LIFE SCIENCES AND NATURAL RESOURCES

BACHELOR PROGRAMMA BOS- EN NATUURBEHEER
MASTER'S PROGRAMME FOREST AND NATURE CONSERVATION

WAGENINGEN UNIVERSITY

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This report was finalized on 18 February 2019.

REPORT ON THE BACHELOR'S PROGRAMME BOS- EN NATUURBEHEER AND THE MASTER'S PROGRAMME FOREST AND NATURE CONSERVATION OF WAGENINGEN UNIVERSITY

This report takes the NVAO's Assessment Framework for Limited Programme Assessments as a starting point (September 2016).

ADMINISTRATIVE DATA REGARDING THE PROGRAMMES

Bachelor's programme Bos- en Natuurbeheer

Name of the programme:	Bos- en Natuurbeheer
CROHO number:	56219
Level of the programme:	bachelor
Orientation of the programme:	academic
Number of credits:	180 EC
Specializations or tracks:	Policy & Society Ecology and Conservation
Location(s):	Wageningen
Mode(s) of study:	fulltime
Language of instruction:	Dutch
Expiration of accreditation:	31/12/2019

Master's programme Forest and Nature Conservation

Name of the programme:	Forest and Nature Conservation
CROHO number:	66219
Level of the programme:	master
Orientation of the programme:	academic
Specializations or tracks:	Policy & Society Management Ecology
Number of credits:	120 EC
Location(s):	Wageningen
Mode(s) of study:	fulltime
Language of instruction:	English
Expiration of accreditation:	31/12/2019

The visit of the assessment panel Forest and Nature Conservation to Wageningen University and Research (WUR) took place on 22-23 October 2018.

ADMINISTRATIVE DATA REGARDING THE INSTITUTION

Name of the institution:	Wageningen University
Status of the institution:	publicly funded
Result institutional quality assurance assessment:	positive

COMPOSITION OF THE ASSESSMENT PANEL

The NVAO approved the composition of the panel on 05-03-2018. The panel that assessed the bachelor's programme Bos- en Natuurbeheer and the master's programme Forest and Nature Conservation consisted of:

- Prof. dr. S. (Stanley) Brul (chair), Professor of Molecular Biology and Microbial Food Safety at the University of Amsterdam and Chair of the Dutch institute for Biology (NIBI), the Netherlands;
- Dr. M.A.H.E. (Mieke) Latijnhouwers, assessment advisor at Radboud University Medical Centre Nijmegen, the Netherlands;
- Prof. dr. P. (Patrick) Sorgeloos, Emeritus Professor of Aquaculture at Ghent University, Belgium;
- Prof. dr. P.G.L. (Peter) Klinkhamer, Professor of Evolutionary Ecology of Plants and Head of the research cluster Plant Sciences and Natural Products at the Institute of Biology of Leiden University, the Netherlands;
- Prof. dr. D. (Daniela) Kleinschmit, Professor of Forest and Environmental Policy at the University of Freiburg, Germany;
- B. (Boas) van het Putten MSc (student member), graduate of Biomedical Sciences at the University of Amsterdam (2017) and currently PhD student at AIGHD/AMC, the Netherlands.

The panel was supported by dr. F. (Floor) Meijer, who acted as secretary.

WORKING METHOD OF THE ASSESSMENT PANEL

Preparation
In preparation of the site visit, the panel studied several documents, amongst others: the NVAO assessment framework (2016), the institutional audit of WUR and the previous programme assessments (of 2012). The accreditation system has entered its third phase (concurrent with a second round of institutional audits). Wageningen University and Research has recently successfully passed its second institutional audit. The new NVAO assessment framework is 'geared to a quality assurance system that is based on trust in the existing, high quality of Dutch higher education'.

In 2012, all standards of the bachelor's and master's programmes in Forest and Nature Conservation were assessed as good, leading to the overall assessment 'good' for both programmes. The previous panel was impressed by the objectives and learning outcomes of the programmes, which were translated into a well-structured curriculum, taught by a high-quality staff. The panel noted that an appropriate mix of teaching methods was used. It was also pleased with the admission procedures and study load. The panel applauded the strengthening of the position of the Examining Boards and assessed the assessment strategies and examination methods as appropriate. The quality of theses was deemed impressive.

With the new philosophy of the framework and the last assessment of these specific programmes in mind, the panel does not wish to elaborate too long on the different criteria of the four standards of the limited framework. The overall evaluation of the programmes by this panel is, as it was in 2012, positive. In this report, therefore, the panel will concentrate specifically on developments since 2012 and on providing suggestions that might help to make the programme even better than it already is.

QANU received the self-assessment reports of the Forest and Nature Conservation programmes on 6 September 2018 and made them available to the panel. The panel members read the self-assessment reports and prepared questions, comments and remarks prior to the site visit. The secretary collected these questions in a document and arranged them according to panel conversation and subject. In addition, panel members read recent theses from each programme. In consultation with the chair, fifteen theses per programme were selected from the academic years 2015-2016 and 2016-2017, covering the full range of marks given and all specialisations. The panel

members also received the grades and the assessment forms filled out by the examiners and supervisors. An overview of all documents and theses reviewed by the panel is included in Appendix 4. The programme management drafted a programme for the site visit. This was discussed with the secretary and chair of the panel. As requested by QANU, the programme management carefully selected discussion partners. A schedule of the programme for the site visit is included in Appendix 3.

Site visit
The site visit took place on 22 and 23 October 2018 at Wageningen University and Research (WUR). In a preparatory meeting on the first day of the site visit, the panel members discussed their findings based on the self-evaluation and on the theses and formulated the questions and issues to be raised in the interviews with representatives of the programme and other stakeholders.

During the site visit, the panel studied a selection of documents provided by the programme management. They included course descriptions, course materials, written exams, assignments and other assessments. The panel interviewed the programme management, students, alumni, staff members, members of the Programme Committee and members of the Examining Board.

After the final meeting with the management, the panel members extensively discussed their assessment of the programmes and prepared a preliminary presentation of the findings. The site visit was concluded with a presentation of these preliminary findings by the chair.

Report
After the visit, the secretary produced a draft version of the report. She submitted the report to the panel members for comments. The secretary processed corrections, remarks and suggestions for improvement provided by the panel members to produce the revised draft report. This was then sent to WUR to check for factual errors. The comments and suggestions provided by the programme management were discussed with the chair of the assessment panel and, where necessary, with the other panel members. After incorporating the panel's comments, the secretary compiled the final version of the report.

Definition of judgements standards
In accordance with the NVAO's Assessment framework for limited programme assessments, the panel used the following definitions for the assessment of both the standards and the programme as a whole.

Generic quality
The quality that, in an international perspective, may reasonably be expected from a higher education Associate Degree, Bachelor's or Master's programme.

Unsatisfactory
The programme does not meet the generic quality standard and shows shortcomings with respect to multiple aspects of the standard.

Satisfactory
The programme meets the generic quality standard across its entire spectrum.

Good
The programme systematically surpasses the generic quality standard.

Excellent
The programme systematically well surpasses the generic quality standard and is regarded as an international example.

SUMMARY JUDGEMENT

Intended learning outcomes
The Dutch-taught bachelor's programme *Bos en Natuurbeheer* (BBN) and the English-taught master's programme Forest and Nature Conservation (MFN) aim to train students to contribute to the maintenance and restoration of ecosystem functioning and prevention of further loss of biodiversity. While the bachelor's programme focuses specifically on terrestrial ecosystems in temperate and tropical regions, the master's programme has no geographic restrictions. The panel is pleased with the broad multidisciplinary profile of both programmes. The integration of approaches from the natural and social sciences fits the WUR mission and sets the programme apart from other programmes in ecology and conservation in the Netherlands and abroad. The broadly phrased intended learning outcomes (ILOs) match the programmes' profile and meet the demands of the professional field and the academic community in terms of level and orientation. The ILOs would, however, benefit from more specificity, for example by addressing relevant developments in the field and within society at large. Finally, there is a clear connection with the professional field in the form of the External Advisory Committee (EAC). Expanding the scope of the EAC to the international professional field is an opportunity for improvement.

Teaching-learning environment
The three-year bachelor's curriculum (180 EC) consists of a common part (108 EC), a major (30 EC, either (1) Policy and Society or (2) Ecology and Conservation) and a free choice space/minor (30 EC). Students complete their programme with an individual thesis project (12 EC). The panel established that the bachelor's programme is well-designed and sufficiently coherent. The different types of courses support the profile and ILOs of the programme, and enable 'system-thinking'. The programme, furthermore, is sufficiently academic in character. A potential improvement to the overall coherence would be to schedule an integration course, in which students from the different majors come together, in the second semester of the third year and to move the thesis from the middle of the third year to the end. Another suggestion would be to create learning lines around certain central topics that are relevant for both the natural and social sciences, such as sustainability and eco-system services concepts.

The two-year master's curriculum (120 EC) consists of courses (60 EC), a thesis (36 EC) and an internship (24 EC). The programme offers three specialisations: (1) Policy and Society, (2) Management, (3) Ecology. The panel is pleased with the flexible structure and interdisciplinary content of the programme. Like the bachelor's curriculum, the master's curriculum clearly encourages system thinking, as it does not just focus on living, but also on a-biotic components. A promising initiative is that the programme is experimenting with learning communities in which students work on real-life cases in cooperation with representatives of the professional field, but according to students even more could be done to close the gap between the programme and the labour market.

Both programmes offer students a stimulating teaching-learning environment, which is characterized by a good atmosphere and productive interaction between an enthusiastic staff and highly motivated students. Teaching methods are sufficiently varied and match the intended learning outcomes. One form of instruction that is especially valued by students and staff is the field-practical that seems to embody the hands-on, outdoor character of the programmes. The teaching staff of the programme consists of staff members whose academic profiles reflect the dual social science and natural science approach. Lecturers are knowledgeable in their respective fields and often have extensive didactic experience.

The varying levels of knowledge and different interests of students who enter the programmes are a challenge. Because of their broad, interdisciplinary profile, the programmes attract a heterogeneous student population. A consequence of the broad intake is that there is quite a bit of overlap and repetition between courses within the bachelor's programme and between the bachelor's and the master's programme. A positive development is that the programme is developing a 'course library'

to deal with perceived repetition of topics and content. The panel believes that the programmes should also aim for teaching methods that could help fill in knowledge gaps and keep a close eye on the admission criteria in order to make sure that all students who enter the programmes are capable of realising the intended learning outcomes. Whereas the influx of international students in the master's programme may pose some particular challenges, it is clearly also an asset of the programme. Both students and staff appreciate that students of different disciplinary and cultural backgrounds bring valuable knowledge and experience to the table and add to the existing dynamic atmosphere.

A final – and major – point of attention is the recent (university-wide) growth in student numbers, which puts pressure on the small-scale nature of the teaching methods used and the close ties between staff and students. The panel highly recommends making funds available to hire new staff and split-up large classes along programme lines, as is currently being proposed at the central university level. A worrisome trend, which highlights the necessity for expanding the staff, is the high workload that lecturers currently experience. The panel feels that this issue needs attention.

All in all, the panel concludes that the curricula, teaching-learning environment and staff of the programmes enable students to realise the intended learning outcomes. Both programmes are feasible, even if not all students (choose to) complete them within the appropriate time frame.

Assessment
Both programmes have a solid system of assessment in place, which is based on the WUR-wide assessment policy. Within this system, sufficient attention is paid to the validity, reliability and transparency of examinations. The overall level of sample tests studied by the panel is certainly adequate, but the panel did find some minor imperfections that need to be addressed. Consistent use of peer review in the design phase of examinations may well help to further improve the quality of individual tests.

The procedures for assessing the final product of the programmes, the thesis, are clear and the assessment itself is sound. The panel was pleased to find that the use of standardized rubrics and assessment forms is now commonplace in all Chair Groups. To further increase the transparency and comparability of thesis assessment across Chair Groups, the panel recommends to introduce separate assessment forms for both assessors and to automate the different steps in the assessment procedure.

Finally, the panel established that the Examining Board safeguards the overall level of assessment in the programmes to the best of its abilities. Increasing the capacity of the EB, as is the intention of the Executive Board, could help to strengthen its agency in relation to the rather autonomous Chair Groups. Nonetheless, the panel feels that the central university should also critically reconsider whether the design of the current quality assurance system optimally suits its purposes.

Achieved learning outcomes
Both the sample theses that were studied by the panel and the position of graduates indicate that students achieve the intended learning outcomes of the programmes. The general level of the final projects is highly satisfactory: the work is of above-average academic quality and adequately reflects the broad, multidisciplinary profile of the programmes. Graduates of the bachelor's programme are admissible to a large number of master's programmes both within and outside of WUR, while graduates of the master's programme find employment in a broad range of relevant positions and sectors. Alumni generally feel that the programme has provided them with a solid foundation from which they can benefit in their respective careers.

The panel assesses the standards from the *Assessment framework for limited programme assessments* in the following way:

Bachelor's programme Bos- en Natuurbeheer

Standard 1: Intended learning outcomes	good
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment	satisfactory
Standard 4: Achieved learning outcomes	good
General conclusion	good

Master's programme Forest and Nature Conservation

Standard 1: Intended learning outcomes	good
Standard 2: Teaching-learning environment	satisfactory
Standard 3: Assessment	satisfactory
Standard 4: Achieved learning outcomes	good
General conclusion	good

The chair, prof. dr. Stanley Brul, and the secretary, dr. Floor Meijer, of the panel hereby declare that all panel members have studied this report and that they agree with the judgements laid down in the report. They confirm that the assessment has been conducted in accordance with the demands relating to independence.

Date: 18 February 2019

DESCRIPTION OF THE STANDARDS FROM THE ASSESSMENT FRAMEWORK FOR LIMITED PROGRAMME ASSESSMENTS

Governance structure of Wageningen University and Research (WUR)
In contrast to many other Dutch universities, WUR has just one faculty: the Faculty of Agricultural and Environmental Sciences. Therefore the governance structure of WUR differs from most other universities. The Rector Magnificus of the university is also the Dean of the Faculty. The Dean of the Faculty appoints the Programme Board, which consists of four professors and four students. The Programme Board is the legal governing body of the university's 18 BSc and 28 MSc degree programmes. It is responsible for the design, content, quality and financing of the programmes.

Each programme has its own Programme Committee, which consists of an equal number of students and staff members who are appointed by the Programme Board. Programme Committees advise the Programme Board on the design and content of their degree programmes. The Programme Board does not employ the lecturers; these are employed by the 94 Chair Groups, which generally include a Chair Holder (full professor), academic and support staff, postdocs and PhD students. The Programme Board, the Programme Committees and the Chair Groups together form the WUR education matrix organization.

The Executive Board of WUR has appointed four Examining Boards (EB), each responsible for a group of related degree programmes (domain) and Chair Groups. Examining Boards are independent from the Programme Board and include staff members from the domain. The Examining Boards assess the individual study programmes of students and award student degrees. The Examining Boards also appoint the course examiners and monitor changes to the assessment strategy of interim examinations in the annual education modification cycle. The Examining Boards assure the quality of the interim examinations, and for that reason periodically visit Chair Groups to discuss the validity and reliability of the assessments.

Standard 1: Intended learning outcomes
The intended learning outcomes tie in with the level and orientation of the programme; they are geared to the expectations of the professional field, the discipline, and international requirements.

Findings
Profile and objectives
The Dutch-taught bachelor's programme *Bos en Natuurbeheer* (BBN) and the English-taught master's programme Forest and Nature Conservation (MFN) aim to train students to contribute to the maintenance and restoration of ecosystem functioning and prevention of further loss of biodiversity. The programmes have a broad scope that encompasses both the ecological and social processes that are fundamental in designing new governance approaches and management strategies with respect to land use. While the bachelor's programme focuses specifically on terrestrial ecosystems in temperate and tropical regions, the master's programme has no geographic restrictions. It gives students the opportunity to specialise in ecological functioning of nature areas from a plant, forest or wildlife perspective, in terrestrial ecosystems all over the world. Both bachelor's and master's programme give students the opportunity to specialise. BBN offers two majors: (1) Policy and Society and (2) Ecology and Conservation. MFN encompasses three specialisations: (1) Policy & Society, (2) Management and (3) Ecology. These specialisations reflect the research interests of the four WUR Chair Groups involved in the programmes: (1) Forest Ecology and Forest Management (FEM), (2) Forest and Nature Conservation Policy (FNP), (3) Plant Ecology and Nature Conservation (PEN) and (4) Resource Ecology Group (REG).

The panel appreciates the profile of both programmes, which addresses relevant and highly topical issues such as habitat loss, environmental pollution, overharvesting of natural resources and climate change. The programmes' profile is unique in the sense that it addresses both ecological, social and governance issues and combines approaches from the natural and social sciences. This broad,

multidisciplinary outlook allows students to adequately deal with the inherently complex issues that are central to nature conservation. The equality of natural and social science within the programmes is a powerful message. Students confirmed during the site visit that the combination of both approaches was in many cases what attracted them to the programmes. The panel also established that the profile of the programmes ties in well with the WUR-wide mission, which emphasises the importance of beta-gamma cooperation.

A topic that came up during the site visit, was whether the programme title adequately reflects the profile and content. According to the panel, the somewhat artificial separation of 'forest' and 'nature' in the title could potentially confuse prospective students and their future employers. This particularly applies to the master's programme, in which it is quite possible for students to 'work around' the forest part and focus on other types of complex terrestrial ecosystems. The management acknowledged that the title of this programme is a remnant of the historically strong tradition of forestry at WUR. While the bachelor's programme retains a link to this particular field, forestry is not necessarily part of the master's curriculum. The management agreed with the panel that it might be opportune to reconsider the title of the master's programme.

Intended learning outcomes, level and orientation
The bachelor's programme has translated its objectives into 11 intended learning outcomes (ILOs), which are linked to the Dublin descriptors (see appendix 2). The ILOs are clustered into domain specific learning outcomes (ILOs 1-7) and general learning outcomes (ILOs 8-10). There is also a specific ILO for the major-specific part of the programme (ILO 11a/11b). The domain specific ILOs reflect that graduates are expected to be able to explain the functioning of forests and natural areas as socio-ecological systems. Moreover, they have to know how to analyse ecosystems and identify their key components, main actors and institutions, as well as predict how actions and interventions affect the functioning of ecosystems. Research skills in the specific domain of Forest and Nature Conservation are also integrated into the ILOs. The more generic ILOs specify that graduates should have acquired the skills to present their research findings to academics and non-academics, and reflect on their role as academics while designing their own learning path. The major-specific final ILO specifies the additional content of the two majors of the programme, (1) Policy and Society and (2) Ecology and Conservation.

The 11 intended learning outcomes of the master's programme follow a similar format. The domain specific learning outcomes (ILOs 1-5) express that graduates have to be able to analyse the functioning of forests and natural areas within their social-ecological context at different temporal and spatial scales, and conduct academic research in the domain of the programme. The domain specific learning outcomes also include three separate ILOs for the three specialisations, (1) Policy and Society, (2) Management and (3) Ecology, which mark out the content of these specialisations. The general learning outcomes (ILOs 6-11) specify the academic skills and attitude that students must acquire.

The panel established that the ILOs match the multidisciplinary profile of both programmes. While it is understandable that the ILOs have been phrased rather broadly, the panel would have appreciated more specificity. As was also indicated by the 2012 assessment panel, the distinction between the two sets of ILOs could be stronger. During the site visit, the programme management informed the panel that the ILOs are currently being revised in order to emphasise the (mostly) nationally oriented character of the Dutch-taught bachelor's programme and the international scope of the English-taught master's programme. The panel is supportive of this development, but feels that the issue could have been taken up sooner after the 2012 assessment. As part of advancing the specificity in the ILOs, the panel recommends to specifically address relevant developments in the field and within society at large (such as the growing importance of bioinformatics and climatology). The panel has established that the level and orientation of the ILOs match the demands of the professional field and the academic community. The strong emphasis on scientific research in the ILOs underscores the academic character of the programmes.

Link with the professional field
To ensure compatibility with the demands of the professional field, the programme has established an External Advisory Committee (EAC) that meets annually to discuss the ILOs, the content and quality of the programme and the performance of graduates. The panel firmly believes in the added value of maintaining a strong connection to the professional field. It has established that the EAC includes representatives from relevant stakeholders, such as major forest and nature conservation organisations, consultancy and research organisations, industry and government agencies. An opportunity for further improvement is to internationalise the EAC by adding at least one foreign member, which would ensure a better fit with the international character of the master's programme.

Considerations
The panel is pleased with the broad multidisciplinary profile of the bachelor's and master's programme. The integration of approaches from the natural and social sciences fits the WUR mission and sets the programme apart from other programmes in ecology and conservation in the Netherlands and abroad. The broadly phrased ILOs match the programmes' profile and meet the demands of the professional field and the academic community in terms of level and orientation. They would, however, benefit from more specificity, for example by addressing relevant developments in the field and within society at large. Finally, there is a clear connection with the professional field in the form of the External Advisory Committee. Expanding the scope of the EAC to the international professional field is an opportunity for improvement.

Conclusion
Bachelor's programme Bos- en Natuurbeheer: the panel assesses Standard 1 as 'good'.
Master's programme Forest and Nature Conservation: the panel assesses Standard 1 as 'good'.

Standard 2: Teaching-learning environment
The curriculum, the teaching-learning environment and the quality of the teaching staff enable the incoming students to achieve the intended learning outcomes.

Findings
Curriculum bachelor's programme
The bachelor's programme *Bos en Natuurbeheer* is a modest sized programme with an annual intake of 60-80 students, whose interests reflect the broad, multidisciplinary profile of the programme. The three-year curriculum (180 EC) consists of a common part (108 EC), a major (30 EC) and a free choice space/minor (30 EC). Students complete their programme with an individual thesis project (12 EC). The common part of the programme consists of foundation courses, domain-related courses, and integrating courses. The foundation courses, which are spread across the first year, are designed to expand student's knowledge of mathematics, statistics, ecology and physical geography. The domain-related courses of the first, second and third year build upon the knowledge base that students acquire in the foundation courses. They include courses with a natural sciences approach as well as courses with a social sciences approach. These perspectives are brought together in the integrating courses (mostly field practicals) at the beginning and end of the first year, the end of the second year and the beginning of the third year.

In addition to the common part of the programme, students choose one of two majors in which they take courses to deepen their knowledge in a specific domain. These are (1) Policy and Society, which focuses on societal (governance, legal, economics etc.) aspects of forest and nature conservation, and (2) Ecology and Conservation, which focuses on the ecological processes and management of forest and nature areas, such as issues on forest resources, a-biotic habitat conditions, animal ecology and climate change ecology. Finally, there is an elective space, which students can use to prepare them for future choices. They either fill it with a minor or with their own package of 'free-choice' courses. As part of the ILOs, students are expected to develop their own study programme, in consultation with the study advisor. This individual study path needs to be approved by the Examining Board.

The panel established that the bachelor's programme is well-designed and sufficiently coherent. The different types of courses support the profile and ILOs of the programme, and enable 'system-thinking', which was mentioned as a particular strength by students. Furthermore, students are positive on the fact that the programme provides them with perspectives from diverse disciplines. The panel notes that students specially appreciate the integration courses, which include field trips at the end of the first year (to the Veluwe) and beginning of the third year (to the Sumava National Park & Bavarian Forest National Park). A potential improvement to the overall coherence would be to conclude the programme with an integration course, in which students from the different majors come together. This would entail moving the integration course at the beginning of the third year to the end of the third year. Another suggestion would be to create learning lines around certain central topics that are relevant for both the natural and social sciences, such as sustainability and eco-system services concepts. In the opinion of the panel this would enhance the visibility of such central topics across Chair Groups and ensure that they receive ample attention throughout the programme.

The panel notes that the distribution of students across the two majors is rather unequal. The majority of students (ca. 80%) choose the major Ecology and Conservation, which reflects the fact that most students who enter the programme are primarily attracted to the ecology-side and less to policy and governance aspects. The panel was pleased to find that the programme is well aware of this issue and actively attempts to create an interest in social sciences research right from the start of the programme. The new compulsory course *Introduction to Forest and Nature Conservation*, which is taught right at the start of the programme as of September 2017, was specifically developed for this objective. Staff indicated that most students gradually become more convinced of the value of 'social' courses. From its interview with students, the panel established that students generally feel well prepared for choosing their major at the end of the first year.

A further issue that was discussed during the site visit is the perceived overlap between courses. In the student chapter of the self-evaluation report, it was mentioned that some students feel that topics and content are often repeated within and between courses. In the interviews, management and staff indicated that some of this repetition of content is in fact deliberate as it helps to familiarise students with important concepts, starting at a more basic level and moving towards a more advanced level. To deal with unnecessary overlap, the programme is currently developing a 'course library', which will essentially map out all of the topics that are dealt with in the courses. The panel is convinced of the value of this tool, as it will provide a useful overview of the curriculum for the Chair Groups and staff involved in the teaching. While the course library is primarily developed for staff members, the programme management believes that it could also help students to shape their individual study paths. During the site visit, students confirmed that they would appreciate having access to the course library, as the 'bigger picture' of the curriculum is presently not always clear to them.

Student evaluations of individual courses and the curriculum as a whole demonstrate that students are generally pleased with the content of the programme. In the national student survey (*Nationale Studenten Enquête,* NSE) of 2017, the content of the curriculum received a respectable score of 4.2 on a five-point scale. Even so, the student chapter in the self-evaluation report indicates that some students feel that the level of difficulty of courses varies quite a bit and that the social science courses in the first year could be more challenging. There are also some students who are of the opinion that the general level of the programme is too basic. The panel has discussed this issue with students and staff and concludes that it is likely due to the heterogeneous student population. Students of the Policy & Society-major tend to feel that the natural sciences courses (such as the first year's courses *Water* and *Soil*, but also *Mathematics I*/*II*) are more challenging than the social sciences courses, while students of the Ecology and Conservation-major may experience the opposite.. During the site visit, the panel studied materials of a number of sample courses and found the level and content satisfying. The courses deal with appropriate, highly relevant subjects and the content is well-structured.

The panel concludes that the programme is sufficiently academic in character. Instead of offering dedicated academic and research skills courses, these skills are taught as part of thematic courses. Research skills are further developed in many other courses throughout the programme, eventually equipping students for their individual thesis project. The panel appreciates this set-up, which seems to work well, but believes that it could make sense to develop a learning line dedicated to research skills, which would make these skills more explicit and recognisable throughout the programme. The 12 EC thesis is limited in size, but the flexibility of the programme ensures that students with a particular interest in research can add to the thesis. The panel notes that the thesis is scheduled in the middle of the third year rather than at the end. From a perspective of progressive learning it would have made more sense to position the thesis at the end of the programme. In the panel's opinion it would be advisable to rethink this setup.

As of yet, there is little emphasis on preparing students for the labour market, as students are generally expected to complete a master's programme before entering the work field. The panel was pleased to hear that an optional 2-3 month BSc internship was recently added to the programme as part of the free choice space. A positive feature in the curriculum is the self-assessment course in the second year of the bachelor's programme, which gives students the opportunity to participate in a professional assessment test and use the outcomes to design the minor in such a way that it prepares them for their future choices. The panel believes, however, that even more could be done in the compulsory part of the programme to enable students to orient themselves on the professional field.

Curriculum master's programme
Over the review period, the master's programme Forest and Nature Management has had an average annual intake of 80-100 students from different geographical and disciplinary backgrounds. Currently, international students make up 43% of the intake. Graduates from the BBN are unconditionally admitted, while other applicants are individually assessed with regard to their knowledge of ecology and the social aspects of the domain. Students with deficiencies can be admitted after successful completion of a linkage programme of 30EC.

The two-year curriculum (120 EC) consists of courses (60 EC), a thesis (36 EC) and an internship (24 EC). An important feature of the programme is that it is highly flexible and can be tailored to the needs and interests of the individual student. Supported by study advisors, students can actively design their own study path, which needs to be validated by the Examining Board. The programme offers three specialisations: (1) Policy and Society, (2) Management, (3) Ecology. Policy and Society focuses on socio-economic aspects and governance issues, while Ecology focuses on the ecological functioning of terrestrial ecosystems and populations, with an emphasis on plants, forests or wildlife. The management specialisation, which is chosen by 46% of students, as compared to 34% who opt for Ecology and 20% for Policy and Society, deals with both the ecological and socio-economic aspects of forests and other natural areas.

To create a common foundation for all students, the programme starts with the introductory course *Trends in Forest and Nature Conservation* (6 EC) and a parallel methodological course (6 EC), depending on the chosen specialisation. Subsequently, students follow a number of compulsory and/or restricted choice specialisation courses (36 EC) and the so-called Academic Master Cluster (12 EC), which includes skills courses. The second year is dedicated to the thesis and subsequently the internship, which – as a rule – takes place at one of the four Chair Groups involved in the programme.

The panel is pleased with the flexible design and interdisciplinary content of the programme. Material of sample courses that the panel studied during the site visit demonstrates that the course level is adequate and that the content ties in with current debates in the field. The curriculum clearly encourages system thinking, as it does not just focus on living, but also on a-biotic components. An aspect that the programme may wish to address more structurally is the legal side of nature conservation.

The self-evaluation report describes the programme as 'thesis-oriented'. The courses in the first year serve the purpose of preparing students for their individual research project in the second year. Like in the bachelor's programme, the training of academic and research skills is integrated in the courses, including the WUR-wide Academic Master Cluster courses. The panel established that students feel sufficiently prepared for the thesis, although they do not necessarily see the intended learning outcome on 'understanding the moral and ethical dimensions of scientific research' (ILO 9) reflected in the full breadth of the programme. This important topic may deserve more attention in the courses. A strong feature of the programme is that the four Chair Groups each have a worldwide network of contacts offering excellent opportunities for student internships and theses, both in the Netherlands and abroad. The thesis itself is relatively short at WUR (6 months), but the flexible layout of the programme offers good additional opportunities to students with a special interest in research. They can opt for the recently introduced *Research Master Cluster* course (taken instead of the *Academic Consultancy Training*, which focuses on professional skills whereas the *Research Master Cluster* deals with academic proposal writing) and are also allowed to replace the internship with a second thesis on a different subject, preferably supervised by a different chair group than the first thesis.

Students pointed out to the panel that they feel better equipped for academic careers than for non-academic careers. They fear that the programme does not optimally connect with the labour market, as the specialisations are either rather broad or quite narrow. To help close the gap, students and alumni suggest to include more opportunities to practice professional skills, such as consultancy and report-writing for non-academic audiences. Students would also prefer closer involvement of the professional field in the teaching, for example by expanding the number of guest lectures. Finally, they feel that the programme could be more proactive in informing students on job opportunities, which is now limited to an annual career event. According to the panel, these are all good suggestions that the programme should look into. A promising initiative is that the programme is experimenting with learning communities in which students work on real-life cases in cooperation with representatives of the professional field (e.g. in the course *Resource Dynamics and Sustainable Utilization*).

The panel notes that students are generally satisfied with the content of the programme, which received a score of 4,1 in the 2018 NSE. The student chapter in the self-evaluation points out that students especially appreciate the interdisciplinarity of the programme and the broad variety of courses that is on offer. Depending on their background and specialisation, students have an elective space of approximately 18 EC, which they can fill with relevant courses from WUR, but also with appropriate courses from other universities.

A point of improvement that is mentioned in the student chapter is the course level, which some students consider too low. Especially those students who previously completed the bachelor's programme BBN feel that there is too much overlap between bachelor's and master's courses. The panel notes that optimal use of the course library that is currently under construction may, to some extent, deal with this issue. Solving it entirely will, however, be difficult. As management and staff rightfully pointed out during the site visit, a certain degree of overlap and repetition are an expected trade-off of having a diverse and increasingly international student intake. Graduates of the WUR bachelor's programme necessarily have a different level of background knowledge than other students, especially those from non-European countries. From the interviews with students and alumni, the panel got the sense that the programme may need to step up its communication with students on these particular issues. Clear expectation management seems crucial in successfully dealing with a heterogeneous student population. The panel further recommends to monitor closely that entry requirements are sufficiently stringent.

Teaching-learning environment
Both the bachelor's and the master's programmes are relatively small-scale programmes. Students indicated during the site visit that this is one of the major strengths of the programmes. In the student chapter, bachelor's students praised the open and pleasant atmosphere, which helps to foster

strong connections amongst students and between students and staff. Master's students specifically mentioned the benefits of the international classroom, which enables students from different backgrounds to learn with and from one another, to master the skill of intercultural communication and to build a global network. In the 2018 NSE, the bachelor's programme received a score of 4,6 for its atmosphere and the master's programme a 4,5 on a five-point scale, which is impressive.

The programmes use a variety of teaching methods that matches its ILOs and the WUR-wide vision on education, in which students are encouraged to take responsibility for their own learning process. In the bachelor's programme (lab)practicals are the most common form of instruction, followed by (interactive) lectures, tutorials, field-practicals and group work. Especially the large number of field excursions, during which students are physically confronted with different ecosystems, are a defining feature of the programme. The panel established that students highly appreciate this hands-on outdoor learning. In the master's programme (lab)practicals, tutorials and lectures are the most common teaching methods, followed by field-practicals and group work.

The role of group work in the programmes, especially in the master's programme, was a conversation topic during the site visit. While master's students generally recognise group work as a way to maximize the advantages of the international classroom, many feel that there is too much of it in the programme and that it withholds students from going in-depth, especially in the shorter courses. The panel supports group work as a potentially valuable teaching method, but emphasises that explicit learning goals (e.g. with respect to communication, group processes, leadership) should be phrased for this type of work and that these should be part of the assessment. The panel feels that in this respect further improvement could be made.

An important issue for both programmes is the fast level of growth, which is a university-wide phenomenon. Growing student numbers put pressure on small-size methods of teaching: class sizes in lectures are becoming bigger, as are the groups in which bachelor's students work on assignments (up to 8 students per group, where a maximum of 4 would be advisable). Students of both programmes made clear to the panel that they fear this trend may compromise the quality of their education, as lecturers already have less time for individual feedback and there is not always sufficient capacity to properly supervise excursions.

The panel has established that both the programme management and the Board of the University are well aware of the potentially negative side effects of growth. The programmes are believed to have reached their limits in terms of market potential and further growth is therefore not actively pursued. At the moment there seem to be no concrete plans for a cap on student numbers, which would indeed only offer a partial solution to the issue at hand; many courses in the WUR model are shared with other programmes that also experience growth. Solutions to the current problems therefore have to come mainly from the central university level. The panel was pleased to learn that the dean of education is preparing a proposal to preserve the small-scale education that is considered typical for WUR. This involves hiring additional staff and splitting up courses.

When doing the latter, the panel suggests dividing up courses along programme lines, which would make it easier to cater to the needs of particular groups of students. Currently, bachelor students experience that examples used in the generic courses, such as *Statistics I* and *II,* are largely drawn from other disciplines such as landscape architecture and biology. Presenting students with programme-specific examples could, according to the panel, increase the learning effect of the more generic courses. Another way in which the programmes intend to address the growing student number is by implementing new teaching methods, such as using knowledge clips and flipping the classroom, which help to take pressure off of lecturers. The panel applauds these efforts, which have already taken shape in the new bachelor's course *Climate Change Ecology*.

The panel concludes that both programmes are feasible. Students of the bachelor's programme mentioned that the workload of students varies quite a bit: ambitious students easily put in 40 hours or more per week while others invest less time. Especially the first year was described to the panel

as challenging, but doable. In the NSE of 2018, students reported a high average of 24-30 contact hours per week. In the master's programme, the amount of time that students spend on their studies is also variable, but on average students appear to invest 30-40 hours per week, which includes an average of 19 contact hours.

Students are generally pleased with the quality of guidance and supervision by staff members. With respect to thesis supervision, the panel established that practices vary across different Chair Groups. Some of these, for example, offer thesis rings, in which students discuss their experiences and progress with their peers, while others do not. In order to promote equal experiences for all students, the panel would recommend introducing such thesis rings in all Chair Groups. With respect to student guidance, special mention should be made of the important role of the study advisers, who help students in creating feasible study paths. Students indicated that they highly appreciate the guidance offered by the study advisers, who are a low-threshold first point of contact for all matters related to the programmes.

Teaching staff
The panel is pleased with the quality of the teaching staff. Lecturers are experts in their fields, active participants in WUR research projects and part of relevant international networks. Roughly 95% of lecturers have obtained a PhD. Both bachelor's and master's students confirmed during the interviews that they are satisfied with the up-to-date subject-specific knowledge of lecturers as well as with their didactic qualities. In the 2018 NSE bachelor's students gave the teaching staff a score of 4,0, while master's students assessed their teachers with a score of 4,4 on a five-point scale.

The panel notes that didactic skills are considered important and lecturers are given sufficient opportunities to obtain a University Teaching Qualification (UTQ) and/or other qualifications that benefit their teaching. Approximately 70% of key lecturers in the bachelor's and master's programme currently have a UTQ, which is well in accordance with the performance agreements (*prestatieafspraken*) between WUR and the ministry of Education, Culture and Science (OCW).

A promising development is that university-wide there seems to be a growing awareness that the current model of building careers on research rather than teaching is in need of reconsideration. The panel would fully support initiatives to fit teaching into the career development plan for staff, for example by creating positions for so-called Principle Educators (PE's) as a counterpart to Principle Investigators (PI's). This would not just benefit individual staff members with a particular interest in teaching, but also give more prominence to the importance of didactics across the board. The panel was pleased to find that the central university currently offers some financial support for educational innovation initiatives. Didactics and other issues related to teaching are discussed during the (bi)annual lecture day, which take place both at the programme and the central university level. These meetings also serve the purpose of team building amongst lecturers, who otherwise do not meet often as a group.

The student-staff ratio in 2016 was 12:1 for the bachelor's programme and 22:1 for the master's programme. The unfavourable student-staff ratio for the master's programme is slightly worrisome to the panel. A topic that was discussed extensively during the site visit is the high workload of staff members and the threat that it poses to the current level of interaction between staff and students. Growing numbers of students (not just in the BBN and MFN, but also in other programmes taught by the same Chair Groups) mean that staff members experience an increasing teaching burden that eats away at their dedicated research time. In particular, staff members indicated that thesis supervision takes up more and more time, with some lecturers supervising up to twelve thesis students per year. Most lecturers seem to agree that work pressure has reached the limits of what is acceptable.

Students appear to be well aware of this issue. They experience that it can be difficult to find a thesis supervisor, especially for foreign students who are less proactive in directly approaching staff members. This may lead to undesirable differences in the experiences that students have with regard

to the thesis. So far, students feel that the quality of thesis supervision is not compromised by the high workload of staff. Once a supervisor is found, he/she is usually seen as very helpful, approachable and accommodating. A positive takeaway from the interviews is that the high workload of staff has the attention of the programme management and Executive Board of the university. The panel hopes that solutions can soon be found to mitigate the negative effects of growth.

Considerations
The panel concludes that both programmes offer a high-quality curriculum that prepares students for system thinking. Strong features are the topical issues that the programmes deal with, the high level of multidisciplinarity and the broad array of specialisations and courses that allow student to design their own study paths. Sample courses were found to be of a satisfying level. Student evaluations confirm that students are generally very pleased with the content of the curricula.

Another positive aspect is the stimulating teaching-learning environment. Both programmes are characterized by a good atmosphere and productive interaction between an enthusiastic staff and highly motivated students. The teaching methods that are used are sufficiently varied and match the intended learning outcomes. One form of instruction that is especially valued by students and staff is the field-practical that seems to embody the hands-on, outdoor character of the programmes.

The teaching staff of the programme consists of staff members whose academic profiles reflect the dual social science and natural science approach. Lecturers are knowledgeable in their respective fields and often have extensive didactic experience. Roughly 70% have obtained a UTQ.

The varying levels of knowledge and different interests of students who enter the programmes are a challenge. Because of their broad, interdisciplinary profile, the programmes attract a heterogeneous student population, which, in the case of the master's programme, is also increasingly international. A consequence of the broad intake is that there is quite a bit of overlap and repetition between courses within the bachelor's programme and between the bachelor's and the master's programme. The panel hopes that the new course library will prove a valuable tool for minimising overlap. It also recommends to aim for teaching materials and online tools/ teaching methods that students can use on their own to remediate their individual knowledge gaps so as to be properly prepared before starting a course. Furthermore the programme should keep a close eye on the admission criteria in order to make sure that all students who enter the programmes are capable of realising the intended learning outcomes.

Whereas the influx of international students in the master's programme may pose some particular challenges, it is clearly also an asset of the programme. Both students and staff appreciate that students of different disciplinary and cultural backgrounds bring valuable knowledge and experience to the table and add to the existing dynamic atmosphere.

A final – and major – point of attention is the recent (university-wide) growth in student numbers, which puts pressure on the small-scale nature of the teaching methods used and the close ties between staff and students. The panel highly recommends making funds available to hire new staff and split-up large classes along programme lines, as is currently being proposed at the central university level. A worrisome trend, which highlights the necessity for expanding the staff, is the high workload that lecturers currently experience. The panel feels that this needs attention.

All in all, the panel concludes that the curricula, teaching-learning environment and staff of the programmes enable students to realise the intended learning outcomes. Both programmes are feasible, even if not all students (choose to) complete them within the appropriate time frame.

Conclusion
Bachelor's programme Bos- en Natuurbeheer: the panel assesses Standard 2 as 'satisfactory'.
Master's programme Forest and Nature Conservation: the panel assesses Standard 2 as 'satisfactory'.

Standard 3: Student assessment
The programme has an adequate system of student assessment in place.

Findings
System of assessment
The panel established that WUR has a sound assessment policy. In 2017, WUR renewed its vision on education alongside its education assessment policy. This assessment policy defines why and how WUR assesses and how the roles and responsibilities are distributed. Its goal is to generalise assessment rules and policies and to make these transparent to both lecturers and students.

The system of assessment that is in use within the BBN and MFN programmes is based on the WUR-wide policy. The panel established that there is sufficient attention for the validity, reliability and transparency of assessment. For each course an assessment strategy is drawn up, in which the course specific learning outcomes are linked to assessment methods. The intention is that courses use more than one form of assessment. The assessment strategy also clarifies which staff members are involved in the assessment and how the different forms of assessment contribute to the final grade. By publishing the assessment strategies in the Study Handbook the programmes ensure that students are well aware of what is expected of them. Course examiners are responsible for test design and checking test results. To promote reliability, they use model answers, rubrics and assessment criteria. As part of the WUR assessment policy, students have a right to feedback on their results and may review their test scores after grading.

The panel has established for both programmes that the combined assessment of all courses covers the full range of intended learning outcomes. A positive aspect is that the majority of courses use a range of assessment methods, including written exams with open-ended questions, multiple choice tests, presentations, essays, individual and group papers and peer review. These assessment forms are generally well aligned with the learning goals and teaching methods. A point of attention for both the bachelor's and the master's programme is the rather frequent use of true/false questions, which are susceptible to guessing and tend to measure reproduction of factual knowledge rather than comprehension, as one of the test components. The panel would advise limiting the use of such questions in favour of open-ended questions and multiple-choice questions.

From its interviews with stakeholders, the panel concludes that all parties involved are generally pleased with the assessment procedures and quality of examination. Assessment in the bachelor's programme scored a 4,2 on a five-point scale in the 2018 NSE and assessment in the master's programme received a score of 4,1. While these general scores are certainly satisfying, there are also students who believe that the level of assessment could be higher. According to the student chapters in both self-evaluation reports, some students feel that exams focus on reproduction of knowledge rather than application. Both programmes indicated that they will investigate the comments made by students and propose actions for improvement. The panel was pleased to learn this.
During the site visit, the panel studied assessments and answer models of a number of sample courses. All in all, the panel found the overall level of these exams adequate. The assessment as a whole sufficiently addresses all of the relevant cognitive levels. The panel did notice that the context of exam questions is usually the one that was discussed during the lectures. Examiners may wish to challenge students more by asking them to apply their knowledge to a new context, to further improve alignment with the learning goals to be assessed. In one particular case, the panel found that some questions from an interim exam were repeated in the final exam, which is not advisable. A general recommendation that the panel would like to offer is to make sure that draft versions of tests are always peer reviewed, which would help to eliminate such deviations.

An issue that was raised by bachelor's students is that a large part of the final grade is often based on group work, which is not individually assessed. Students tend to dislike this, because it invites

freeriding and makes it more difficult for good students to excel. The panel advises to use group work wisely: not merely for the sake of minimising staff workload, but aligned with assignments that truly require and assess collaboration skills. The panel, again, notes that clear learning goals should be set for this type of work and that these goals should be part of the assessment. At the moment it is not clear to the panel that this is always the case.

Thesis assessment
The final product of the bachelor's programme is a thesis project, in which students demonstrate that they have achieved the majority (10 out of 11) of the ILOs. During the site visit, bachelor's students indicated that they feel that the thesis process is well organised. Procedures are clear and the assessment of the project is seen as transparent and just. There are always two assessors involved, the thesis supervisor and an examiner (second reader). Their assessment is based on an extensive rubric and filled out on a standardised WUR-assessment form, which requires a separate assessment for the thesis report (50-60% of the final grade), the research competence (30-40% of the final grade) and the final public colloquium in which the student presents and defends the thesis (10% of the final grade).

The master's programme is concluded with both an internship and a thesis. The thesis is seen as central to the successful completion of the programme. It is assessed by the supervisor(s) involved, in deliberation with an independent examiner (second reader), and in accordance with the thesis rubric. The different components that are scored on the standardised assessment form are the proposal (10-15% of the final grade), the research competence (30-60% of the final grade), the thesis report (30-60% of the final grade), the colloquium (5% of the final grade) and the final examination (5% of the final grade). Master's students that the panel spoke with are generally pleased with the thesis procedures and assessment and specifically mentioned the final public presentation/defence as very useful.

The panel is generally pleased with the forms and rubrics that were introduced some years ago. While the general outlines of the assessment are standardised, some of the specifics – notably the weighting of the different criteria – are determined at the Chair Group level. This makes it possible for the assessment to properly reflect the differences between social science and natural science research. The panel largely agreed with the assessments of the sample theses that it studied. It did, however, notice that the prescribed assessment procedures are not always followed. Signatures from second and third assessors are often missing on the forms and there is substantial variation in the level of qualitative feedback on the assessment forms. In some cases the fields for qualitative comments are left empty. While this does not necessarily imply that feedback has not been given (e.g. orally), it does mean that students lack a written record of the feedback they received and that it is more difficult for external reviewers to validate the grade that was given. For the same reason, the panel recommends to fill out the forms in English, not in Dutch (as is often the case). Another issue that needs to be addressed is the fact that the assessments of both assessors are recorded on a single assessment form. To enable external reviewers to establish that both readers have independently phrased their assessment, it is preferable to have each assessor fill out a separate form and administrate both forms. A general recommendation that the panel would like to make is to further streamline the thesis process by digitalisation. This would make it possible to automatically reject forms with insufficient qualitative feedback, missing signatures etc.

Examining Board
At WUR there are four Examining Boards (EBs), each responsible for the assurance of the quality of examination of a group of related degree programmes. The Executive Board appoints EB members and at least one member is independent (not affiliated to the programmes). For each course a member of the lecturing staff is appointed as examiner by the responsible EB. The examiner is responsible for the assessment strategy of the course.

As a general rule, the EB that is responsible for the BBN and MFN programmes visits the Chair Groups every four years, accompanied by an assessment expert. It checks a sample of theses and internship

assessments and discusses the validity, reliability and transparency of the assessments. Where necessary, it proposes improvements. In 2017, three of the four Chair Groups involved in both programmes were visited (FEM, REG, FNP). The fourth group (PEN) was visited in 2014 and is scheduled for another visit in the autumn of 2018. Remarks that were made during the visits concerned the need for alignment of different variations of course learning outcomes found in different documents and the importance of consistently using rubrics and answer-keys.

Although the panel has no particular reasons for concern with respect to the quality of assessment, it does note that the current university-wide system of quality assurance poses some challenges. There is considerable distance between the EB and the Chair Groups, which operate with a large measure of autonomy. The limited means that were available to the EBs over the reporting period meant that these may lack agency in properly streamlining procedures across Chair Groups and following up on prior recommendations. The panel was very pleased to learn that the Executive Board of WUR is doubling the resources for Chair Groups as of 2019. Even so, it does advise the university to carefully consider how these resources can be used to their optimal effect.

Considerations
Both programmes have a solid system of assessment in place, which is based on the WUR-wide assessment policy. Within this system, sufficient attention is paid to the validity, reliability and transparency of examinations. The overall level of sample tests studied by the panel is certainly adequate, but the panel did find some minor imperfections that need to be addressed. Consistent use of peer review in the design phase of examinations may well help to further improve the quality of individual tests.

The procedures for assessing the final product of the programmes, the thesis, are clear and the assessment itself is sound. The panel was pleased to find that the use of standardized rubrics and assessment forms is now commonplace in all Chair Groups. To further increase the transparency and comparability of thesis assessment across Chair Groups, the panel recommends to introduce separate assessment forms for both assessors and to automate the different steps in the assessment procedure.

Finally, the panel established that the Examining Board safeguards the overall level of assessment in the programmes to the best of its abilities. Increasing the capacity of the EB, as is the intention of the Executive Board, could help to strengthen its agency in relation to the rather autonomous Chair Groups. Nonetheless, the panel feels that the central university should also critically reconsider whether the design of the current quality assurance system optimally suits its purposes.

Conclusion
Bachelor's programme Bos- en Natuurbeheer: the panel assesses Standard 3 as 'satisfactory'.
Master's programme Forest and Nature Conservation: the panel assesses Standard 3 as 'satisfactory'.

Standard 4: Achieved learning outcomes
The programme demonstrates that the intended learning outcomes are achieved.

Findings
Bachelor's programme
Prior to the site visit, the panel studied a sample of fifteen recently completed bachelor's theses. The panel was highly satisfied with the level and content of these theses. The subjects that students deal with are an appropriate reflection of the broad and multidisciplinary profile of the programme and are, overall, of above-average academic quality. As is common, the weaker theses in the sample suffer from problems that have to do with their overall scientific character: research questions are not always optimally phrased, the theoretical framework is sometimes limited, as is the use of scientific literature. The stronger theses, however, pose relevant research questions, contain

thorough literature studies and present a good synthesis of the present knowledge in the field. The panel is fully convinced that all of the theses in the sample meet or surpass the basic quality requirements.

A (minor) comment that the panel would like to make is that it is not clear from the content of the sample theses that the bachelor thesis project contributes to (almost) all of the ILOs (as indicated in the curriculum matrix). This is not necessarily a result of the thesis but relates to the rather broad ILOs. The panel would recommend to slightly adjust the curriculum matrix in this respect.

A large majority of bachelor students (85%) chooses to continue their studies after graduation. During the site visit, students indicated that they feel sufficiently prepared for entering a master's programme in a related field. At the moment it is not entirely clear what career possibilities are open to graduates who wish to directly enter the labour market. According to the panel, this is an issue that deserves further exploration.

Master's programme
For the master's programme the panel studied fifteen recently completed theses. It is very pleased with the above-average quality of these theses. Like in the bachelor's programme, the theses generally mirror the broadness of the programme and are multidisciplinary in character. In the stronger theses, research objectives are clearly outlined, relevant methods are used to collect and analyse data, and valuable conclusions and recommendations are put forward. The weaker theses are less in-depth, lack critical reflection and/or would have benefitted from a stronger theoretical underpinning. This, however, is adequately reflected in the grades that were awarded by the assessors. All of the sample theses meet or surpass the basic quality requirements and the panel is therefore convinced that students achieve the intended end level of the programme.

A specific issue that the panel came across when studying the sample theses, is that one of them was written in Dutch. The panel feels that this is not appropriate for an academic master's programme. It recommends to ensure that students who write a Dutch-language thesis because of subject-specific demands, always graduate on an English translation, as is supposed to be the general rule.

The position of graduates on the labour market underlines that students achieve the intended learning outcomes. Graduates find employment in a broad variety of positions and sectors, ranging from research to government and from NGOs to engineering firms and consultancy agencies. Feedback that the programme received from the External Advisory Committee confirms that graduates function well in their respective positions. During the site visit, alumni shared similar observations with the panel. Interestingly, they mentioned that in their careers they particularly experience the added value of the combination of social and ecological perspectives. Alumni would therefore advise the programme to stimulate that all students familiarize themselves with both perspectives and aim for integration in their thesis project. According to the panel, this is a valuable piece of advice.

Considerations
Both the sample theses that were studied by the panel and the position of graduates indicate that students achieve the intended learning outcomes of the programmes. The general level of the final projects is highly satisfactory: the work is of above-average academic quality and adequately reflects the broad, multidisciplinary profile of the programmes. Graduates of the bachelor's programme are admissible to a large number of master's programmes both within and outside of WUR, while graduates of the master's programme find employment in a broad range of relevant positions and sectors. Alumni generally feel that the programme has provided them with a solid foundation from which they can benefit in their respective careers.

Conclusion
Bachelor's programme Bos- en Natuurbeheer: the panel assesses Standard 4 "good".
Master's programme Forest and Nature Conservation: the panel assesses Standard 4 as "good".

GENERAL CONCLUSION

The panel is convinced that both programmes meet the criteria for a positive assessment on all four standards. Since the previous assessment in 2012, the programmes have made further improvements to the teaching-learning environment and system of assessment. Recent issues with respect to growth and internationalisation are being addressed in an energetic and proactive manner. The panel applauds the energetic leadership by the programme management and the atmosphere of continuous improvement.

Conclusion
The panel assesses the *bachelor's programme Bos- en Natuurbeheer* as "good".
The panel assesses the *master's programme Forest and Nature Conservation* as "good".

APPENDICES

APPENDIX 1: INTENDED LEARNING OUTCOMES

Bachelor's programme Bos- en Natuurbeheer

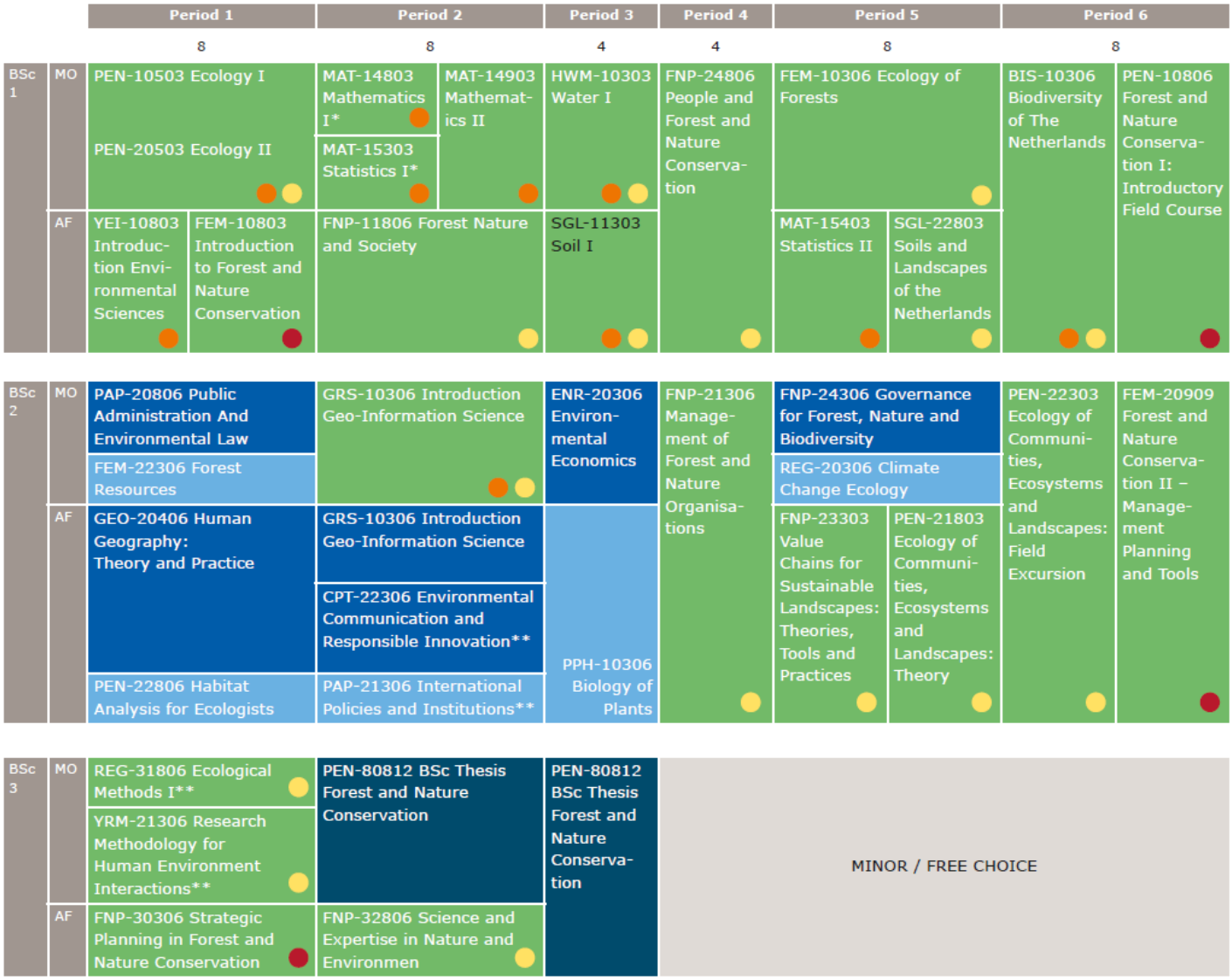
		After successful completion of this BSc programme graduates are expected to be able to:	Dublin descriptors: Have knowledge and understanding	Apply knowledge and understanding	Make judgements	Communication	Learning skills
Domain specific learning outcomes	1	explain the functioning of forests and natural areas as social-ecological systems at different temporal and spatial scales;	■				
	2	analyse the major biotic and abiotic components of terrestrial ecosystems and identify the most important dominant and indicator species from North-Western Europe;		■			
	3	analyse the different actors and institutions related to forests and natural areas;		■			
	4	analyse the process of decision-making and the effects of actions and interventions on the main ecosystem processes and components;		■			
	5	analyse concepts, approaches and methods and reflect upon scientific literature, with special reference to the resource use of natural and semi-natural ecosystems;		■			
	6	analyse a problem in the field of forest and nature conservation by applying elementary skills in research planning, collecting, processing and interpreting data and scientific literature and placing results in a wider context;		■	■		
	7	evaluate management decisions incorporating ecological, economic and social aspects in resource use;			■		
General learning outcomes	8	present results of scientific analyses to experts and non-experts both orally and in writing, and demonstrate the ability to work in a multidisciplinary team;				■	
	9	explain the relationships between science and practice and reflect on the role of science in society, including a reflection upon own thinking and work;	■		■		■
	10	design and plan their own learning path (under supervision);					■
Major-specific parts	11a	(Major Policy and Society) assess the key components of social systems in relation to forests and natural areas;	■		■		
	11b	(Major Ecology and Conservation) assess and apply ecological theories, using understanding of plant and animal biology, and environmental interactions.	■		■		

Master's programme Forest and Nature Conservation

		After successful completion of this Msc programme graduates are expected to be able to:	Dublin descriptors: Have knowledge and understanding	Apply knowledge and understanding	Making judgement's	Communication	Learning Skills
Domain Specific	1	analyse the functioning of forests and natural areas within their social-ecological context at different temporal and spatial scales					
	2	(specialization policy and society) evaluate social and policy practices with regard to the use, management and conservation of forest and natural areas					
	3	(specialization management) design and asses realistic and feasible management options for forests and natural areas, based on specific knowledge and understanding of wildlife management, management of forests or other terrestrial vegetations					
	4	(specialization ecology) create and asses new contributions to the knowledge of ecological processes and functioning in terrestrial ecosystems					
	5	formulate and execute research in the field of forest and nature conservation in accordance with academic standards					
General learning outcomes	6	communicate clearly - both orally and in writing - the project outcomes and discuss these with specialists and non-specialists					
	7	function effectively in international multidisciplinary teams and contribute from their expertise towards multidisciplinary or interdisciplinary issues					
	8	recognise, understand and apply new concepts and approaches in the field of forest and nature conservation as they emerge					
	9	demonstrate understanding of the moral and ethical dimensions of scientific research and its applications, and the importance of intellectual integrity					
	10	can critically reflect on their own performance and results, as well as on those of colleagues					
	11	design a learning path, and developing personal competences, with a balance between domain knowledge and preparation for career opportunities					

APPENDIX 2: OVERVIEW OF THE CURRICULUM

Bachelor's programme Bos- en Natuurbeheer



- Compulsory Courses
- Courses Major Ecology and Conservation
- Courses Major Policy and Society
- BSc-thesis
- Minor/Free Choice

- foundation courses
- domain-related courses
- integrating courses

* Choose either Statistics I or Mathematics I depending on your background in Mathematics

** Choose one of the two courses

Master's programme Forest and Nature Conservation

The online Study Handbook provides an overview of the programme:
https://ssc.wur.nl/Handbook/Programme/MFN

Common Part

RO0: Choose 0 - 5 courses in consultation with your study adviser.
RO1: Choose in consultation with your study adviser, RO1A, RO1B or RO1C.

- RO1A: Consultancy orientation: YMC-60300 and YMC-60809.YMC-60300 is an 'umbrella' code. Instead, choose and register for 3 credits worth of modular skills (MOS) courses. For an overview of possible MOS courses please see under YMC-60300 in the study handbook.
- RO1B: students with relevant working experience: YMC-60400 is also an 'umbrella' code. Instead, choose and register for 6 credits worth of modular skills (MOS) courses including ECS-65500 Argumentation Skills or ECS-66600 Academic Argumentation Skills in Writing and Debate
- RO1C: Research orientation: YEI-60312.
- RO2: Choose 1 internship or choose a second thesis. Replacement of internship by a second thesis is subject to approval by the study adviser.

Common Part		Ects	CS/RO*	Phase	Period
REG-31306	Trends in Forest and Nature Conservation	6	RO0	M1	1AF
REG-31806	Ecological Methods I	6	RO0	M1	1MO
YRM-20306	Research Methods in Environmental Science	6	RO0	M1	1MO
YRM-21306	Research Methodology for Human Environment Interactions	6	RO0	M1	1MO
MAT-15403	Statistics 2	3	RO0	M1	2AF
MAT-14903	Mathematics 2	3	RO0	M1	2AF, 2MO
YMC-60300	Modular Skills Training	3	RO1A	M1/2	1AF, 2AF, 3AF, 5AF, 6AF
YMC-60809	Academic Consultancy Training	9	RO1A	M1/2	1WD, 2WD, 3MO+4WD, 5WD, 6WD
YMC-60400	Modular Skills Training	6	RO1B	M1/2	1AF, 2AF, 3AF, 5AF, 6AF
YEI-60312	Research Master Cluster: Proposal Writing	12	RO1C	M1/2	1WD, 2WD, 3WD+4WD, 5WD, 6WD
FEM-70424	MSc Internship Forest Ecology and Forest Management	24	RO2	M2	1,2,3,4,5,6
FNP-70424	MSc Internship Forest and Nature Conservation Policy	24	RO2	M2	1,2,3,4,5,6
PEN-70424	MSc Internship Plant Ecology an d Nature Conservation	24	RO2	M2	1,2,3,4,5,6
REG-70424	MSc Internship Resource Ecology	24	RO2	M2	1,2,3,4,5,6

A - Policy and Society

RO1: Choose 1 course
RO2: Choose 1 course
RO3: Choose 1 course
Note: There is a special track Sustainable Development Diplomacy, ask your study adviser for information

Course		Ects	CS/RO*	Phase	Period
FNP-31806	Social and Political Theory for Forest and Nature Conservation Research	6	CS	M1	4WD
FNP-80436	MSc Thesis Forest and Nature Conservation Policy	36	CS	M1/2	1,2,3,4,5,6
FNP-31306	Communities, Conservation and Development	6	RO1	M1	3WD
FNP-32306	Decision-Making in Forest and Nature Management: Theory and Practice	6	RO1	M1	5MO
GEO-36306	Environmental Psychology	6	RO2	M1	5AF
ENP-33306	Environment and Development	6	RO2	M1	5MO
ENP-39306	Advanced International Environmental Politics	6	RO2	M1	6WD
MAT-22306	Quantitative Research Methodology and Statistics	6	RO3	M1	3WD
SDC-33306	Methodology for Field Research in the Social Sciences	6	RO3	M1	6WD

B - Management

RO1: Choose at least 2 courses of 6 credits
RO2: Choose 1 course
RO3: Choose 0-2 courses depending on your thesis in consultation with your study adviser
RO4: Choose 1 thesis

Course		Ects	CS/RO	Phase	Period
FEM-22803	Agroforestry	3	RO1	M1	2AF
FEM-30806	Resource Dynamics and Sustainable Utilization	6	RO1	M1	2AF
REG-32806	Wildlife Resource Management	6	RO1	M1	2MO
PEN-30806	Restoration Ecology	6	RO1	M1	4WD
FEM-30306	Forest Ecology and Forest Management	6	RO1	M1	5AF
REG-33306	Disease Ecology	6	RO1	M1	6WD
FNP-31306	Communities, Conservation and Development	6	RO2	M1	3WD
ENR-31306	Economics and Management of Natural Resources	6	RO2	M1	4WD
FNP-32306	Decision-Making in Forest and Nature Management: Theory and Practice	6	RO2	M1	5MO
MAT-22306	Quantitative Research Methodology and Statistics	6	RO3	M1	3WD, 4WD
FNP-31806	Social and Political Theory for Forest and Nature Conservation Research	6	RO3	M1	4WD
PEN-30306	Plant, Vegetation and Systems Ecology	6	RO3	M1	6WD
REG-30306	Animal Ecology	6	RO3	M1	6WD
SDC-33306	Methodology for Field Research in the Social Sciences	6	RO3	M1	6WD
FEM-80436	MSc Thesis Forest Ecology and Forest Management	36	RO4	M1/2	1,2,3,4,5,6
FNP-80436	MSc Thesis Forest and Nature Conservation Policy	36	RO4	M1/2	1,2,3,4,5,6
PEN-80436	MSc Thesis Plant Ecology and Nature Conservation	36	RO4	M1/2	1,2,3,4,5,6
REG-80436	MSc Thesis Resource Ecology	36	RO4	M1/2	1,2,3,4,5,6

C - Ecology

RO1: Choose 2 courses
RO2: Choose 1 thesis

Course		Ects	CS/RO	Phase	Period
INF-31806	Models for Ecological Systems	6	CS	M1	3WD
FEM-30306	Forest Ecology and Forest Management	6	RO1	M1	5AF
PEN-30306	Plant, Vegetation and Systems Ecology	6	RO1	M1	6WD
REG-30306	Animal Ecology	6	RO1	M1	6WD
REG-32306	Ecological Methods II	6	RO1	M1	6WD
REG-33306	Disease Ecology	6	RO1	M1	6WD
FEM-80436	MSc Thesis Forest Ecology and Forest Management	36	RO2	M1/2	1,2,3,4,5,6
PEN-80436	MSc Thesis Plant Ecology and Nature Conservation	36	RO2	M1/2	1,2,3,4,5,6
REG-80436	MSc Thesis Resource Ecology	36	RO2	M1/2	1,2,3,4,5,6

* CS is compulsory; RO is restricted optional

APPENDIX 3: PROGRAMME OF THE SITE VISIT

22 October BSc Bos- en Natuurbeheer, MSc Forest and Nature Conservation		
8.45	11.15	Arrival of panel, Preparation BSc and MSc, internal meeting and documentation review
11.15	12.00	Interview with management (including Programme Committee)
12.00	12.45	Students BSc
12.45	13.30	lunch
13.30	14.15	Teaching staff BSc
14.15	14.20	Mini break
14.20	15.05	Students MSc
15.05	15.15	Break
15.15	16.00	Teaching staff MSc
16.00	16.05	Mini Break
16.05	16.35	Examining Board and Study Advisor(s)
16.35	16.45	Break
16.45	17.15	Alumni
17.15	17.45	Internal deliberation panel, short recap day 1
23 October BSc Bos- en Natuurbeheer, MSc Forest and Nature Conservation		
8.45	10.00	Deliberations panel and documentation review
10.00	10.45	Final interview with management
10.45	13.00	Deliberations panel, formulating preliminary findings and conclusions + lunch
13.00	13.30	Feedback of preliminary findings and conclusions

APPENDIX 4: THESES AND DOCUMENTS STUDIED BY THE PANEL

Prior to the site visit, the panel studied fifteen theses of the bachelor's programme Bos en Natuurbeheer and fifteen theses of the master's programme Forest and Nature Conservation. Information on the selected theses is available from QANU upon request.

During the site visit, the panel studied, among other things, the following documents (partly as hard copies, partly via the institute's electronic learning environment): several courses, assessment plan(s), reports of the Programme Committee.