482 Herpetology, BIOL 483 Mammalogy, BIOL 484 Ornithology, BIOL 485 Plant Taxonomy). All of these courses include taxonomy exams that focus on identification of local species. The raw score on these exams will be used to assess student knowledge of local species. Our goal for 75% of students to score 70% or better on these exams. Exams will be graded and copied by faculty teaching the courses and supplied to the program director.

In 2019/2020 both Ichthyology and Mammalogy were offered.

- In the ichthyology practical 75% of the WANR students scored greater than 70% (6 of 8 students).

SLO 3: Assessment of fisheries and wildlife management will occur in the 400 level wildlife courses, WANR 401 (Fisheries Science) and WANR 302 (Wildlife Management). Each of these classes culminate in a final project involving management science. These projects will be assessed by faculty. Our goal is to have 75% of students achieve an average score of 80%.

In 2019/2020 both Fisheries Science and Wildlife Management were offered.

- In Fisheries final project is 86% of the WANR student's scored greater than 80% on the final project (6 of 7).
- In Wildlife Management final project is 79% of the WANR student's scored greater than 80% on the final project (11 of 14).

SLO 4. Interpretation of scientific literature will be assessed twice, once during the second year in Botany (BIOL 201) or Zoology (BIOL 202) and again in Endangered Species (WANR 405) and Senior Seminar (BIOL 493). Each of these classes have assignments that interpretive scientific literature. Grades will be used to assess if students are proficient at reading, interpreting, and presenting scientific literature. Our goal is to have at 75% of our senior students be at or higher than 80%.

With the pandemic and switch of pedagogical teaching these assignments were not performed in the same manner. Consequently, we will take this data next year.

SLO 5. Critical thinking and problem skills will be assessed in Wildlife Management (WANR 305) and in Senior Seminar (BIOL 493) using a rubric to be developed. Our goal is to have 75% of our students in BIOL 493 receive an average score of proficient from the faculty.

This is my first year and this has not been developed yet. This will be developed in 2021



**Academic Program Assessment Report for AY 2019-2020**

(Due: June 1, 2020)

Program: Wildlife and Natural Resources

Date report completed: 5/28/20

Completed by: Nate Bickford

Assessment contributors (other faculty involved): \_\_\_\_\_

Please describe the 2019-2020 assessment activities and follow-up for your program below. Please complete this form for each undergraduate major, minor, certificate, and graduate program (e.g., B.A., B.S., M.S.) in your department. Please copy any addenda (e.g., rubrics) and paste them in this document, save and submit it to both the Dean of your college/school and to the Assistant Provost as an email attachment before June 1, 2018. You'll also find this form on the assessment website at <https://www.csueblo.edu/assessment-and-student-learning/resources.html>. Thank you.

**Brief statement of Program mission and goals:**

The Biology Program provides the biological component of the liberal arts education. We promote student understanding of biological concepts relevant to the individual and society, and foster an appreciation of scientific inquiry. Biology is an integral subject for other majors' requirements and the Biology department is committed to fulfilling these service courses and general education for other departments.

The major of wildlife and natural resources leads to a Bachelor of Science (BS) Degree. In addition, supporting courses and general education courses in biology are available to meet a wide range of interests, backgrounds and needs. The Wildlife and Natural Resources Program emphasizes an understanding of fish and wildlife ecology and management with practical skills obtained during laboratory and field exercises. Graduates are prepared for positions with state and federal agencies, tribal departments, and conservation organizations or higher academic degrees. Carefully supervised career planning is provided to all students.

**Program Goals**

- To provide students with the necessary background to successfully pursue graduate study towards a professional career in wildlife and natural resources;
- To prepare students upon graduation to enter field positions in government or private industry; and,
- To supply students with the necessary coursework to obtain professional certification as associate fishery or wildlife biologists.

**I. Assessment of Student Learning Outcomes (SLOs) in this cycle.** Including processes, results, and recommendations for improved student learning. Use Column H to describe improvements planned for 2020-2021 based on the assessment process.

| A. Which of the program SLOs were assessed during this cycle?   | B. When was this SLO <u>last</u> reported on prior to this cycle? | C. What method was used for assessing the SLO? | D. Who was assessed? Please fully describe the student group(s) and the number of students or artifacts involved.            | E. What is the expected proficiency level and how many or students should be at that level? | F. What were the results of the assessment?   | G. What were the department's conclusions about student performance?   | H. What changes/improvements to the <u>program</u> are planned based on this assessment? |
|---|---|--|--|---|---|--|--|
| SLO 1: Students will develop a broad-based knowledge of concepts and terminology in organismal, and ecological biology.   | 2019  | MFAT   | 13 WANR students enrolled in BIOL 493 in Fall 18 and Spring 19   | 75% of students at 50 <sup>th</sup> percentile nationally in organismal biology and ecology | 64% (9/13) of students were above the 50 <sup>th</sup> percentile for organismal biology and 82% of students (9/11) were above the 50 <sup>th</sup> percentile for Population Biology, Evolution and Ecology. | Scores on the Population Biology, Evolution and Ecology portions of the MFAT were above our goal, however we were below our goal for organismal biology. Our samples very small and this may not represent a consistent pattern. | There are no plans to change the program at this point until we collect more data.       |
| SLO 2: Students will know the taxonomy, ecology and natural history of flora and fauna in southern Colorado and the desert southwest.   | 2019  | Taxonomy exam                                  | 8 enrolled students in Ichthyology were assessed on their taxonomy exams   | 75% of students at 70% or above.  | 75% (6/8) of students scored a 70% or above.  | This is at our stated goal. However, the data set is small.  | There are no plans to change the program at this point until we collect more data.       |
| SLO 3: Students will know the principles and concepts of fish and wildlife science and how they are combined with human dimensions to make informed decisions on difficult management issues. | Never   | Final Project                                  | Enrolled students in Fisheries<br><br>Enrolled students Wildlife Management  | 75% of students achieve an average score of 80%   | (6 of 7) 86% of the WANR student's scored greater than 80%<br><br>(11 of 14) 79% of the WANR student's scored greater than 80%  | This is above our stated goal.   | There are no plans to change the program at this point until we collect more data.       |
| SLO 4: Students will develop skills in reading and interpreting the scientific literature and in presenting a synthesis of it accurately in oral and written form.                            | Never   | scientific literature project                  | Enrolled in Botany (BIOL 201) or Zoology (BIOL 202) and again in Endangered Species (WANR 405) and Senior Seminar (BIOL 493) | Our goal is to have at 75% of our senior students be at or higher than 80%                  | NA  | NA   | NA   |

|  |       |                            |   |   |    |    |    |
|--|-------|----------------------------|---|---|----|----|----|
| SLO 5. Students will demonstrate critical thinking and problem-solving skills using experimental design and the scientific process | Never | Critical thinking scenario | Enrolled in Wildlife Management (WANR 305) and in Senior Seminar (BIOL 493) | Our goal is to have 75% of our students in BIOL 493 receive an average score of proficient from the faculty | NA | NA | NA |
|--|-------|----------------------------|---|---|----|----|----|

Comments on part I: This is our second year assessing this program and my first year at CSU Pueblo. Rubrics for SLO 5 are still in development and will be completed in the next year.

**II. Closing the Loop. Describe at least one data-informed change to your curriculum during the 2019-2020 cycle.** These are those that were based on, or implemented to address, the results of assessment from previous cycles.

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|--|--|--|--|--|
| A. What SLO(s) or other issues did you address in this cycle?<br><b>Please include the outcome(s) verbatim from the assessment plan.</b> | B. When was this SLO last assessed to generate the data which informed the change?<br>Please indicate the semester and year. | C. What were the recommendations for change from the previous assessment column H and/or feedback? | D. How were the recommendations for change acted upon? | E. What were the results of the changes?<br>If the changes were not effective, what are the next steps or the new recommendations? |
| N/A  | N/A  | N/A  | N/A  | N/A  |

Comments on part II: Program has only had one previous cycle, so there is insufficient information to close the loop this year.