



# Today's Young Professionals in Natural Resources

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# Key Topics to Discuss

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- Natural Resources Programs Enrollment Trends
- Thoughts from Penn State DuBois Wildlife Students
- Recruitment Issues and Ideas

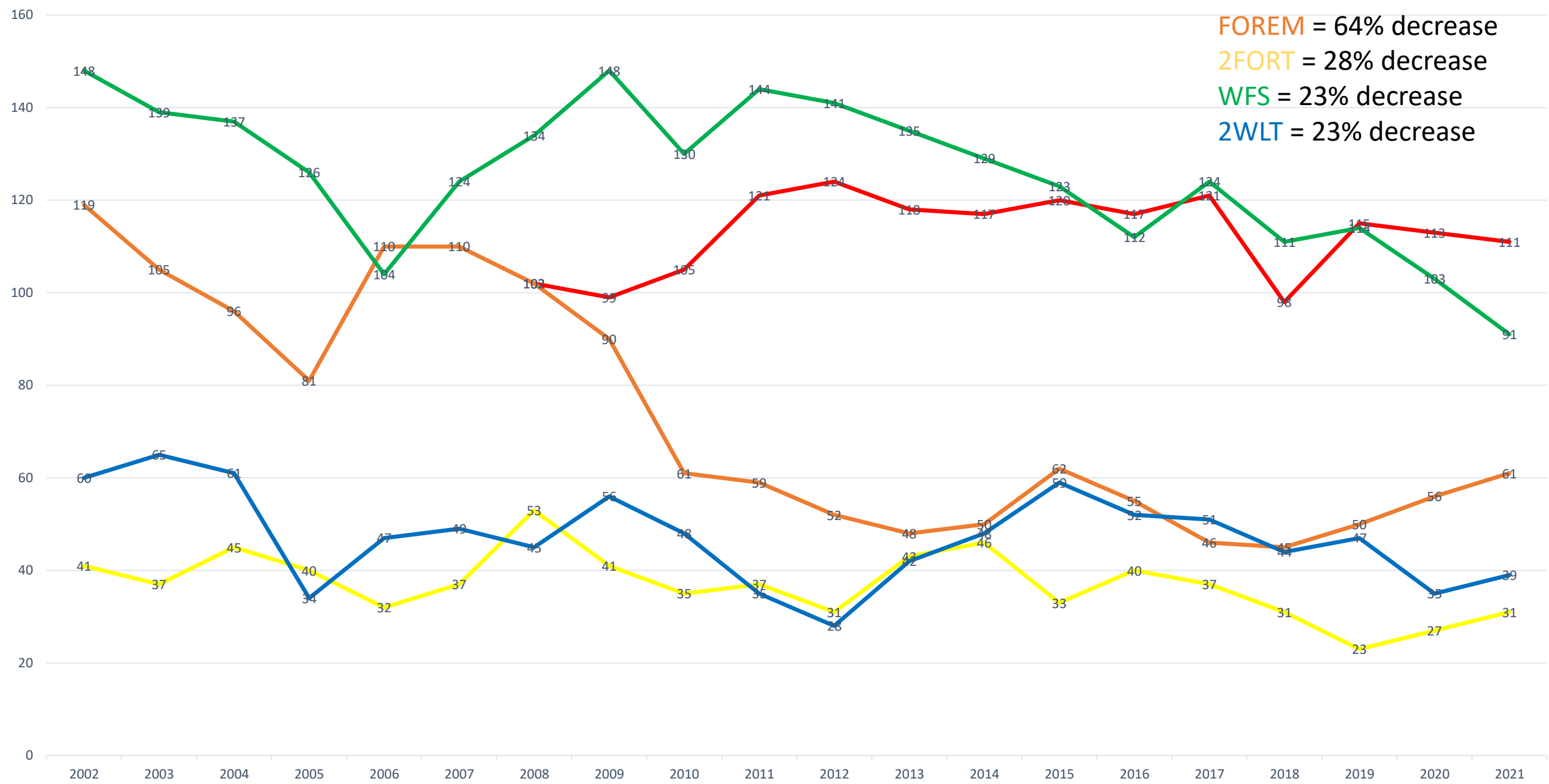


# Penn State Enrollment Trends

- Data from 2002-2021
  - 2002-2020 from Food and Agricultural Education Information System
  - 2021 from Penn State Data Digest
- Penn State Natural Resource Programs
  - **Environmental Resource Management** – University Park
    - Data start in 2008
  - **Forest Ecosystem Management** – University Park
  - **Forest Technology** – Mont Alto
  - **Wildlife and Fisheries Science** – University Park
  - **Wildlife Technology** – DuBois
- Overall Enrollment, % Female, and % Minority

# Penn State Enrollment by Major 2002-2021

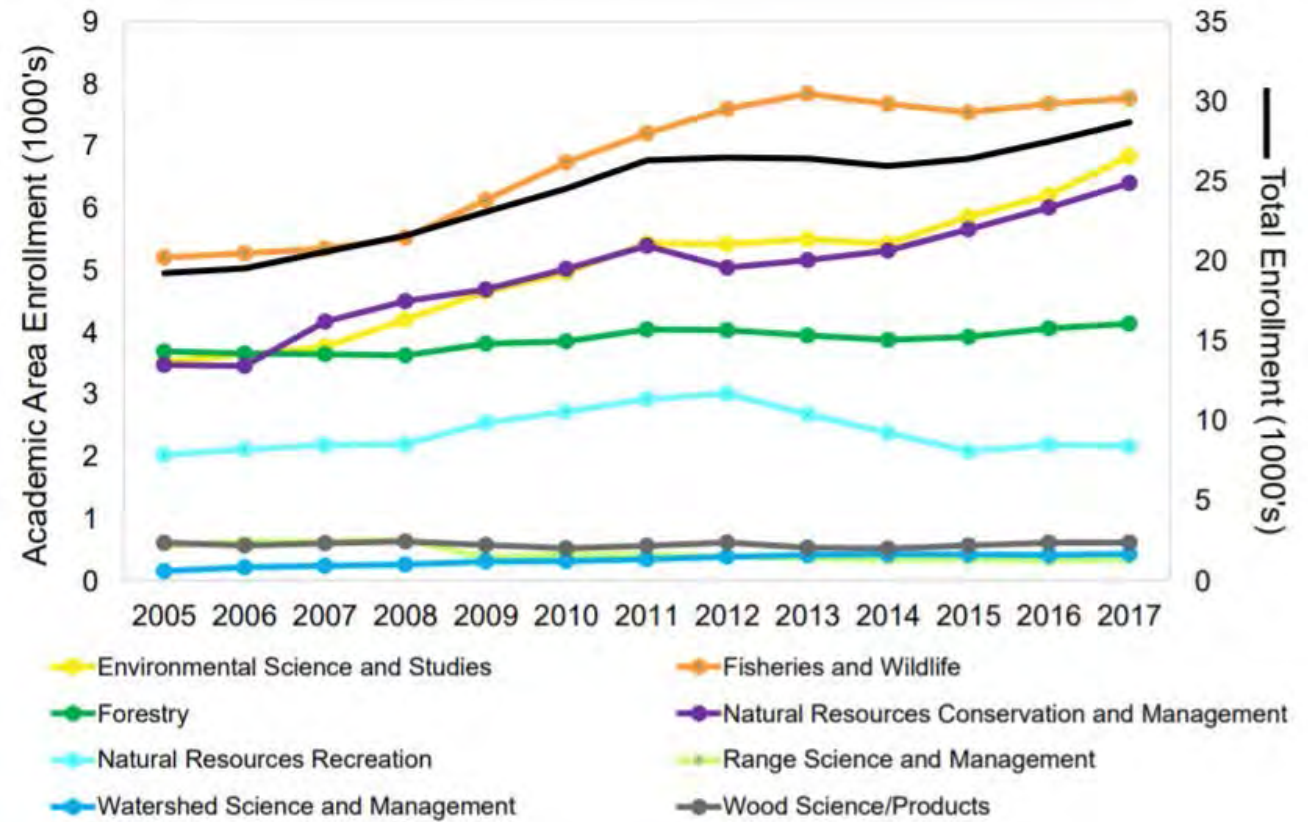
ERM = 7% increase  
 FOREM = 64% decrease  
 2FORT = 28% decrease  
 WFS = 23% decrease  
 2WLT = 23% decrease



Environmental Resource Management    Forest Ecosystem Management    Forest Technology    Wildlife and Fisheries Science    Wildlife Technology

Sharik et al.  
2019 SAF  
Conference

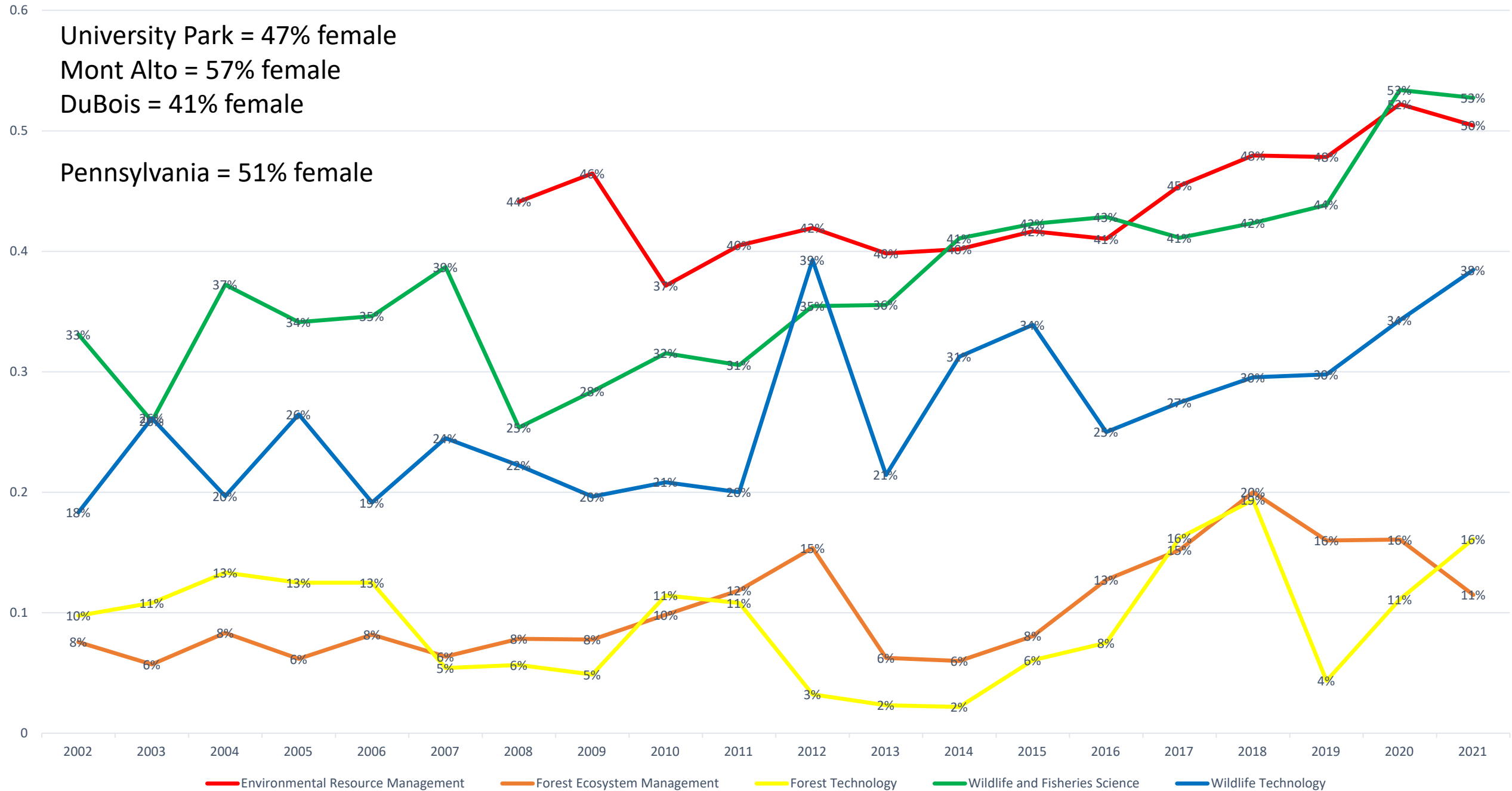
**Undergraduate NR enrollment by academic area at 61 NAUFRP institutions, 2005–2017 (FAEIS October 1, 2019).**



NAUFRP = National Association of University Forest Resource Programs

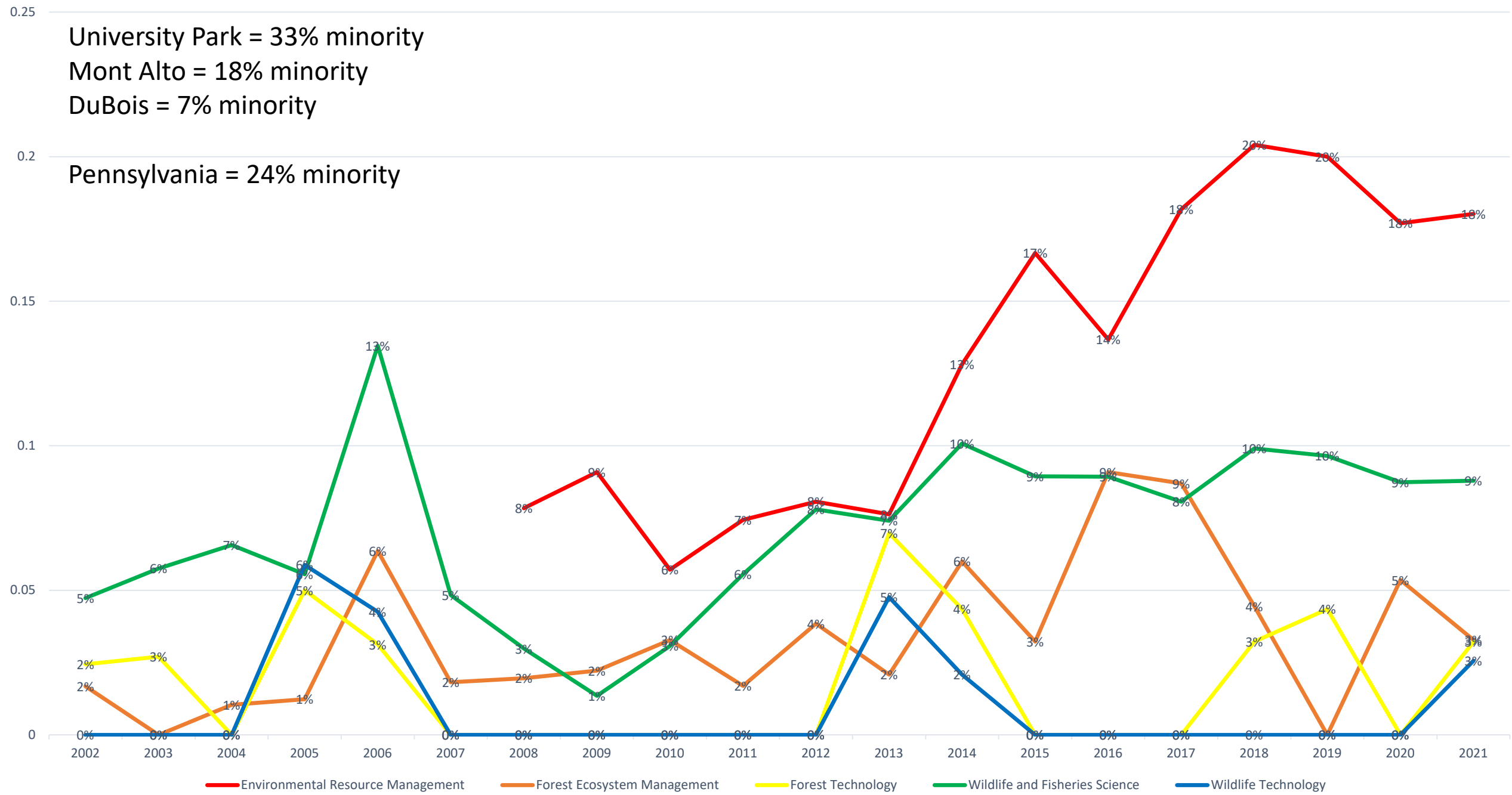
# % Female of Penn State Enrollment by Major 2002-2021

University Park = 47% female  
 Mont Alto = 57% female  
 DuBois = 41% female  
 Pennsylvania = 51% female



# % Minority of Penn State Enrollment by Major 2002-2021

University Park = 33% minority  
 Mont Alto = 18% minority  
 DuBois = 7% minority  
 Pennsylvania = 24% minority





# Takeaways from Enrollment Trends

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- B.S. in Forest Ecosystem Management has shown the largest decline over the past 20 years
  - 64% decrease from 2002-2021
- A.S. in Forest Technology has seen more stable enrollment over the past 20 years
  - 28% decrease from 2002-2021
- Broader Natural Resources programs are showing the largest increases in enrollment
  - Environmental Science and Studies
  - Natural Resources Conservation and Management



# Takeaways from Enrollment Trends

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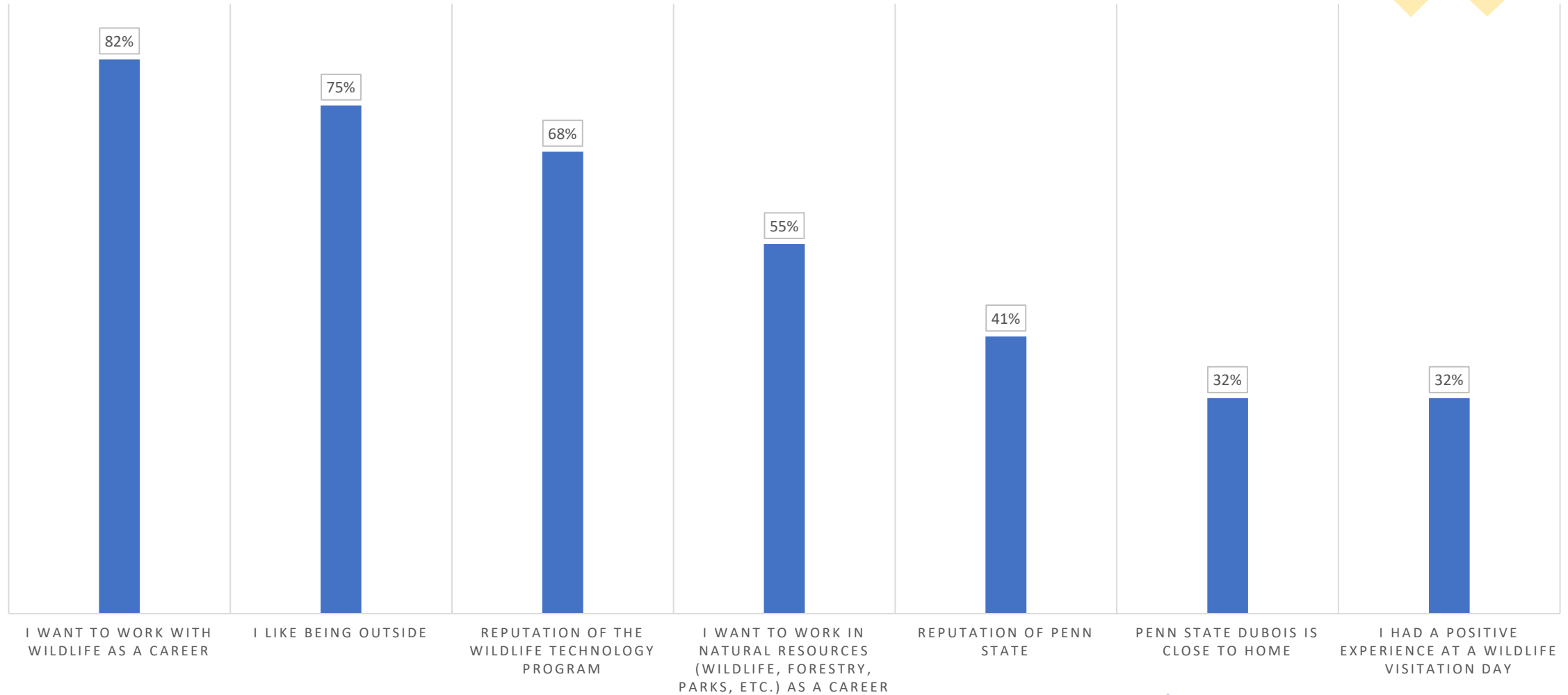
- Negative enrollment trends in forestry are not universal
  - Relatively stable total enrollment of 61 National Association of University Forest Resource Programs from 2005-2017
- Forestry majors have the lowest percentage of females amongst the Natural Resources majors
  - B.S. in Forest Ecosystem Management averaged 10% female from 2002-2021
  - A.S. in Forest Technology averaged 9% female from 2002-2021
- All Natural Resource majors are failing to attract minorities
  - Environmental Resource Management is highest at 18%



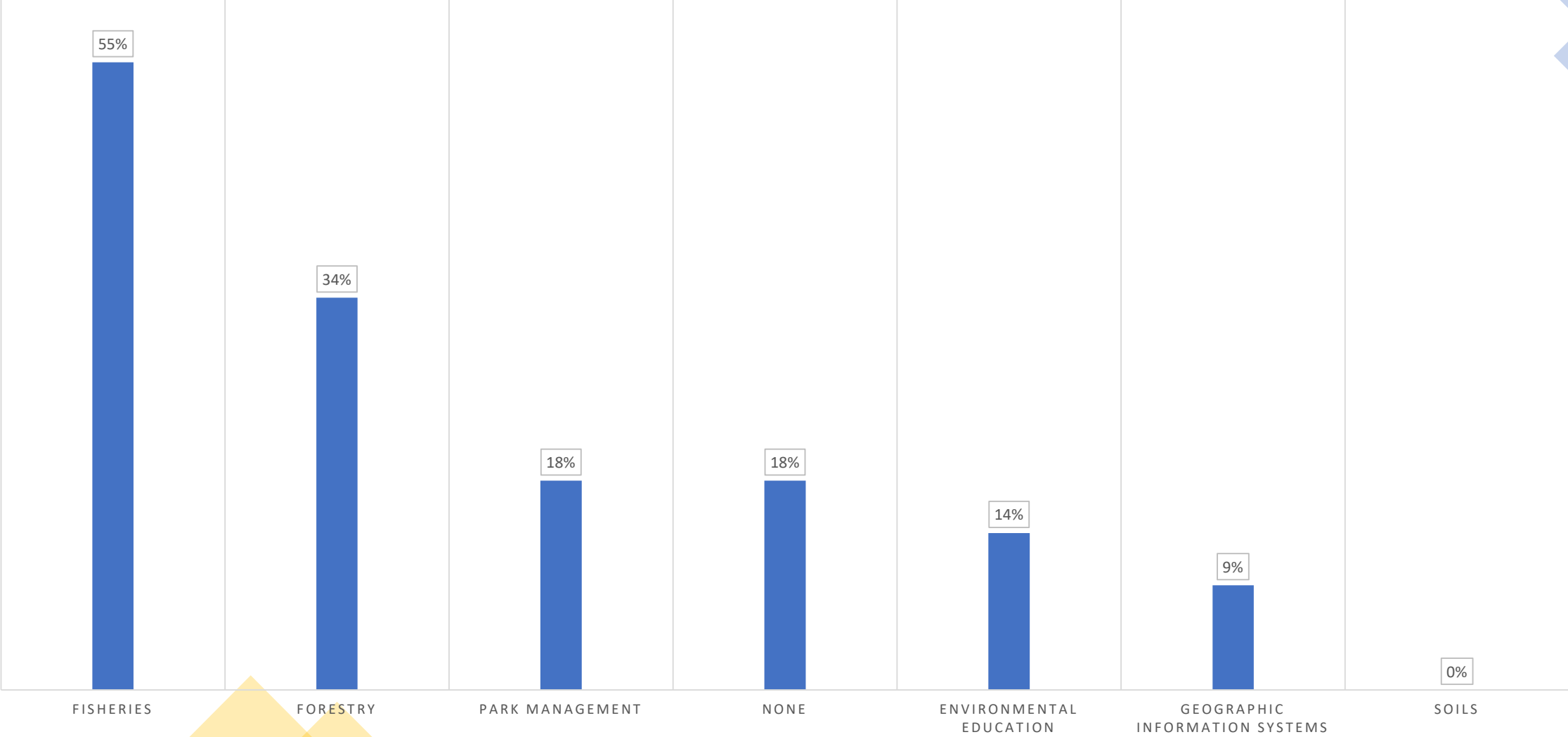
# Survey of Penn State DuBois Wildlife Students

- February 2022
- 44 total responses
- 1st-, 2nd-, and 3rd-year students
  - 1st- and 2nd-year students in A.S. Wildlife Technology
  - 3rd-year students in B.S. Wildlife and Fisheries Science
- Focus on attitudes towards forestry
  - Why wildlife instead of forestry?
- What are they looking for in a job?

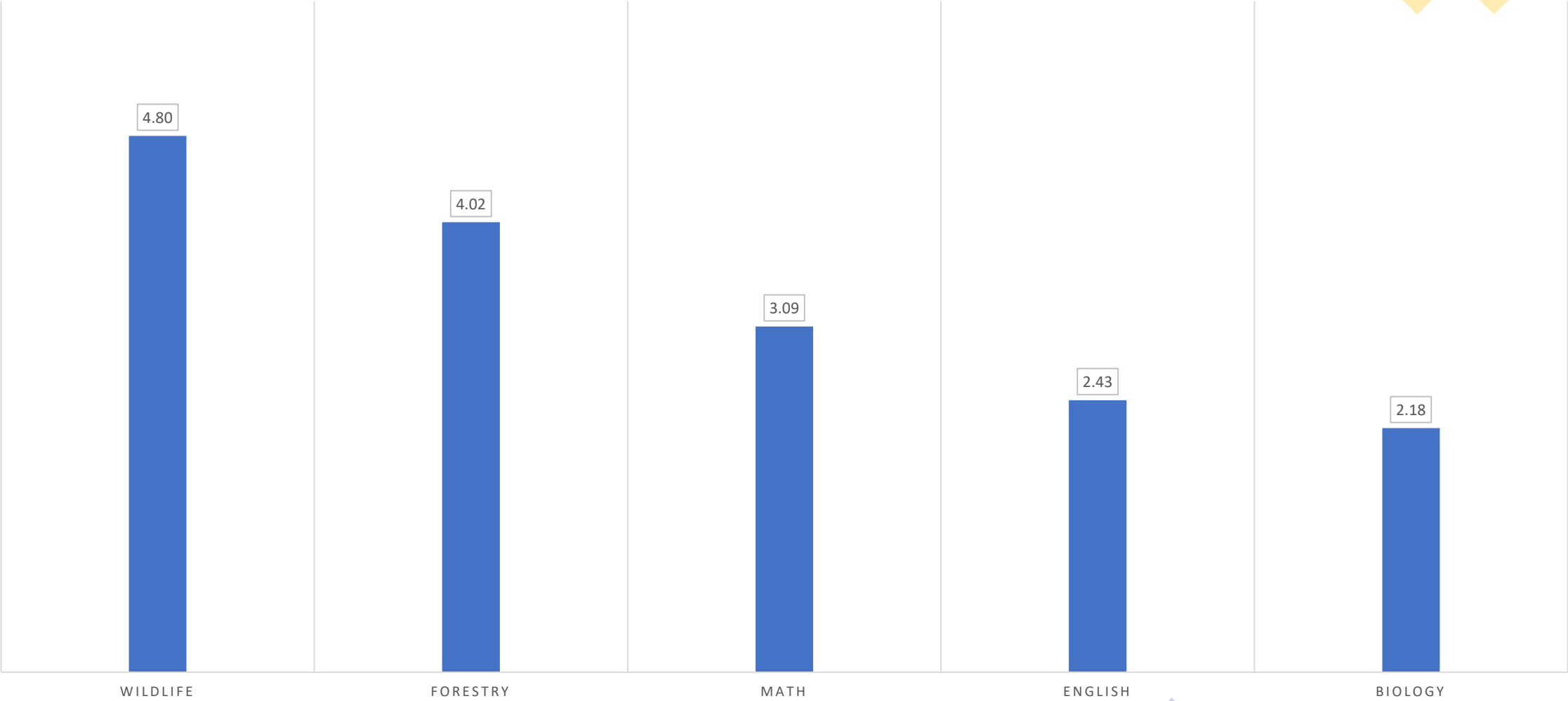
## WHY DID YOU CHOOSE TO ENROLL IN THE WILDLIFE TECHNOLOGY PROGRAM AT PENN STATE DUBOIS?



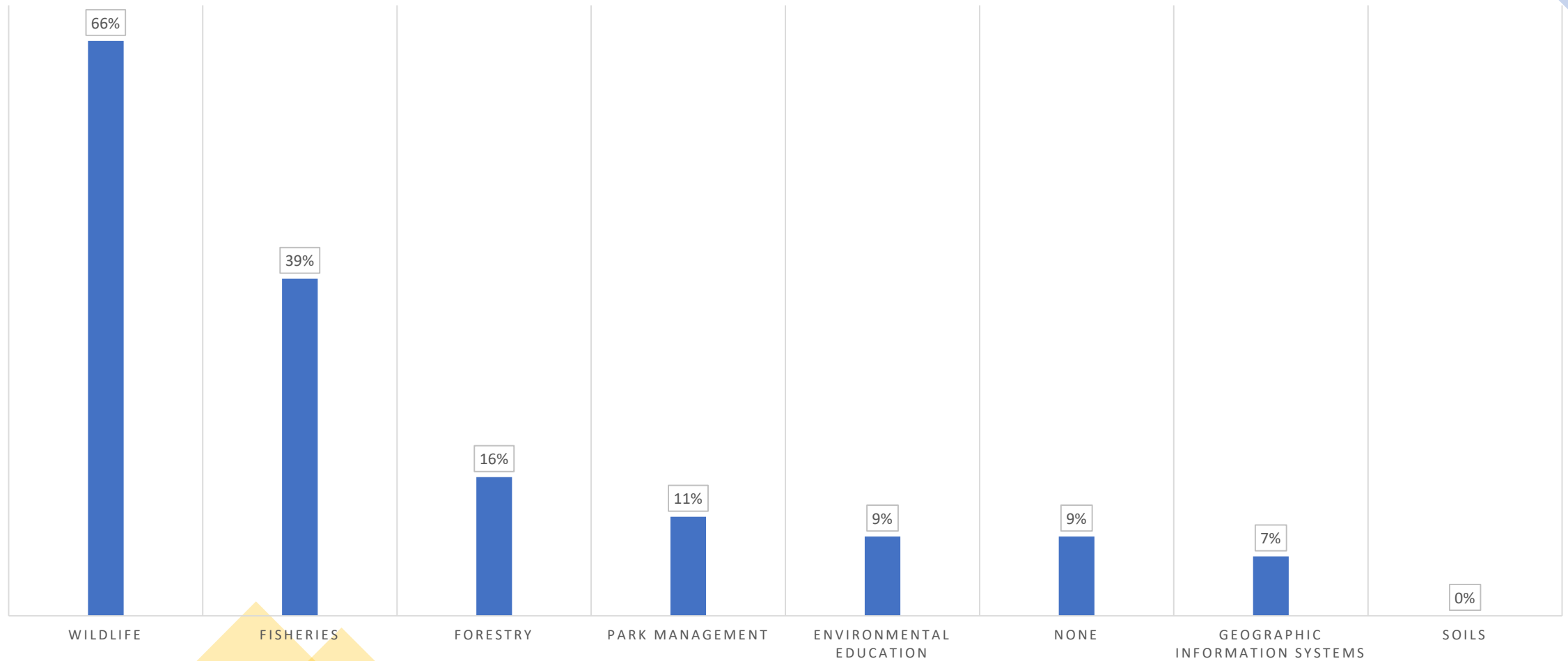
# DID YOU CONSIDER OTHER PROGRAMS IN ANY OF THE FOLLOWING FIELDS?



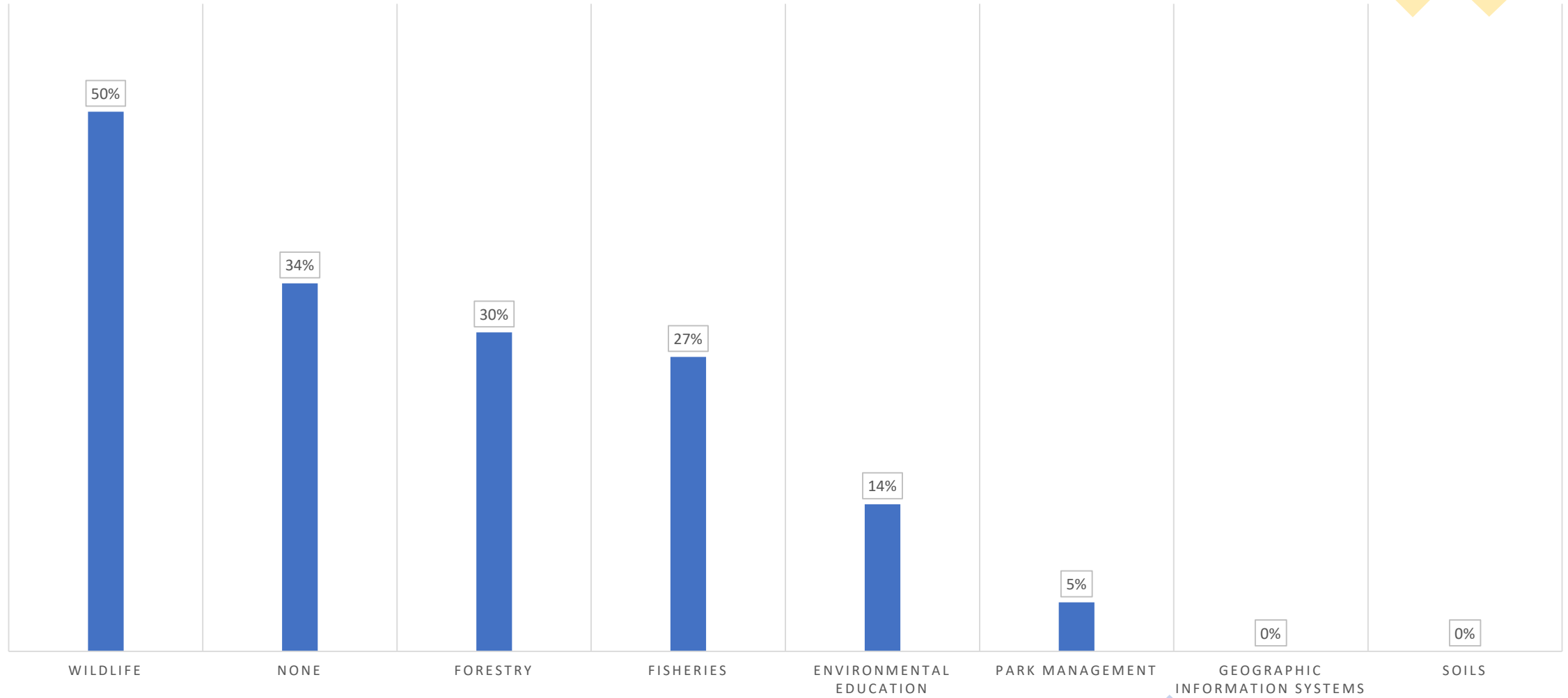
ON A SCALE OF 1 TO 5, HOW MUCH HAVE YOU ENJOYED YOUR PENN STATE COURSES ON THE FOLLOWING SUBJECTS?



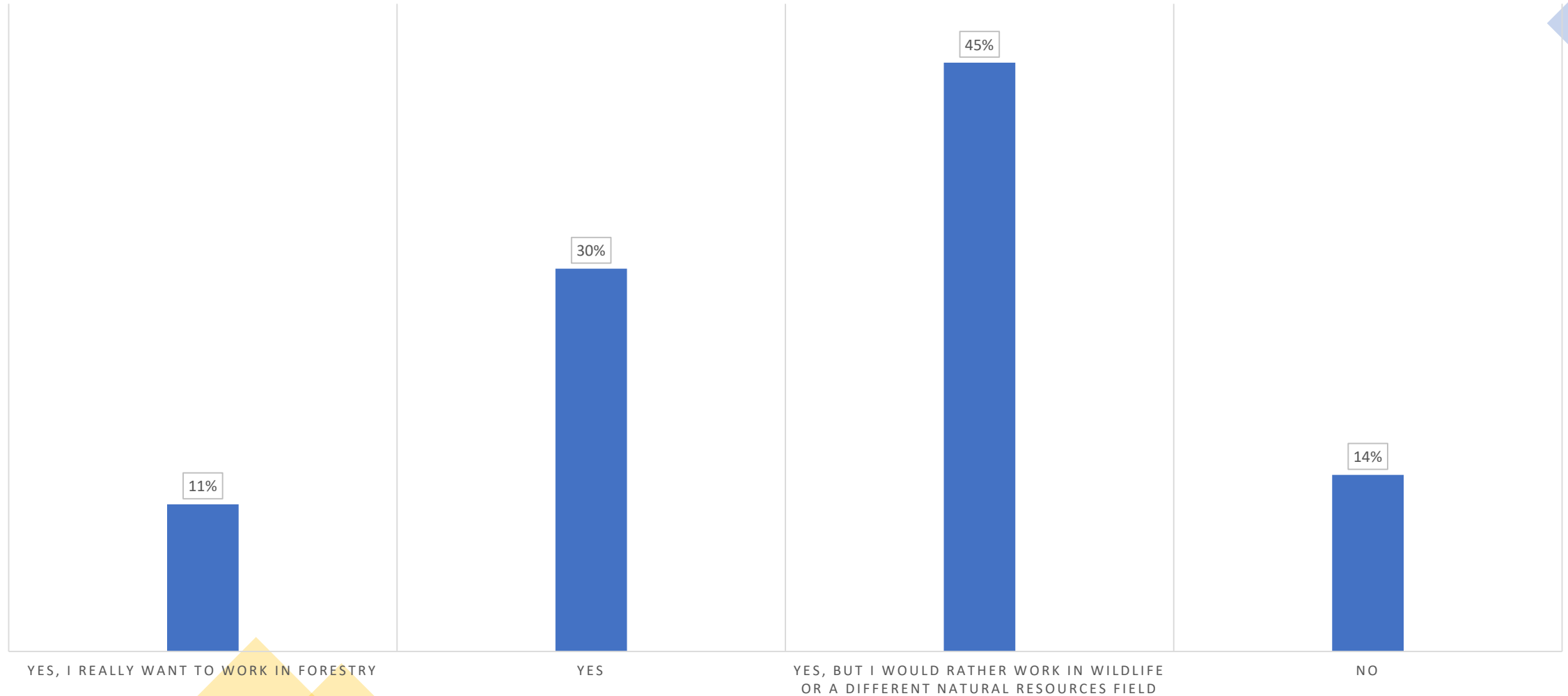
IF YOU ARE CONSIDERING OR ARE ALREADY ENROLLED IN A 4-YEAR PROGRAM AFTER THE WILDLIFE TECHNOLOGY PROGRAM, WHICH FIELD(S) ARE YOU CONSIDERING OR ALREADY ENROLLED IN?



## HAVE YOU APPLIED TO SUMMER INTERNSHIPS OR FULL-TIME POSITIONS IN ANY OF THE FOLLOWING FIELDS?

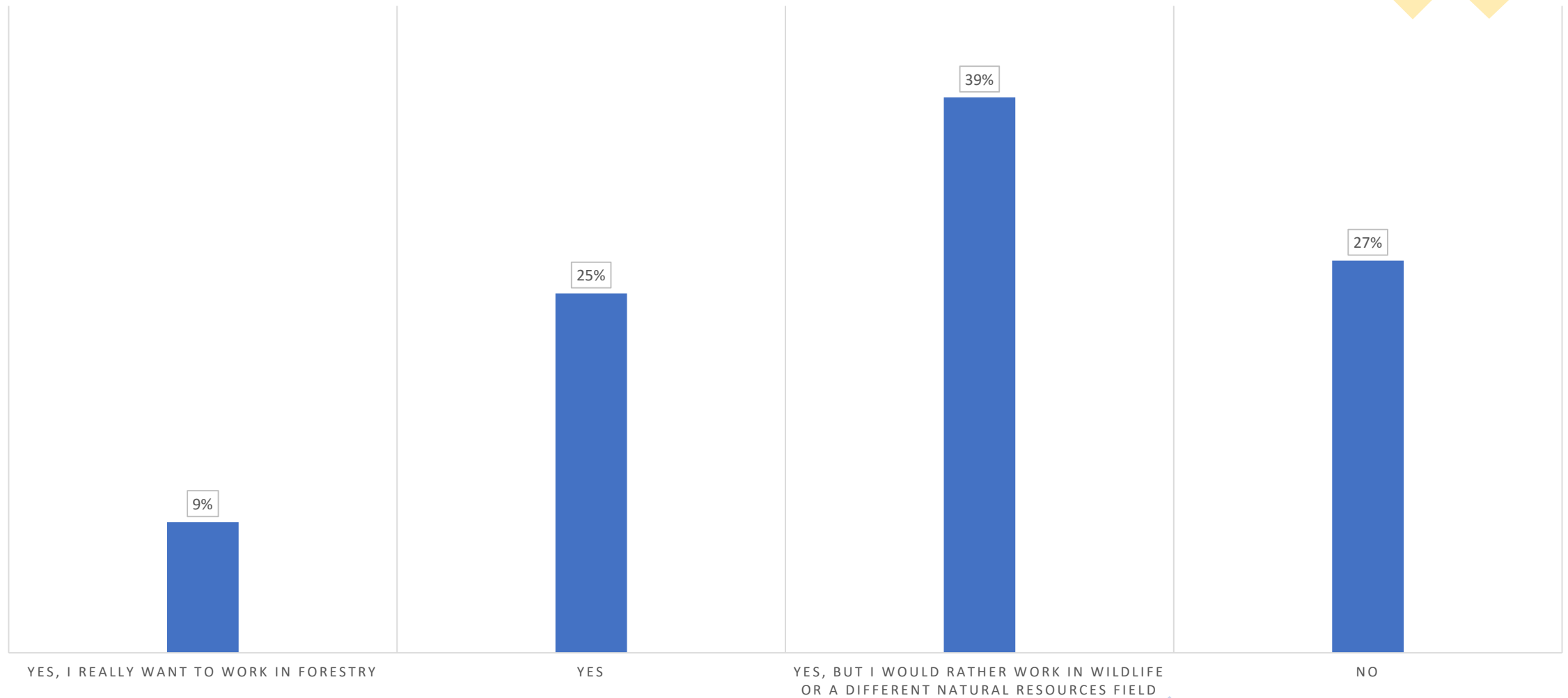


**IF YOU WERE OFFERED A SUMMER INTERNSHIP IN FORESTRY THAT WAS A GOOD FIT FOR YOU IN TERMS OF LOCATION, HOURS, AND PAY, WOULD YOU TAKE IT?**

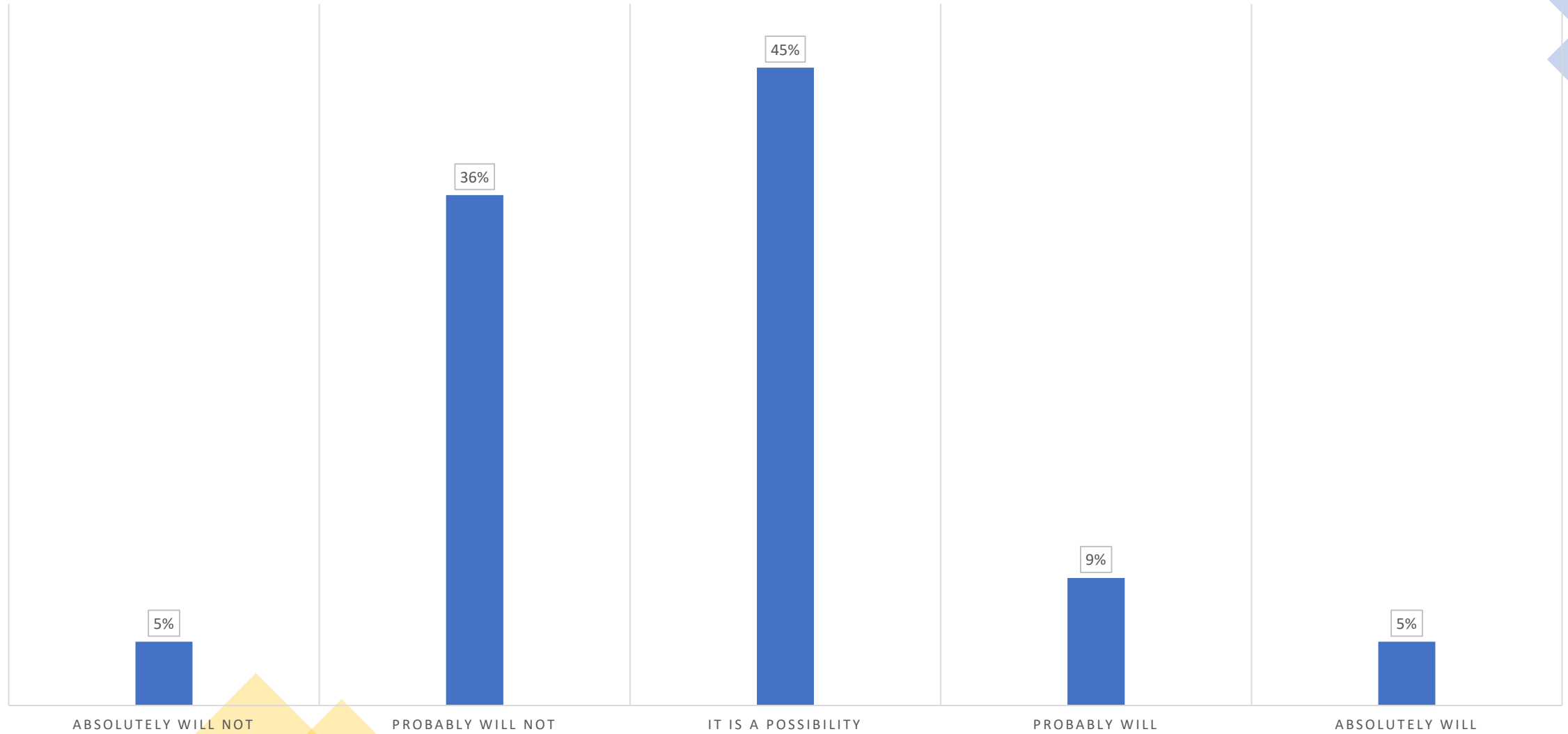




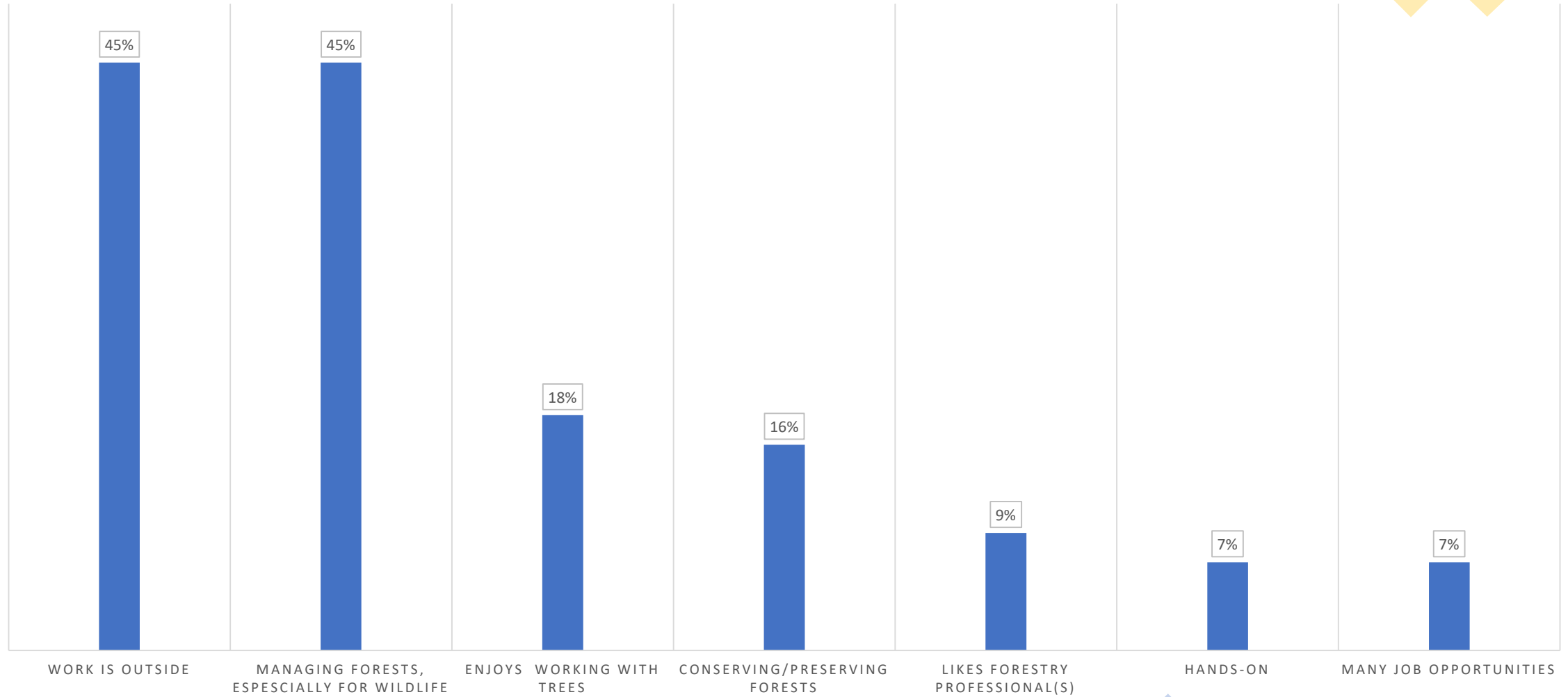
**IF YOU WERE OFFERED A FULL-TIME POSITION IN FORESTRY THAT WAS A GOOD FIT FOR YOU IN TERMS OF LOCATION, HOURS, AND PAY, WOULD YOU TAKE IT?**



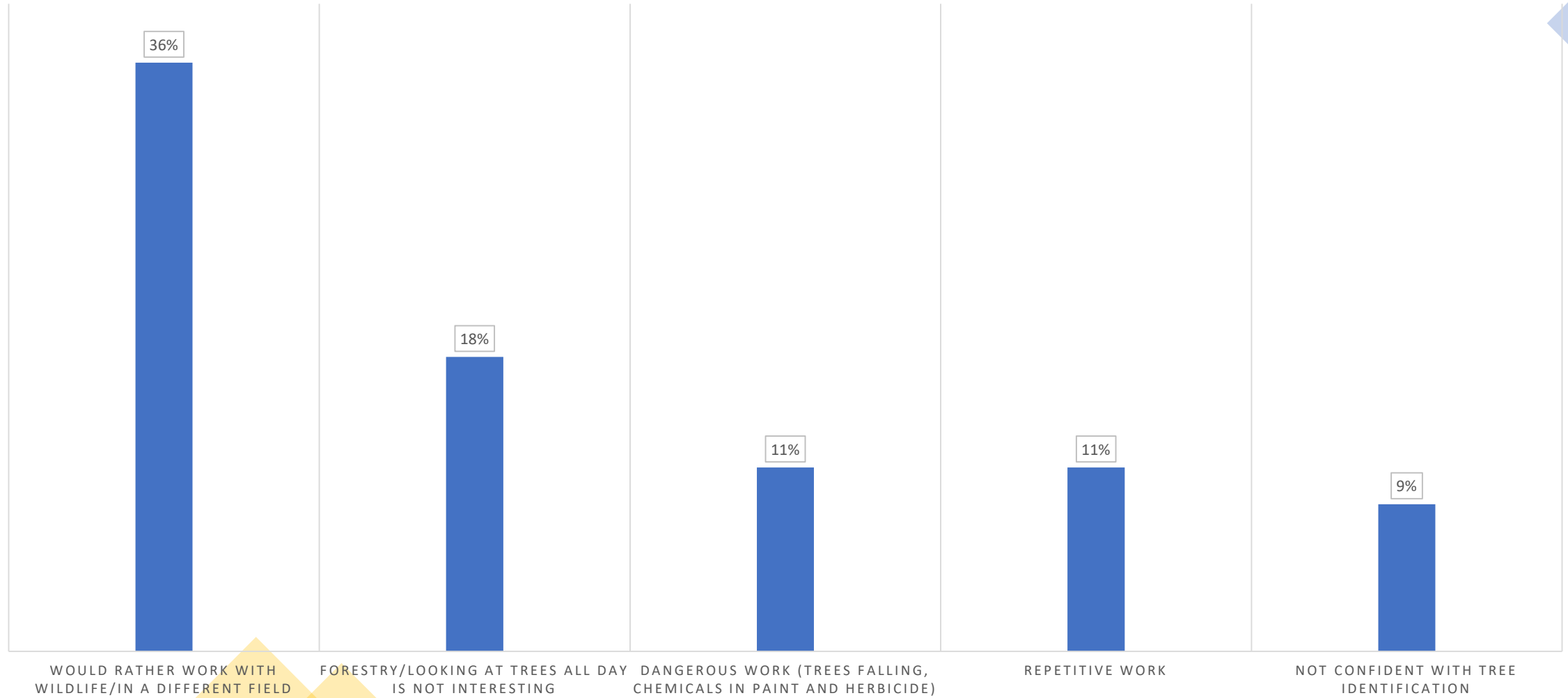
## HOW LIKELY ARE YOU TO PURSUE A CAREER IN FORESTRY?




## PLEASE LIST REASONS WHY YOU LIKE FORESTRY/WHY YOU WOULD CONSIDER A CAREER IN FORESTRY



## PLEASE LIST REASONS WHY YOU DISLIKE FORESTRY/WHY YOU WOULD NOT CONSIDER A CAREER IN FORESTRY



A photograph of a forest path. Sunlight filters through the tall, thin trees, creating a bright, hazy atmosphere. The ground is covered in lush green ferns and other undergrowth. The path leads into the distance, flanked by dense vegetation.

# Takeaways from the Survey

- Spending time outside is important to them
- Opportunity to manage forests is appealing
- 30% have applied for an internship in forestry
- 59% are open to the idea of pursuing a career in forestry
- Most like forestry, they would just rather work with wildlife
  - May be valuable to add a forester with a wildlife background to manage for habitat



# Hiring Students as Interns

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- Internship opportunities in Natural Resources are increasing
- Take the time to let them do the things you enjoy most about being in forestry
  - Not just veg plots everyday
- Give them fair pay, hours, start and end times, etc.
- Be inclusive in your speech and actions
- Stay excited about their involvement



What are Today's Young Professionals in Natural Resources Looking for in a Job?

On a scale of 1 to 5,  
how important are the  
following factors to you  
when thinking about  
future full-time  
employment?

Opportunity to work in-person	4.68
Job is in my field	4.59
Open communication	4.57
Good work-life balance	4.55
Position is secure/stable	4.52
Opportunities to progress/move up	4.48
Supportive manager(s)	4.41
Job responsibilities	4.34





On a scale of 1 to 5, how important are the following factors to you when thinking about future full-time employment?

Opportunities to expand education	4.18
Salary	4.09
Timely feedback on performance	4.05
Health insurance	4.02
Retirement (401K/pension)	4.02
Work culture amongst employees	3.95
Flexible work schedule/hours	3.91
Paid vacation/sick leave	3.89



On a scale of 1 to 5,  
how important are the  
following factors to you  
when thinking about  
future full-time  
employment?

Up-to-date technology/equipment	3.66
Maternity/paternity leave	3.59
Location	3.43
Opportunity for a home office	2.57
Opportunity to work remotely	2.27



# Takeaways from the Survey

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- Natural Resource students wanted to work in-person even before COVID, but after 2 years on Zoom they desire the opportunity to work in-person more than anything else
- A position must provide for a good work-life balance more than ever as they prioritize their well being
- Things such as salary and benefits are not as important to them as growth potential, open communication, and supportive managers
- Although their peers in Gen-Z might be looking for up-to-date technology, home offices, and remote working opportunities, Natural Resources students are not



# Quotes from Mark C. Perna article in Forbes

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The “OK Boomer,” “OK, Zoomer” phenomenon is basically a groan of exasperation in words—for both generations. To forestall this verbal eyeroll in younger workers, their older counterparts must first check that response in themselves.

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# My Personal Observations

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- Today's young professionals and students
  - Work very hard
  - Put a lot of thought into financial decisions
  - Are passionate about the health of the environment
  - Want to make a difference in the world
  - Are open to new ideas and change
  - Do not tolerate others being treated differently
  - Have been extremely affected by COVID
    - Remote learning
    - Lost field opportunities
    - Internships canceled
    - No in-person conferences



# Recruitment Issues and Ideas

# Pennsylvania State Positions in Forestry

**FORESTER:** Plan and implement programs designed to manage, protect, and preserve forest resources. Work includes landscape examination and timber-stand treatment, forest fire prevention and suppression, and forest pest suppression activities.

**Required:** Two years of technical forestry experience AND an associate's degree; OR a bachelor's or master's degree in forestry, forest technology, forest management, forest ecosystem management, urban forestry, forest science, agroforestry, or related forestry degree.

**FORESTRY TECHNICIAN:** Perform technical assignments in timber sales, fire prevention, insect and disease control, forest-tree nursery development, and recreation projects. They assist in timber-stand analysis, surveying, map preparation for timber sales, forest disease and insect control, and forest fire prevention and suppression. This is a seasonal position.

**Required:** Associate's degree in forest technology or equivalent formal education in forestry.

# Forestry Degree Programs in Pennsylvania

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- Penn State – University Park – B.S.
- Penn State – Mont Alto – A.S.
- Pennsylvania College of Technology – A.S.





# Wildlife Degree Programs in Pennsylvania

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- Penn State – University Park – B.S.
- Penn State – DuBois – A.S.
- Delaware Valley University – B.S.
- Juniata College – B.S.
- Keystone College – B.S.
- California University of Pennsylvania – B.S.



# Other Degree Programs in Pennsylvania

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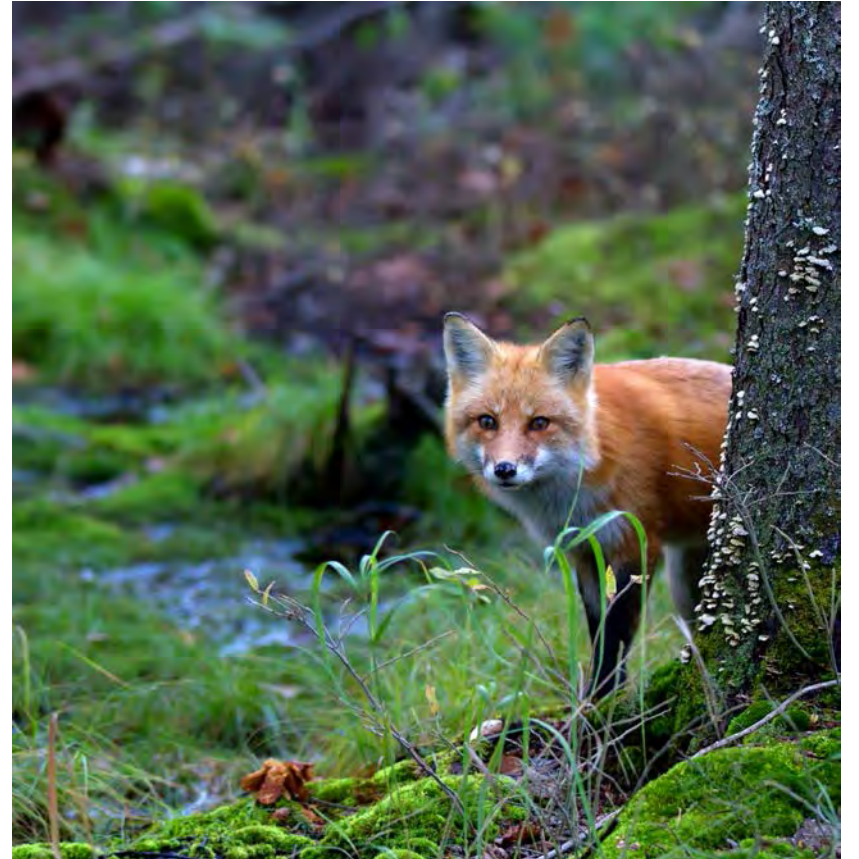
- Environmental Science and Studies
- Natural Resources Conservation and Management
- Parks, Recreation, and Leisure



# Thoughts and Ideas

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- There is only one B.S. degree program in Forestry in Pennsylvania
  - Any student who does not want to be in that program but still wants a B.S. will select a different major or go out-of-state
- Forestry curricula do not allow for as much flexibility as broader Natural Resources majors due to SAF accreditation and certification requirements
  - Unless a student interested in Natural Resources is 100% certain they want to be in Forestry, they are likely to choose a broader major such as Environmental Science or Studies where it is easier to explore options
  - SAF may want to revisit their requirements for accreditation and certification to determine if more flexibility could be added without sacrificing quality





# Thoughts and Ideas

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- Encourage the broader Natural Resources programs to add a minor in forestry or forestry courses to their curricula
  - Many programs have a list of courses in the major that students can choose from
- Consider changing the PA Civil Service requirements for Forester and Forestry Technician to accept a wider range of degrees
  - Could also consider listing specific courses instead of degrees

# From the USFS Kids in Woods Program

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- For generations, American children grew up with an understanding of the value of forests and nature. Children gained this knowledge in their daily lives, whether as part of their outdoor chores or as part of their outdoor play. Through having the outdoors in their daily lives, they saw the connection of natural resources to their homes and communities. They learned that forests provide clean air and water, habitat for wildlife, hunting, fishing, recreational opportunities, building materials, and even jobs.
- The American population has shifted from rural settings to metropolitan areas. Over 80 percent of the 300 million Americans live in cities, with fewer connections to rural or natural areas. Many children live in cities and don't have easy access to parks and natural areas.
- Disconnection from nature translates into a shaky future for sustainable forests and healthy public lands.

# Ideas to Reach Kids

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- Support programs that show teachers how to teach about forestry in their classrooms (Act 48 hours)
  - Environmental Science is often taught, but not necessarily natural resources
  - Project Learning Tree
  - Prioritize teachers from urban school districts
- Recognize the value of PSU Extension, Conservation Districts, State Parks, Environmental Education Centers, Service Foresters, etc.
- Encourage the growth of Nature Preschools and Summer Camps
- Realize that parents and grandparents play a big role

# Ideas to Reach Kids

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- Contact your local newspaper, radio, and/or tv station to feature what you do
  - Address possible negative viewpoints of forestry
  - Focus on the opportunity to work outside and manage forests
- Volunteer
  - Hold a field tour (Walk in Penn's Woods)
  - Speak to your local schools about your profession
  - Host a station at an Envirothon or 4-H competition
  - Teach various outdoor recreation activities
- Just encourage people to get outside and learn to love it like we do