



Don't use the F-word

*Deforesting Tertiary  
Education at the  
University of Melbourne*

# The F-word?



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# Forestry



# Forestry

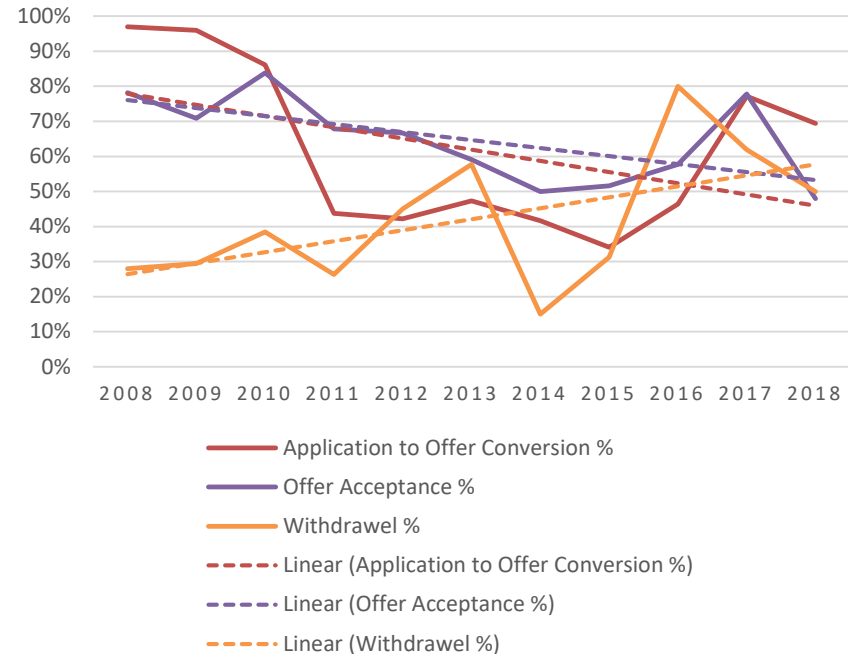
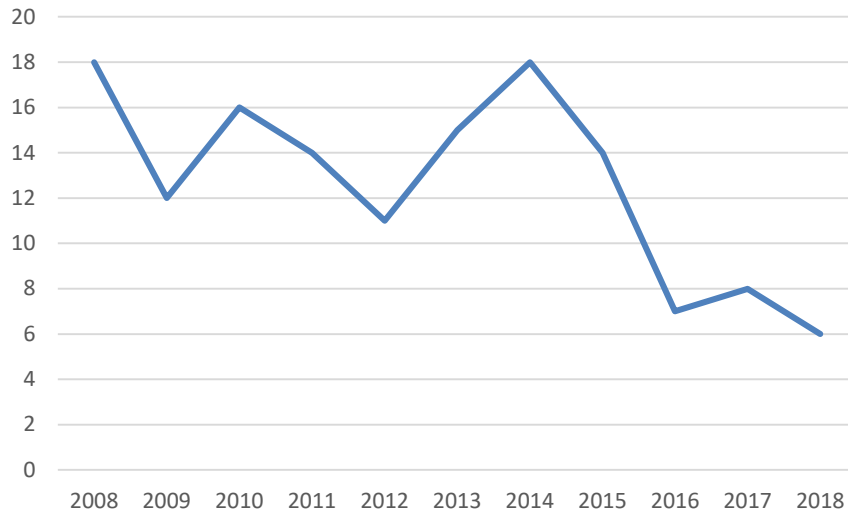


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# Long History of Forestry Education



# Motivation: Student Enrolments

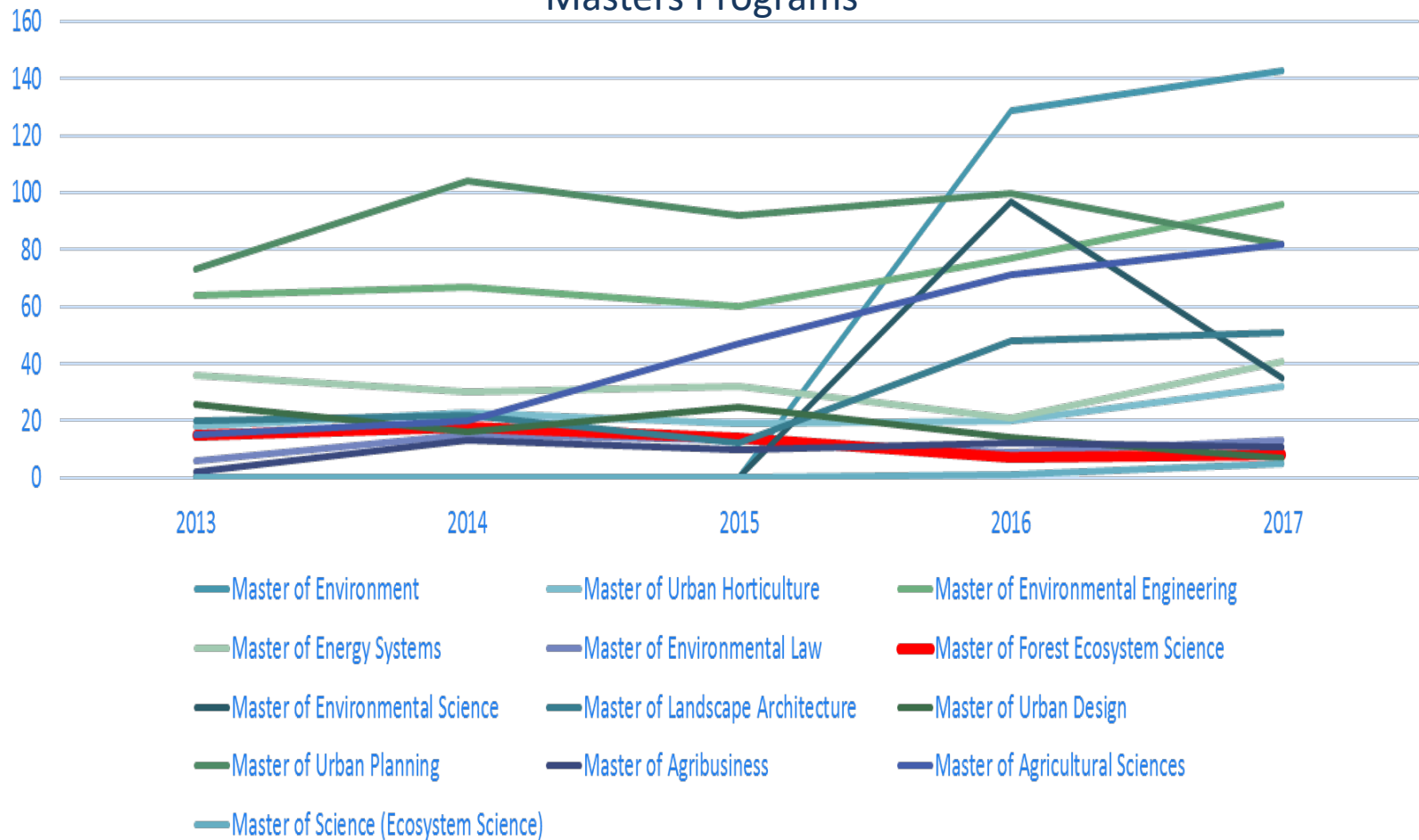


## Key insights include:

- Average number of enrolment is about 13 per year with at least 139 students admitted into the course (students who had withdrawn not included in this figure).
- Number of enrolments fluctuates slightly on an annual basis, however there is a declining trend in recent years.
- Lowering application to enrolment conversions

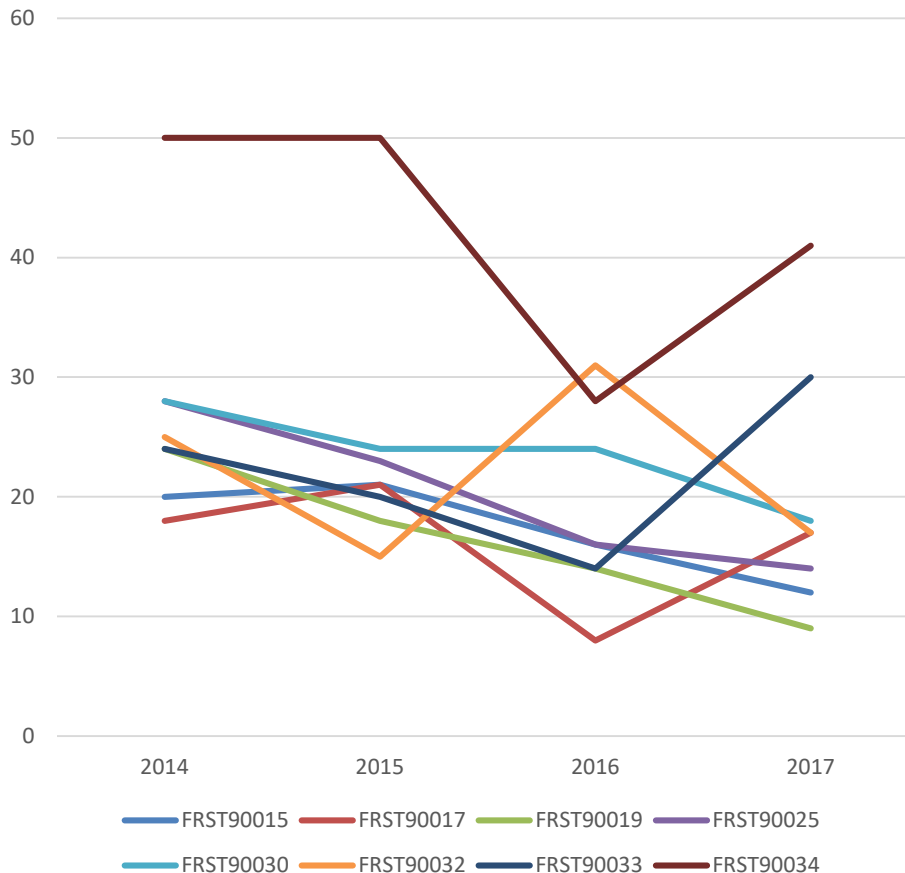
# Science Coursework Masters Programs

University of Melbourne Programs Student Numbers  
Masters Programs



# Core MFES subjects

Enrolments for Core subjects taught in all years  
2014-2017



## ***Core MFES subjects Taught alternate years, combined or suspended 2014-2017***

FRST90078 Conserving and Managing Native Forests (combined FRST20020 and FRST20021 and commenced in 2017)

FRST90022 Forests & Water (suspended for 2017)

FRST90026 Bushfire & Biodiversity (taught alternate years)

FRST90020 Silviculture & Forest Dynamics (cancelled for 2017)

FRST90021 Sustainable Forest Management (cancelled for 2017)

FRST90073 Forest Planning & Business Management (cancelled for 2016)

FRST90016 Trees in a Changing Climate (cancelled for 2017)

FRST90029 International Forest Policy (commenced in 2015)

FRST90031 Timber, Sustainable & Renewable Material (cancelled for 2017)



# Deforesting the Curriculum

Course (2010)	Course (2023)
Farm Trees & Agroforestry	Landscape Ecology
Forest Ecosystems	Analysing Ecosystems and Their Values
Forest Resource Assessment	Patterns and Processes of Landscape Fire
Forests and Water	Ecosystem Processes of Water and Soil
Forests in the Asia Pacific Region	Spatial Tools for Ecosystem Management
Forests, Carbon and Climate Change	Landscape Governance and Policy
International Forest Policy	Communities and Ecosystem Management
Silviculture & Forest Dynamics	Sustainable Landscapes
Sustainable Forest Management	Forests in the Asia Pacific
Forest Health	Forests, Carbon & Climate Change
Forest Operations	Farm Trees & Agroforestry
Forest Planning and Business Management	Conserving and Managing Native Forests
Advanced Plantation Silviculture	Bushfire Planning & Management
Trees Growth & Development	Modelling Species Distributions & Niches
Trees in a Changing Climate	Environmental Modelling
Wood Quality	Environmental Risk Assessment
Wood Science & Technology	Research Methods For Life Sciences
Timber in the Built Environment	Social Research Methods
Bushfire & Biodiversity	Ecological Restoration
Bushfire & Climate	
Bushfire Planning & Management	
Ecological Restoration	



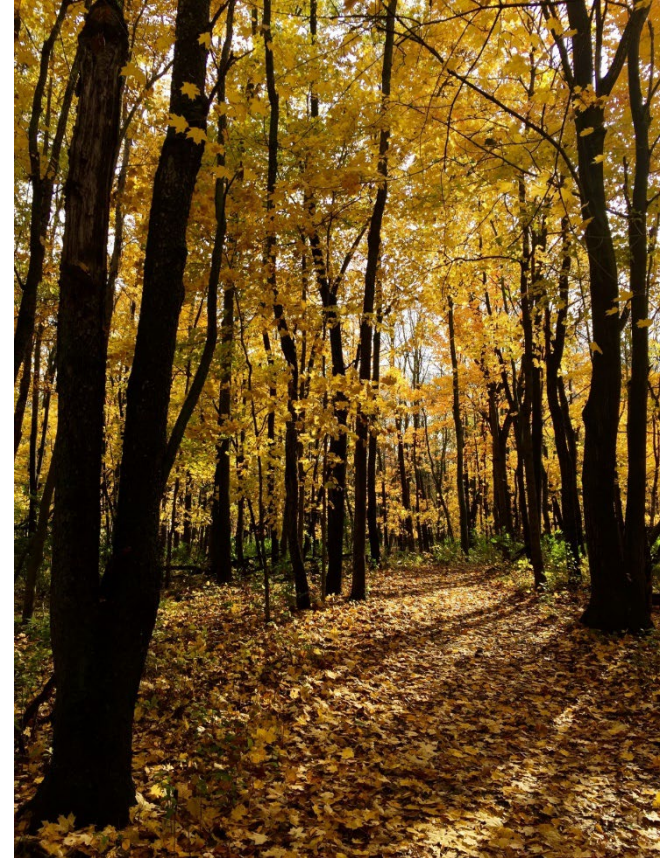
# Deforesting the Curriculum



# Ecosystem Management

Training graduates with core knowledge and skills for broad careers.

- Technical Forestry has been lost but a Forests 'flavour' remains.
  - Technical Forestry training via internships or on the job
- Socio-ecological systems thinking is core.



# Presentation Plan

How did we get to Ecosystem Management

- Literature Review
- Course Insights
- Engagement
- Proposed Model

Has this been successful?

- Progress



# Literature review

Review of key documents



# Enrolment Trends More broadly

## Australia

- Undergraduate degree completions declined by more than 50%, to a total of about 30 annually.
- Completions remains less than is required for sustaining the professional workforce at existing levels

## USA

- Enrolment trends were highly cyclical,
  - changing by nearly 50% in a decade or less.



- Education and training challenges for the Australian forestry sector: an analysis based on recent trends in university and vocational education and training (VET) completions. J. E. Pratley , P. J. Kanowski & L. M. Bull
- Undergraduate Enrolment in Natural Resource Programs in the United States: Trends, Drivers, and Implications for the Future of Natural Resource Professions, Terry L. Sharik, Robert J. Lilieholm, Wanda Lindquist, and William W. Richardson
- The Promise and Performance of Forestry Education in the United States: Results of a Survey of Forestry Employers, Graduates, and Educators, V. Alaric Sample, R. Patrick Bixler, Maureen H. McDonough, Steven H. Bullard, and Mary M. Snieckus

# Student Motivations and Drivers



- Passionate and committed individuals who express a desire to help create a better world.
- Felt that what foresters do, and the nature of the discipline, could be better communicated.
- Attracted to majoring in forestry and subsequently pursuing a career in this field by a love of nature or the outdoors
- Hesitation arose from concern over low wages and a negative public image of forestry.

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- Student Perspectives on Enrolling in Undergraduate Forestry Degree Programs in the United States Terry L. Sharik\* and Stacey L. Frisk
- Student perceptions of environmental management: profiling the future environmental manager B.A. Christie , K.K. Miller & J. Kirkhope
- Why students choose to study for a forestry degree and implications for the forestry profession. Suzette Searle and Chris Bryant

# Skill and Knowledge - Themes and Trends

- Lack skills related to generic competencies
  - Leadership and management, human relations and communication
  - Differentiating performance in the workplace
- Shift from traditional consumptive NRM fields such as forestry to more interdisciplinary programs
  - Forests have shifted from purely commercial product exploitation to environmental and social.



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- Global Outlook on Forest Education (GOFE) A Pilot Study Report Editors: Rekola, M., Abbas, D., Bal, T., Burns, J., Lackner, M., Rodriguez, S., Sharik, T.
- Undergraduate Enrolment in Natural Resource Programs in the United States: Trends, Drivers, and Implications for the Future of Natural Resource Professions, Terry L. Sharik, Robert J. Lilieholm, Wanda Lindquist, and William W. Richardson
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- The Future of Professional Forestry Education: Trends and Challenges from the Malaysian Perspective. Jegathcswaran RATNASINGAM', Florin IORAS, Claudia Cristina VACALIE', Lu WENMING\*



# Emerging theme – People

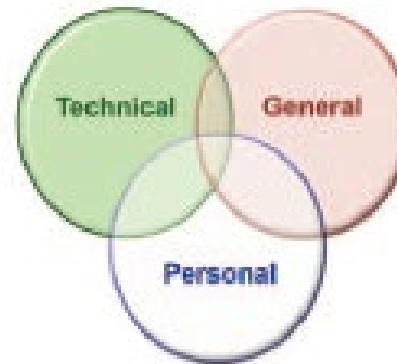
Graduates must be better prepared than they are now in communicating relevance and building relationships

*‘Thinking critically, communicating effectively both orally and in writing, acquiring a sensitivity and concern for ethical issues, and learning to understand and work effectively with people of different cultures, backgrounds, and races.’*

**Traditional Curriculum Model**



**Revised Curriculum Model**



# What are others doing





# Key points

- Most have maintained the traditional disciplines but added some new aspects to their courses
- Have used ‘interesting’ key words to help market courses.
- Shift towards holistic consideration of forests and society
- GIS, remote sensing, spatial modelling and social disciplines are present in other courses.
- Internships were a part of most programs



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# Engagement



# Who

Students - Prospective, Current and Past

- Interviews
- Online Surveys

Staff

- Forum

Industry

- Forum
- Online Surveys
- Phone interviews



# Prospective Students

- Only 50% of target students are aware of MFES
- Themes for study are around general ecosystem management interests
  - ‘Make a Difference’
- Cohort experience important



# Industry Feedback

- Emergent challenges
  - Technology solutions
  - Community/engagement/people
- Ability to communicate in multiple ways
- Business skills
- Flexible, adaptable, resilient.





# Design Phase



# Retreat and Consultation

**What Noted?**

- Staff**
  - Intensive research activity & practice
- Student**
  - Creswick
  - International Student
  - Narrative opportunity
  - Subject Breadth
- University**
  - Teaching for research only staff
  - maintained forest education
- What Didn't Work**
  - Staff**
    - Timetabling
    - CSP threshold
    - Subject overlap
    - Technical Skill Gap
    - Cost (staff/program)
  - Student**
    - Timetabling
    - Internships → workplace
    - Capstone Experience
    - Cohort Experience
    - Subject overlap
  - University**
    - enrolment do marketing
    - CSP threshold

**What we are doing?**

- Not Marketing CSP provision
- What are others doing?**
  - Maintain traditional disciplines but
  - Market in interesting key words - personal narrative, inspire 'young folk'
  - Small subjects numbers in some
  - Some new flavours

**Cohort experience**

**Entry**

- good po
- Fi
- what we are
- LANDSCAPE
- 30% term

**Graduate Attributes**

- operate across disciplines
- System thinking - SES
- Policy integration & decision making
- Discipline depth in an area
- Disciplinary breadth
- Technically savvy
- Communicate to multiple audiences
- local to landscape thinking
- Flexible, adaptive, reflective, critical, creative
- Business skills
- Spatial / landscape analysis technical skills
- Understanding disciplinary language
- Ability to engage community/people
- Ability to independently research
- " " work professionally & ethically

**Ideal Graduate**

- global thinker / local actor
- basic competencies for workplace
- have created networks w peers, employers
- Contextual learning
- ability to collaborate & work in teams
- awareness of indigenous aspects
- sustainable management paradigms

**Master of Landscape Management - Conservation**

**Questions**

- 1 Ecological restoration
- 2 Farmhouses + agroforestry
- 3 Forests in the Asia Pacific
- 4 Community NRT
- 5 Social Science methods
- 6 Sustainable landscapes

**Marketing Terms**

- International forestry/landscape
- climate change + carbon forest
- future oriented
- Research Methods

**Other notes:**

- Plan of lecture
- Landscapes
- Management of ecosystem (SES)
- Spatial skills for ERM
- Ecosystem assessment & monitoring
- Ecological management & biodiversity
- Forest & landscape conservation & management (SLM)
- Ecological planning & management
- Landscapes governance & policy
- Project/interdisciplinary
- 6 + 4 + 9
- 6 + 4 + 9
- A 4 + 6 + project/interdisciplinary
- B 6 + 2 + project/interdisciplinary
- C 8 + 2 + project/interdisciplinary

# New Curriculum - Key features

- Overall
  - Clear cognate and non-cognate pathways
  - Enhances Cohort Experience
  - Industry/employer capstone connection
  - Logical nested programs and progression
    - Build on strengths – e.g. fire
- Core subjects
  - Interdisciplinary and Generalist Skills
  - Addresses current gaps
    - People/Social, GIS/spatial data, Business
  - Broader Appeal
- Electives
  - Builds technical skill
  - Works within Schools strengths



# New Curriculum - Subjects

## Cores

Landscape Ecology

Analysing Ecosystems and Their Values

Patterns and Processes of Landscape Fire

Ecosystem Processes of Water and Soil

Spatial Tools for Ecosystem Management

Landscape Governance and Policy

Communities and Ecosystem Management

Sustainable Landscapes

## Electives

Forests in the Asia Pacific

Forests, Carbon & Climate Change

Farm Trees & Agroforestry

Conserving and Managing Native Forests

Bushfire Planning & Management

Modelling Species Distributions & Niches

Environmental Modelling

Environmental Risk Assessment

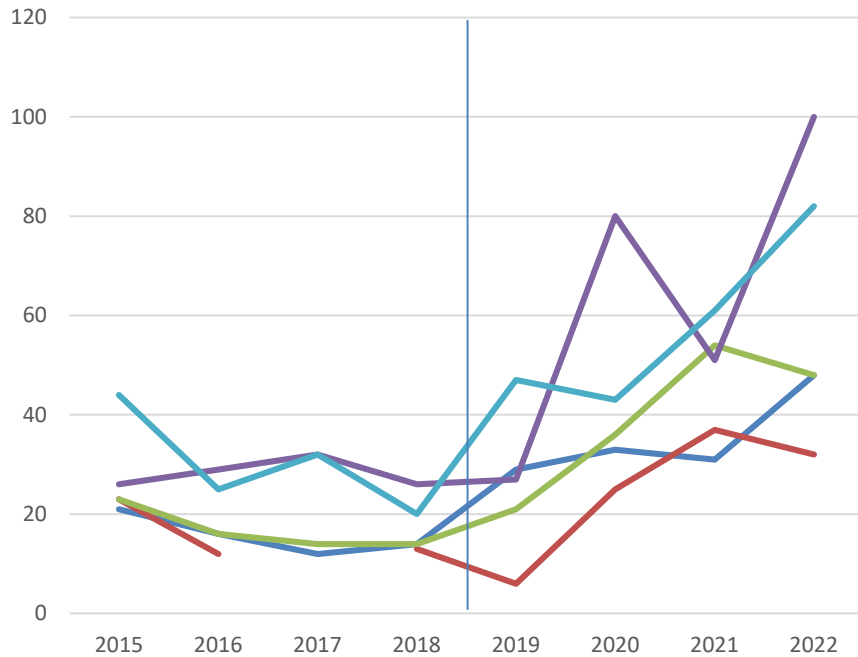
Research Methods For Life Sciences

Social Research Methods

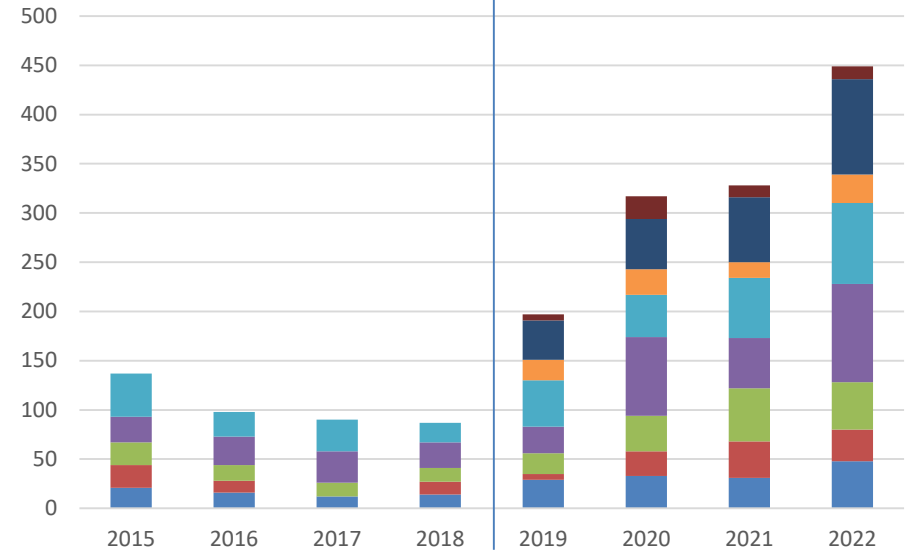
Ecological Restoration

Ecosystem Internship

# New Curriculum – Progress Core Subjects

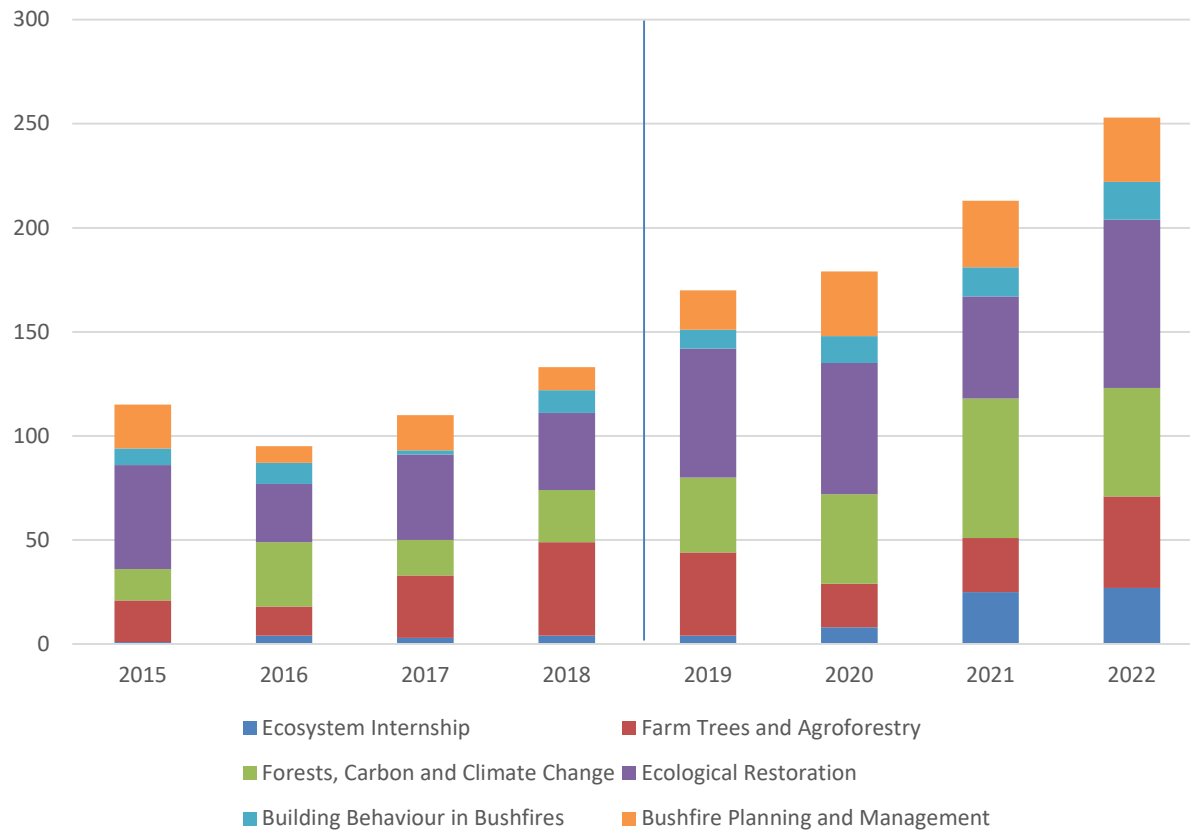


- Landscape Ecology
- Ecosystem Processes of Water and Soil
- Patterns and Processes of Landscape and Fire
- Communities and Ecosystem Management
- Sustainable Landscapes

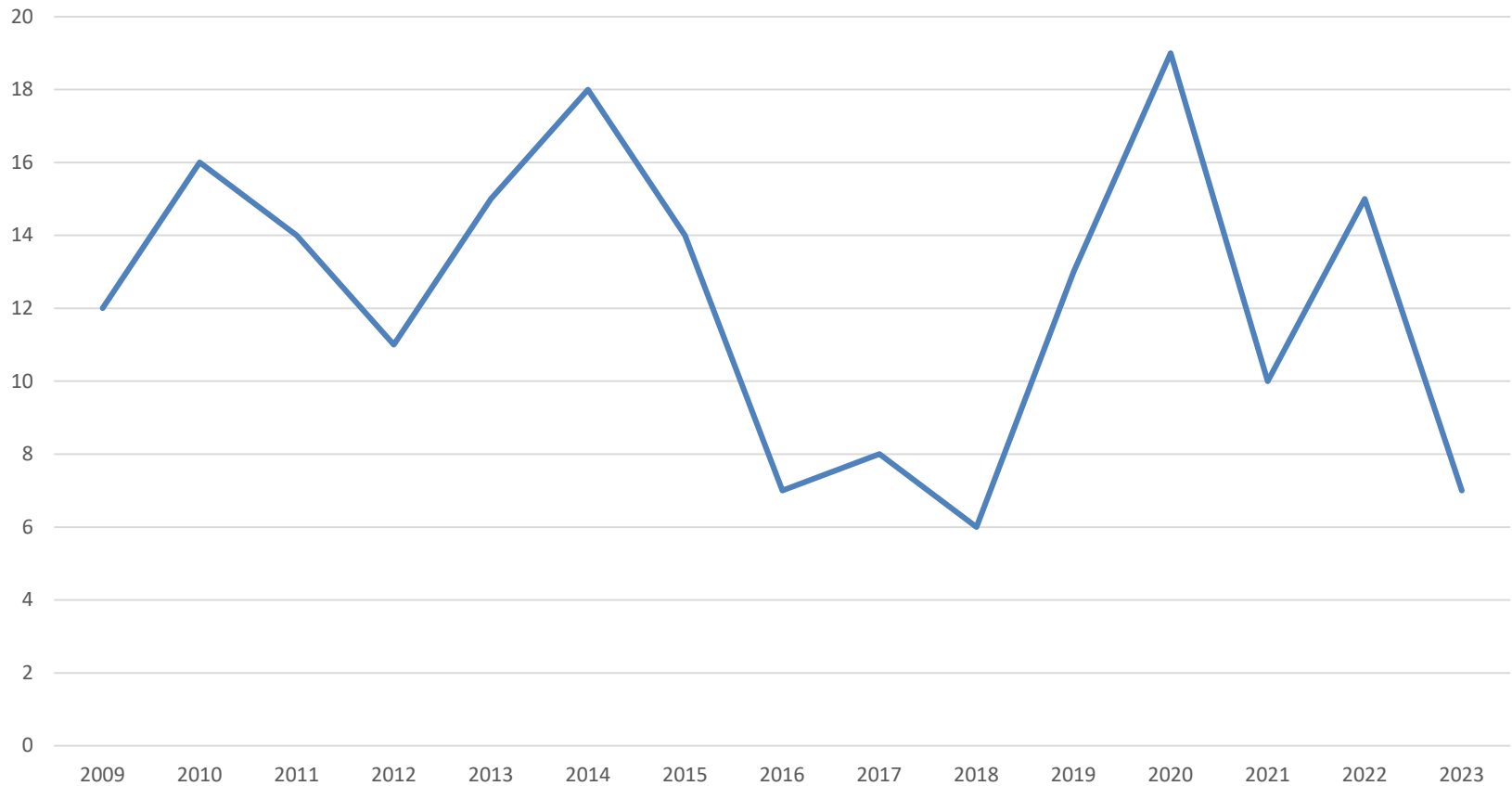


- Landscape Governance and Policy
- Spatial Tools for Ecosystem Management
- Analysing Ecosystems and their Values
- Sustainable Landscapes
- Communities and Ecosystem Management
- Patterns and Processes of Landscape and Fire
- Ecosystem Processes of Water and Soil
- Landscape Ecology

# New Curriculum – Progress Elective Subjects



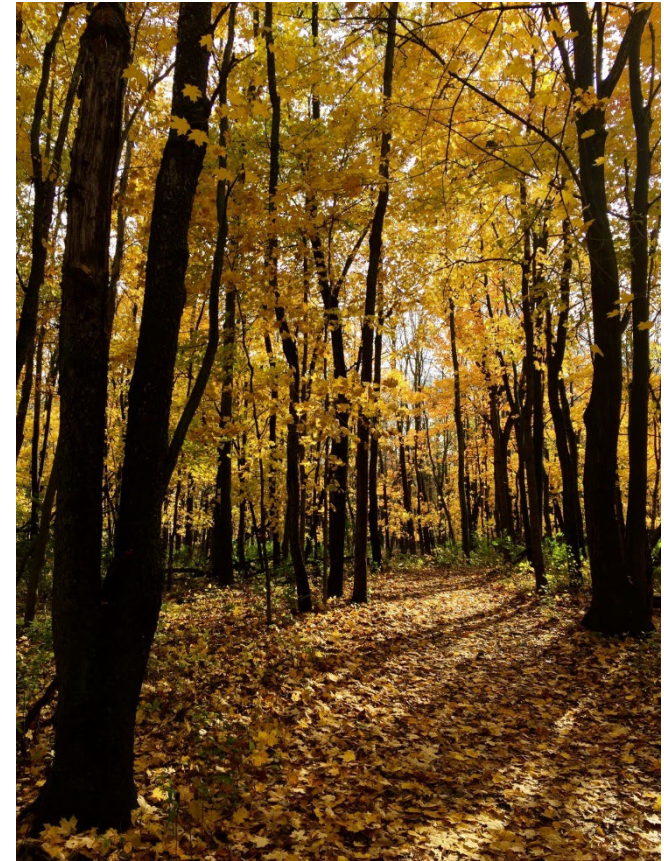
# New Curriculum – Progress Course enrolments



# Wrap

Shift from Technical Forestry to Ecosystem Management Degree.

- Student motivations and need to be sustainable
- Broaden the base but a Forests 'flavour' remains.
- Socio-ecological systems thinking is core.





# We don't use the F-word



# We use the E-word!

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