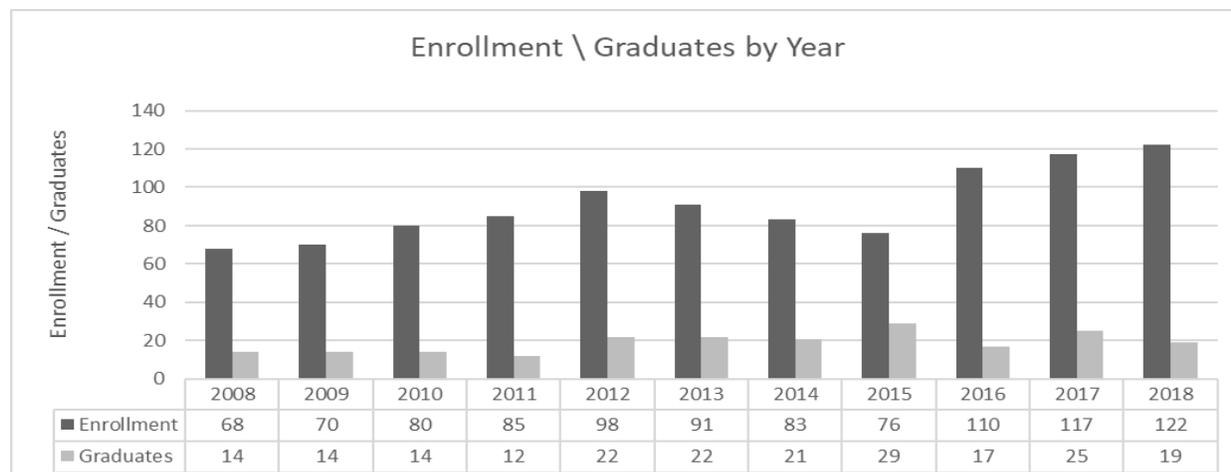


## PROGRAM REVIEW IMPLEMENTATION PLAN PROGRESS REPORT 2017 – 2018 Natural Resources and Environmental Science BS Program

### RECOMMENDATIONS

**1. Student recruitment into the NRES program has been an ongoing focus.**

**Assessment Method:** We used enrollment and graduation data over the past ten years to determine enrollment trends. The enrollment and graduate decadal record is in Figure 1.



**Figure 1: NRES Enrollment and Graduation since 2008.** \*Data provided by Louise Gladstone on September 17, 2018, for 2017-2018 Academic Year graduation.

**Results:** Enrollment continued an upward trend this year with the highest number of enrolled students in the past decade, and increasing numbers over the past three years. The number of students graduating is somewhat more dynamic, averaging 19 students per year over the past 11 years.

**Analysis:** While it is difficult to pinpoint the specific reasons for the current high enrollment, and the continued increase in enrollment, there are likely several factors at play. We hired an Academic Coordinator (AC) in 2011, and this person identified and implemented several new approaches to recruitment and retention. For example, we now have a plan for students to transfer from the Environmental Science and Technology (EST) program at Bluegrass Community and Technical College (BCTC) to UK, and a commensurate increase in the number of students we recruit from BCTC. Changes in the Center for Student Success, with the addition of Wayne Centers and Seth Riker in the fall 2015, is likely also helping with recruitment. The trends we are noting, especially in transfers to the program, suggest that many of our students are coming to NRES from majors in the Colleges of Engineering and Arts and Sciences, as well as from other majors within CAFE, mostly from the Department of Animal and Food Sciences. There is also some evidence that the relatively new B.A. in Environmental and Sustainability Studies (ENS) in the College of Arts and Sciences has increased awareness of “environmental” programs at UK, which in a few instances has attracted students to UK who, after arriving on campus, learned of and made the move to NRES. In the past Undergraduate Studies was a key pathway by which students found the NRES program; however, there is no detectable impact on student numbers from the loss of this program. The number of students graduating, and the variation in those numbers, likely reflects the lag in enrollment and the challenges of graduating students on time. If

primarily due to the lag in enrollment, we would predict a higher number of graduates starting in 2018-2019.

**Ongoing Improvement Actions:** For now, we intend to continue as we have been, as the last year has seen a 3% increase in enrollment, which at 122 students may be nearing capacity for the NRES program with its emphasis on experiential learning and commitment to faculty advising. Maintaining student numbers entails continued efforts to recruit first-year students during CAFE recruiting events coupled with on-campus recruiting to provide a “soft landing” for students considering different majors.

**2. The external program review (April 2014) recommended improvements to office space used by the NRES Academic Coordinator (AC), as well as additional staff support for the NRES program.**

**Assessment Method:** Evaluation of the adequacy of office space and support staff.

**Results:** New office space for the NRES AC was provided in the Equine Suite on the second floor of the Agriculture Science North building in early summer of 2015. The Department of Forestry and Natural Resources (FNR) continues to provide storage space in the TP Cooper building for NRES program use, and NRES students share a lounge with Forestry students in the basement of TP Cooper, including access to printing. The NRES program has not received any direct additional staff support since the periodic program review. However, support through the Center for Student Success, including budget support from Deb Ramey and help with student management and course enrollment, have been essential and adequate. The program also relies on 2-3 undergraduate students working 5-10 hours/week writing the bi-annual NRES newsletter. The students also help with other program needs, such as helping staff events, student recruiting, and attending NRES Steering Committee meetings to provide insights from a student perspective.

**Analysis:** The new NRES AC office space is a significant improvement and is working. Although no new staff were added, support from the Center for Student Success in tracking of budgets and purchases and student support is accomplishing our needs for staff support. We have sufficient budgetary capacity to pay for the 2-3 NRES Student Assistants, as well as 2-3 Part-Time Instructors, though much of this capacity is funded through student tuition monies for the Robinson Forest field experience course and, more recently, summer tuition for student internship/research credits.

**Ongoing Improvement Actions:** Our space is working. The additional storage space in TP Cooper is a necessary addition to NRES program needs, and very much appreciated. For now, our need for staff support is effectively fulfilled through staff in the Center for Student Success.

**3. There is a need for recruitment and retention to the NRES program of faculty whose primary academic homes are a CAFE department. This currently occurs in two ways: when new faculty are hired with potential to contribute to the NRES program, making that connection explicit in the hiring process; and the recruitment and retention of faculty once they arrive on campus.**

**Assessment Method:** Measured by the number of faculty who are dedicated to the NRES program by serving on the NRES Steering Committee (NRES SC) and/or advising of NRES students.

**Table 1:** The number of NRES Steering Committee members and advisors for the past four years.

	<b>NRES Steering Committee</b>	<b>Advisers</b>
<b>2017-2018</b>	13 <sup>1</sup>	9 <sup>4</sup>

<b>2016-2017</b>	9 <sup>2</sup>	9 <sup>5</sup>
<b>2015-2016</b>	9 <sup>2</sup>	9 <sup>6</sup>
<b>2014-2015</b>	8 <sup>3</sup>	9 <sup>7</sup>

1. SC membership 2017-2018: FNR, 3 faculty, 1 staff; LA, 2 faculty; PSS, 3 faculty, Ag Econ, 1 faculty, Earth and Environmental Science, 1 faculty; Geography, 1 faculty; Alum, 1.
2. SC membership 2015-2017: FNR, 2 faculty, 1 staff; LA, 2 faculty; PSS, 2 faculty; AgEcon, 1 faculty; Earth and Environmental Science, 1 faculty
3. SC membership 2014-2015: FNR, 2 faculty, 1 staff; LA, 1 faculty; BAE, 1 faculty; PSS, 2 faculty; AgEcon, 1; EES, 1 faculty.
4. Advisors 2017-2018: Forestry 4; LA 2; PSS 3; AgEcon, 1; Earth and Environmental Science, 1. Will add one additional FNR advisor and one additional PSS advisor in January 2019.
5. Advisors 2016-2017: Forestry 4; LA 2; PSS 3; AgEcon, 1
6. Advisors 2015-2016: Forestry 3; LA 2; PSS 3; AgEcon, 1
7. Advisors 2014-2015: Forestry 3; LA 1; PSS 3; AgEcon, 1; BAE, 1

**Results:** Membership of the NRES SC is made up of the Chair (Mary Arthur, FNR), the DUS (Brian Lee, Landscape Architecture (started July 1, 2018)), and 10 additional members including an alum. Most of these faculty teach one or more of the major required and/or guided elective courses and advise students. Additional faculty teach key courses for the NRES program; there are also faculty who neither teach NRES courses nor serve on the NRES SC, but advise students (Mike Lacki, FNR; Mark Coyne, Plant and Soil Sciences). The number of SC faculty has generally been in a relative steady state. This past summer the NRES SC Chair made a concerted and successful effort to identify and invite new Steering Committee members, adding two new and one returning faculty members, along with an alum, increasing SC membership to 13. One of these new members is from the College of Arts & Sciences, Department of Geography. and one is a new faculty member in Plant and Soil Sciences.

**Analysis:** We face a key challenge with regard to NRES program leadership: identifying faculty who are ready, willing, and have the time to assume the key leadership roles of NRES SC Chair and DUS. Mary Arthur will be stepping down from the role of NRES SC Chair no later than June 30, 2019; to date, a successor has not been identified. Brian Lee has taken on the role of DUS with the agreement to reduce his teaching DOE for two years; it is not clear whether this teaching reduction can be sustained beyond two years. In recognition of the challenges to the NRES program of identifying and onboarding new faculty who will eventually step into leadership roles, we increased the number of NRES SC members. Despite our success in recruiting new faculty to the NRES SC, the need to develop new leadership remains a challenge. In addition, as our student numbers are currently high, and we intend to work to continue to increase student numbers (as the University intends to increase enrollment), we need to either attract new advisors to help carry the advising load, and/or each advisor will need to take on more advisees. The latter option, taking on more advisees, is not realistic for many of our advisers who also advise for their home departments and may not have any available DOE to commit. The NRES AC provides support for advising by maintaining program information, supporting students in finding appropriate internship/research and education abroad opportunities, and providing initial advising for students entering the program. The NRES program has always been and is committed to a faculty advising model because we believe it gives students essential contact with at least one faculty member who knows them well outside of a classroom or laboratory setting.

**Ongoing Improvement Actions:** The NRES program relies heavily on the Chairs of the affiliated departments and the Dean of CAFE to identify new faculty hires with an expectation of contributing to NRES, and whose positions are then explicitly connected to the NRES program for teaching, NRES SC

service, and/or academic advising. From the program perspective, we need to maintain strong communication with Chairs of the affiliated departments, the Dean, and Associate Dean of Instruction when departmental hiring discussions occur and candidate decisions are being made. The challenge of developing faculty leadership within the NRES has resulted in long terms for each of our 4-5 NRES SC Chairs over the past 24 years (past chairs have come from the Departments of Rural Sociology, Plant and Soil Sciences, Agricultural Economics, and most recently, FNR). For example, the current NRES SC Chair has served in that role since 2009, and there is no apparent successor poised to take this role although the current chair will step down by June 30, 2019. Similarly, it can be difficult to identify a faculty member to serve as NRES DUS. The Department of Plant and Soil Sciences has traditionally been the home department of the NRES DUS until Brian Lee, in Landscape Architecture, stepped into the role effective July 1, 2018. In addition to these two leadership positions, faculty on the NRES SC also serve in other roles, including providing oversight of the Internship Program and Annual Internship Forum (Jack Schieffer, Department of Agricultural Economics), leading assessment efforts (the NRES DUS leads this effort), and oversight of the NRES Summer Camp at Robinson Forest (Chris Barton, FNR, has done this for the past 10 years or so, with support from the NRES AC since she was hired seven years ago), as well as the NRES Costa Rica field course (taught by Rob Paratley (5 yr.) and Steven Price (4 yr.), both in FNR). Recruitment into each of these roles has been organic, with faculty stepping up to various roles as they see a need they can fill. This has been workable throughout the history of the program, but has also depended upon strong support from Chairs of affiliated departments, as well as a commitment from the Dean of CAFE to hire new faculty with expectations for contributions to the NRES program. Since faculty serving NRES are doing so largely out of self-identified and self-driven interest in and commitment to the program, there is a continual need to find ways to further incentivize, nurture, and support those interests and commitments from faculty. The recent development of an MOU between the NRES program and the affiliated departments (FNR, PSS, LA, and AEC) may help to provide a clear vehicle for maintaining institutional memory regarding departmental commitments to supporting this important inter-disciplinary program.

4. **We encourage NRES students to study abroad, as a semester abroad, with the NRES summer camp in Costa Rica, or through other opportunities. The Costa Rica summer camp option provides a necessary alleviation of a bottleneck for students for program completion, since the Robinson Forest course structure in some years cannot support the full number of students needing to complete NRE 320.**

**Assessment Method:** Numbers of students studying abroad.

**Results:** We have data on students studying abroad only for the past six years, which coincides with the initial offering of a 15 day NRES summer camp in Costa Rica that fulfills the requirement for summer camp (the other option is a 15 day over a 3-week experience at Robinson Forest).

**Table 3:** Numbers of students who have studied abroad since 2012.

Year	Semester Abroad	Summer Abroad (internship or academic)	Alternate summer camp abroad	NRES Costa Rica
2017-2018	3	4		11 (+ 1 from BAE)
2016-2017	1	1	2	21
2015-2016	4	0		12
2014-2015	3	1		1 (+ 4 other majors)

2013-2014	2	1		12
2012-2013	1	2		17

**Analysis:** The data above illustrate that a subset of NRES students are studying abroad, in no small measure due to the Costa Rica field course. The development of a brochure linking UK Education Abroad (EA) opportunities with the NRES program has helped to make the idea of studying abroad more accessible and encouraged more students to do it.

**Ongoing Improvement Actions:** There are several strategies we use to nurture NRES students going abroad. First, we advertise the Costa Rica field course early in the year, including to students not in NRES, so that there will be sufficient numbers for the course to be financially feasible. Secondly, we are challenged to help students meet the financial challenge of both the Costa Rica field course and the Robinson Forest field course. We use tuition return funds from summer camp to provide scholarships to students, and many of our students benefit from this model. We are also in discussions with faculty and staff at University of San Francisco in Quito (USFQ), Ecuador about a potential field course that would be held in December - January, offering our students (and other majors) another course that would fulfill the field experience course requirement at a time of year less likely to interfere with a summer internship or work. Members of the NRES SC are actively working to build additional international connections that may further support this goal.

**Additional related concern:** Last year we were concerned about the required changes to charge tuition for summer term internship/research experience credits to be implemented in 2018, which required all students enrolled in their internship/research experience in the summer to pay resident or non-resident tuition. The internship/research experience fulfills the Graduation Composition and Communication Requirement for the program. The NRES program is submitting the required documentation to adjust how the required internship/research experience is accomplished so that we improve the academic enrichment experience while reducing costs for many of the students. Although the financial concern is a factor (about 10% of our students are first generation and about 7% are underrepresented minorities), the tuition charge modifications have made examine the way we provide these experiences and compare to other programs and best practices in a way that the program sees as beneficial to the students financially and academically.

**5. The NRES program could benefit from developing a fund-raising stream, which could be used to support student development, such as travel to a professional meeting.**

**Assessment Method:** Creation of an NRES Enrichment Fund and funds raised; the Chase Parker Powell Memorial Scholarship Fund creation and funds raised.

**Results:** Since 2015 the NRES program has created an NRES Enrichment Fund and has raised \$500. This amount has not changed in the past year. The Chase Parker Powell Memorial Scholarship Fund has active fund-raising, and currently holds \$17,179.

**Analysis:** With the Enrichment Fund in place, NRES and NRCM alumni are able to give to the program, but we have not worked closely with the University and CAFE development offices to further this goal.

**Ongoing Improvement Actions:** Perhaps with the new Kentucky Can: The 21<sup>st</sup> Century Campaign, new and enhanced opportunities will allow us to work with CAFE Development to help grow the NRES Enrichment Fund.