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Faculty of Forest Sciences
Faculty Board

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Strategy for the Faculty of Forest Sciences 2021–2025

1. Introduction by the faculty

The Faculty of Forest Sciences conducts internationally advanced research and environmental monitoring and assessment. Its undergraduate programmes are the backbone of Sweden's access to university-trained staff in the forestry sector. Collaboration with other public authorities, the forestry industry and special interest organisations are an important part of its activities. In terms of budget, the faculty is the second largest faculty within SLU.

Internationally, the faculty has several successful environments within its fields of research. The *Future Forests* programme conducts synthesis-oriented interdisciplinary projects and innovative communication. Several research infrastructures are administered jointly within a separate organisational unit. SLU is ranked first internationally in the field of forestry research by the Center for World University Rankings (CWUR). The faculty's goal is for SLU to maintain and develop this position through a combination of basic and applied research in collaboration with researchers at other universities and institutes and in collaboration with the Swedish forest sector.

The forest and its resources play a crucial role in the transition to a sustainable society that is an outgrowth of a circular bio-based economy. This is why forest research is a growing field; more and more ecosystem services are in demand, individual research areas are becoming more specialised and we need interdisciplinary methods to study many of the issues important for society. This makes it increasingly important to prioritise which areas SLU's forestry research should focus on, as existing resources are far from sufficient to cover all important aspects.

The undergraduate flagships have long been the Forest Science Master's programme and the Forest Management Bachelor's programme. While the Forest Management programme continues to maintain a strong position with a good influx of students, in recent years the Forest Science programme has seen fewer and fewer applicants. However, demand for forest science graduates remains high. Important development efforts were initiated during the previous strategy period and continue to be important for the new strategy. The ambition is to revitalise the programmes, recruit new categories of students and expand the range of forest programmes to additional locations. New programmes are to be in demand and the graduates attractive for employers both in Sweden and internationally. The design of the programmes will be updated, e.g., so that distance teaching and learning are natural parts of programmes. This will provide more flexible access to education and makes it less important where teachers are based. At the same time, the faculty can expand continuing professional development. The link between research, education and environmental assessment remains important, e.g., to translate new knowledge into actions through the students.

The faculty runs environmental monitoring and assessment (EMA) programmes related to forest resources, land, climate, landscape, biodiversity and wildlife. Data

and analyses from the programmes are widely used in the forest and environmental sectors, e.g., for follow-up of environmental objectives, scenario analyses, and in meeting international reporting requirements that are often governed by the EU and international conventions. An important example is the reporting of greenhouse gases in accordance with climate conventions. Several of the faculty's EMA programmes are at the forefront of international research, both in terms of collection methods and analyses. However, cuts in funding for these efforts have posed significant challenges recently. The ambition is for the measures linked to the new strategy to clearly demonstrate the great importance of EMA for making decisions needed for sustainable development in the land-based industries, in line with Agenda 2030. This will enable securing new resources and supporting operations.

The faculty interacts well with the surrounding society. Our expertise and knowledge are in demand and valued by many stakeholders: politicians, the Government Offices, public agencies, the commercial sector, special interest groups and individual citizens. Formal cooperation agreements have been established between SLU and several other organisations. An external strategic advisory group, which includes a wide array of stakeholders in the forest sector, provides regular input on the faculty's activities.

The internationalisation of research, education and EMA is both natural and important. Researchers are often best positioned to establish their international networks themselves, but collaboration agreements can be important in supporting these efforts. During the previous strategy period, the faculty's international collaborations have been improved. For example, SLU has been designated the host for the IUFRO World Congress 2024, a major scientific congress. Within the upcoming strategy period, the faculty intends to expand internationalisation of undergraduate education and continue to support the internationalisation of research through partnership agreements as needed. The special opportunities offered by IUFRO 2024 will be leveraged.

Work with equal opportunities is and will remain an integral part of the faculty's efforts, where we ensure that all employees and students are educated about gender equality and equal opportunities. The role of the faculty is to develop and ensure that the forest sector achieves equality through expertise, education and collaboration. Equality in student recruitment, recruitment to senior positions and teaching are areas that need improving.

Attracting expertise and employees is crucial for the faculty's efforts to maintain its internationally leading position. A very important issue for the faculty is creating incentives for younger successful staff to remain at SLU. Many stay only if there is a real possibility of becoming a professor. This highlights the importance of reforming the current system to enable promoting more staff to professor while also more clearly defining career opportunities within SLU for other staff.

2. Focus areas, overall objectives and subcomponents

2.1 Overall objectives and subcomponents for focus area 1 in concrete terms

Focus area 1: SLU's next step for sustainable development

Overall objective: In a changing world, SLU is a world-class university that plays a key role in the transition to a sustainable society.

The faculty plans to double down on its focus on sustainability issues. The potential is good as its work already contributes substantially to sustainable forest and natural resource management. The faculty intends to strengthen interdisciplinary research and expand qualitative and quantitative systems perspectives on forestry's role in which ecosystem services are obtained. This is important not least in light of climate change, where adapting forestry to new conditions is crucial. SLU's new forestry programmes will deliver the necessary expertise for transitioning society to a bio-based economy. EMA will provide an even more solid foundation for deciding how society should focus on sustainable development. The link between research, education and EMA needs to be strengthened.

- a) *SLU's degree programmes recruit enough qualified students and doctoral students to meet the needs of a sustainable society.*

The faculty will increase the volume and revise the content and format of its education. Forestry programmes will be offered in more places and through distance education. Existing programmes will be supplemented with new ones aimed at new student groups. This will allow the faculty's programmes to better attract and reflect all groups of the population. Most of the programmes will be offered as general degrees programmes, which enables a more flexible course of study and better diversity in knowledge profiles. It is also important to continue offering professional degrees to ensure specific and in-demand key expertise for the forest sector. The degree programmes will include courses that prepare students to understand forestry based on national and global goals for production, the environment, and sustainability and courses that attract international students to the faculty's undergraduate and Master's programmes.

The scope of the faculty's doctoral education should also increase to meet the need of personnel with doctorates within and outside of academia, both nationally and internationally.

- b) *There is an increased demand for scientifically based knowledge and decision-making data from SLU.*

The faculty's research and EMA maintain a high standard. By combining EMA and research, SLU can deliver high-quality material to base

decisions on that is scientifically grounded, allowing more and more groups in society to use the material.

The faculty's long time series of data from EMA and field research are unique resources. The coming strategy period will include work to improve data availability to support public agencies, researchers and other stakeholders. We anticipate that improved availability will also increase the scope of national and international research and EMA collaborations. The use of EMA data and expertise will also be expanded in our degree programmes.

- c) *SLU is an attractive partner and driving force for the green transition of industry and other parts of society.*

Sustainable use of forest resources requires good collaboration between parties with complementary skillsets. The faculty has the broadest expertise in forestry in Sweden and wants to be a unifying force for collaboration between forest research and other stakeholders in the forest sector. Effective collaboration is necessary to achieve the lofty goals for sustainable development in forestry, while taking into account all important ecosystem services. This requires a greater degree of coordination both within SLU, to ensure that employees' skills are efficiently used, and between organisations in the forest sector. The faculty also wants to advance its positions in important international organisations and processes that drive the green transformation within the private sector and public administration towards a circular bioeconomy. Important ongoing processes include the national forest programme and the regional forest programmes. Furthermore, political decisions regarding forestry are increasingly made at the EU level, so the faculty should increase its collaborative ambitions within the EU.

- d) *The ability to adopt a system perspective and to integrate all sustainability dimensions has been developed.*

An interdisciplinary approach has an obvious role at the faculty and will be further developed within such areas as the *Future Forests* platform. In the strategic research area *Trees for the Future*, modern molecular biology will be linked to practical forest management and silviculture to provide a scientific basis for sustainable forestry in a changing world. An important component is breeding trees that are adapted to a changed climate. The faculty is planning to strengthen modelling expertise to expand opportunities for qualitatively and quantitatively describing the connection between forest management and ecosystem services. Knowledge from different research fields is systematised to allow its use in scenario analyses to evaluate the effects of different forest management strategies.

The faculty has extensive experience of contributing to the national forest impact assessments (SKA) that are regularly carried out by the Swedish Forest Agency. The faculty uses the Heureka model, which is an AI-based system for scenario analysis and forest planning. Heureka is widely used in Swedish forestry, making it an excellent tool for bringing new knowledge, in model form, to practice. During the coming strategy period, the faculty will contribute to SKA-22, and in this way will further develop the Heureka system.

- e) *SLU leads the way by ambitious internal sustainability work that includes all sustainability perspectives.*

The faculty's employees have a genuine interest in SLU's internal sustainability efforts. Several departments at the faculty were among the first within SLU to obtain environmental certification. This natural drive to find sustainable solutions and active efforts within environmental certification will continue. Sustainability perspectives are a natural aspect of all policy processes at the faculty.

2.2 Overall objectives and subcomponents for focus area 2 in concrete terms

Focus area 2: SLU in the digital society

Overall objective: SLU contributes to the digital transformation and uses it to support the transition to a more sustainable society and to increase the quality of our activities.

The faculty will take a leading role in the necessary research for the revolutionary digital transformation of the forest sector, where new “digital ecosystems” will transparently support more efficient forestry that will more transparently interact with society. Together with other faculties and the university administration, the faculty will contribute to the development of internal digital infrastructures that streamline all parts of its activities. The coronavirus pandemic has resulted in initial steps being taken. This development will continue within the coming strategy period. Within EMA, SLU and the faculty are at the forefront of digital developments. This position must be solidified and strengthened. New, distance-based forms of instruction will be developed in undergraduate programmes, allowing the best teachers to be provided regardless of where the students are located.

Subcomponents:

- a) *SLU makes full use of the opportunities of digitalisation in its education, research, and environmental monitoring and assessment.*

The land-based industries are uniquely positioned to both streamline and better interact with society if the possibilities of digitalisation are fully

leveraged. In the Swedish forest sector, companies and public agencies are preparing for the digital leap that will allow Sweden to maintain its international competitive advantages while forestry becomes transparent and sustainability issues are better communicated with all stakeholders.

The faculty will lead parts of this development through innovative research and increasing digitalisation of its programmes and courses. EMA has long actively worked to leverage digitalisation and contribute significant data that are useful for purposes other than their original intent. For example, these datasets are very interesting for the development of AI applications. EMA will continue working to make collected data open, easy to use and quality assured. Digitalisation has a key role to play in each of these aspects.

To ensure internal access to expertise, the faculty's digitalisation skills will be improved and expanded. Internal networks will be established so that the faculty's researchers, teachers and environmental analysts can support each other in this effort. New collaborations will be established to drive development together with other leading research environments and practitioners.

Digitalisation supplements traditional campus studies. SLU and the faculty will develop high-quality distance courses to attract students who have difficulty participating in campus-based courses. Distance teaching also opens up new opportunities for attracting international students and for taking part in international student networks. It also means that the best teachers can participate regardless of where students are located.

- b) *The content of the degree programmes is adapted to students' future professional roles in the digital society.*

The new programmes will be developed in consultation with employers and adapted to their future needs. For continued development and relevance, it is important to create a structure in which employers systematically contribute at both educational and strategic levels. The faculty will also promote more systematic alumni efforts.

- c) *SLU is on the cutting edge of research related to digitalisation within our areas.*

The faculty will drive development in the research fields linked to digitalisation, something we are already strong in today. Some examples are ongoing research within the Mistra programme *Digital Forests* and AI linked to bioinformatics, genetics and forestry breeding. Digitalisation is a broad area and can be expected to have a significant impact in other parts

of SLU's activities. The term *precision forestry* is increasingly used to describe a future where forest owners and society have access to detailed information about the forest's biophysical state and can control forestry in detail to achieve set goals for forest owners and society. This means a digital information chain that is made available to control the entire forestry process from forest to industry. With this goal in mind, digitalisation will play a central role in several research areas.

- d) *SLU has developed the infrastructure and system capacity and ensured the necessary competence and expertise to meet the opportunities and needs of the digital transformation.*

For all activities to fully leverage the possibilities of digitalisation, SLU needs to upgrade its basic infrastructure. Collaboration between the faculty's various activities and IT as operational support needs to be developed.

The faculty will be characterised by efficient and accessible digital meeting places for students and staff, accessible and comprehensible data, and shared use of systems. Development of new methods is continually ongoing and characterises the faculty's work, e.g., e-DNA and AI solutions that develop and streamline research and EMA.

2.3 Overall objectives and subcomponents for focus area 3 in concrete terms

Focus area 3: One SLU

Overall objective: A stronger, unified SLU – both internally and in our external contacts.

The faculty wants employees and students to have a sense of involvement, trust, and commitment, and for them to take collective responsibility for our activities. The faculty is positive toward the SLU-wide ambition to harmonise administrative procedures and methods to improve efficiency and strengthen cohesion at SLU. The potentials from having a decentralised organisation will be better utilised, and the harmonisation process will consider different conditions for different activities and locations.

Subcomponents:

- a) *Active and systematic work to promote a good work environment, gender equality and equal terms is conducted, wherein proactivity and internal learning are guiding principle.*

The faculty will be an attractive and stimulating workplace where employees can develop and thrive. The environment will be characterised by an open and encouraging culture and free-flowing communication with

constructive feedback and a professional approach to any conflicts. Professional development of management skills and clear career paths are ways of empowering staff.

All employees and students are to be informed about gender issues, equal treatment and norm criticism and are to contribute to promoting equal rights and opportunities in the workplace, in the study environment and in future careers. The faculty will be characterised by students and staff contributing to discussions on and advancing the faculty's and SLU's work with equal treatment, gender mainstreaming and norm-critical perspectives. Students and staff help develop gender equality and equal opportunities in the forest sector by being well-educated ambassadors with good insight into sector-specific challenges and conditions in the area.

The faculty will ensure an inclusive study and work environment where employees and students are protected from harassment and discrimination. The faculty will actively work to ensure that the work and study environments are characterised by diversity and openness. The faculty will encourage both students and employees to critically examine their own culture and question norms that risk creating unequal power relations, discrimination and harassment. The equal opportunities and gender equality perspective is integrated in all degree programmes and is a common thread throughout the programmes with a clear purpose and goal to move toward.

To create systematic, integrated and internally supported gender equality and equal opportunities with a clear division of responsibilities, the departments are operationally tasked to manage and follow up these in the same way as research, education, EMA and collaboration. Everyone, both employees and students, can propose and organise equal opportunity and gender equality activities using funding from the faculty's equal opportunities fund, which aims to create conditions for organisation-based and integrated work with gender equality and equal opportunities.

- b) *SLU has stronger, cohesive environments, wherein our mission to conduct first-cycle education plays a larger role and has gained increased status*

By increasing teaching volume, education will become more important within the faculty. To this end, it is important to improve the attractiveness of teaching, e.g., by valuing teaching higher when evaluating merit.

- c) *SLU has seized the opportunities offered by a geographically dispersed organisation by facilitating and strengthening collaboration across geographical and organisational boundaries, as well as between areas of activity.*

The faculty has operations in many locations, but primarily in Umeå, Uppsala, Alnarp, Skinnskatteberg, Grimsö, Vindeln, Asa and Tönnersjöheden. Some of the faculty's departments are located in multiple places. There is extensive experience with collaborating across geographical boundaries, and the faculty is continually offering incentives for researchers, teachers and environmental analysts to collaborate across departmental and geographic boundaries. Being located in several locations improves opportunities for external collaboration and an education that is more inclusive, a strategy that will continue to be developed over the coming strategy period. The faculty will also actively contribute to a review of existing internal collaboration organisations to increase understanding within SLU of how internal collaborations are organised.

- d) *The harmonisation of procedures and processes has created equal opportunities, regardless of the part of SLU to which employees and students belong.*

Each of SLU's operations and locations has something unique that is worth preserving and developing. Being geographically dispersed is a strength that will be utilised better. At the same time, it is important to create and offer equal opportunities regardless of activity and location. For example, this could apply to opportunities for exercising good leadership and employeeship and to the quality of the learning environments. This can be achieved by harmonising administrative processes and opportunities and having appropriate organisational solutions that consider the varying conditions for different activities and locations. The faculty will have qualified and professional operational support that provides good service and contributes to a quality-assured and effective exercise of its power as a public authority.

- e) *By combining the roles of university and expert authority, SLU has advanced the development of knowledge.*

The faculty works closely with several stakeholders in the forest and environmental sectors. Many of these base decisions on in their daily work on material from SLU. The faculty intends to improve the link between EMA and research to further increase the quality of the data and documentation it prepares for decision-making bodies. We can expand collaboration between stakeholders and the faculty's researchers and environmental analysts with a greater focus on interdisciplinary approaches and on issues relevant to developing forest policy.

3. Supplementary information on the objectives

The faculty intends to consolidate and further develop its position as a world leader in forestry research.

The faculty supports SLU's three university-wide focus areas with an additional area dealing with the faculty's research. In recent rankings, SLU is the internationally leading university in forestry research. The faculty's goal is to maintain and strengthen that position by continuing to combine basic and application-oriented research. Pioneering results from basic research will be combined with solutions to issues that are relevant in the forest sector. Research results will benefit society through closer collaboration.

Priorities are important for maintaining and improving SLU's position. The faculty's basic view is that internationally leading research environments should be prioritised together with environments that are important for maintaining SLU's role in the sector. Collaborations with other universities and institutes are often essential for tackling interdisciplinary issues. New initiatives are relevant for developing research within the focus areas SLU's next steps for sustainable development and SLU in the digital society.

Research infrastructure is increasingly important. The faculty will actively work to highlight infrastructures within platforms that are to be easily accessible even to researchers outside the faculty. Similarly, we anticipate that the faculty's researchers will increasingly be able to use national and regional infrastructures provided by third parties. Increasing coordination of infrastructures at the faculty, within SLU and nationally is necessary to ensure resources are sufficient. Financing of infrastructure is a challenge for both SLU and other universities.

Attracting talent and expertise is a crucial issue. Incentives are needed for attracting and utilising the best possible staff despite limited government funding. Many researchers apply to SLU because of our reputation as an internationally leading university. To remain attractive, SLU must find ways to retain successful young researchers, who may be tempted by professorships at other universities. As such, the faculty considers it vital to develop procedures that promote talented researchers/teachers to professorships more than currently occurs, since there is a demand for professorships and they often open doors to collaborations and research resources. Career opportunities for younger researchers and other employees must also be more clearly discussed. For example, the benefits of conducting research in Sweden should be better described for international recruitments. New ways of working to attract internationally leading researchers to Sweden are also needed.

4. Long-term skills provision at the faculty

Employee expertise and creativity are crucial for maintaining high quality in our organisation. A sense of feeling secure and clarity in employment conditions are also success factors. One challenge is to continuously bring in younger people, such as doctoral students, into the organisation. This requires a good work environment with a well-functioning leadership.

Shared resources need to be used strategically and with a long-term approach to create stability and competitive academic environments. Talent management and staff development strategies are important in this work, not only as a tool in recruiting new employees, but also for planning skills development for existing staff.

The faculty board identifies senior positions and, in consultation with the relevant departments, plans well in advance for how these positions should be filled as current staff retire. Based on this information, the faculty draws up a five-year plan for senior positions. Previously, this plan only covered professors. In the future, however, it will include all senior positions. The plan is used as a basis for discussions in the faculty board and in discussions with heads of departments about strategic initiatives and initiating individual hirings.