EUFORGEN

First meeting of the working group on a decision support tool

for the management of the genetic conservation units network

Rome, Italy, 25-28 October 2016

Bioversity International

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1 Opening of the meeting

J. Loo welcomed the participants on behalf of Bioversity International and gave a short introduction about the interactions between Bioversity and EUFORGEN, including the mutual benefits derived from this cooperation. The EUFORGEN model inspired how other regional networks in Bioversity International operate.

M. Bozzano welcomed the participants and presented the agenda of the meeting aiming to reach a common understanding of the tool to be developed as the main output of this working group.
The agenda (*annex 4*) was approved with no amendments. M. Westergren, M. Villar and J. Cottrell were nominated as rapporteurs of the meeting, supported by the EUFORGEN Secretariat.

1.1 EUFORGEN update

M. Bozzano gave a brief general overview of the EUFORGEN mandate and goal. More specifically, he presented the outcomes of the Seventh Forest Europe Ministerial Conference held in October 2015, where the role of EUFORGEN as an effective instrument of international cooperation was recognised. By signing the Resolution M2 discussed at this conference, countries also committed themselves to "*Promote national implementation of strategies and guidelines for dynamic conservation and appropriate use of forest genetic resources under changing climate conditions*", which arises to the '*Pan-European strategy for genetic conservation of forest trees'* and the closely related '*Approaches to the conservation of forest genetic resources in Europe in the context of climate change'* released by EUFORGEN last year.

EUFORGEN has established three working groups during Phase V. M. Bozzano updated the participants on the objectives of the other two working groups established by the EUFORGEN Steering Committee during Phase V. The working group on *Genetic diversity indicator* will review the Indicator 4.6 (Area managed for the conservation and utilization of forest tree genetic resources (*in situ* and *ex situ* genetic conservation) and area managed for seed production) of the pan-European criteria & indicators (C&I) for sustainable forest management) and will propose how this indicator could be improved. The group will meet in Rome, Italy on 28-30 November this year.

A second working group will develop guidelines and decision support tools to improve the incorporation of genetic considerations into production and use of forest reproductive material. This group will review literature and results of the EUFORGEN Phase III *Forest Management Network* and will build on the report of the Phase IV working group of forest

reproductive material published in 2015 *'Use and transfer of forest reproductive material in Europe in the context of climate change*'.
More information on the EUFORGEN working groups for Phase V is available at the Project's website http://www.euforgen.org/about-us/how-we-operate/working-groups/

1.2 Expected output of this working group meeting

M. Bozzano clarified the objective of this working group, which is to further develop the decision cascade tool to aid the identification and management of threatened genetic conservation units. This tool builds on EUFORGEN thematic publication "*Approaches to the conservation of forest genetic resources in Europe in the context of climate change*" in which a preliminary decision cascade tool was presented.
The tool is needed in order to establish standards in the management of conservation units and to identify threatened tree populations in Europe.
The working group will identify threats at species and population level, which will guide the definition of priorities and modalities for actions, including introduced tree species important for forestry in several European countries.

The decision cascade tool will allow forest managers who have responsibility for the management of the national networks of genetic conservation units (GCUs) to take appropriate management decisions which have a long-term perspective. It will, in particular, simplify the identification of threats at the population level.

The working group will also build on the results of the COST Action FP1202 on marginal/peripheral (MaP) forest populations. M. Bozzano explained why identifying threats to MaP populations is needed and how this additional consideration could be integrated into the conservation priorities of the pan-European strategy (see below). He also briefed the participants about the potential benefits of interactions with the current IUCN Global Tree Assessment initiative. To this end, a teleconference with a representative of the IUCN/SSC Global Tree Specialist Group was scheduled during the meeting.

2 Background

2.1 Pan-European strategy for genetic conservation of forest trees and establishment of a core network of dynamic conservation units

M. Bozzano gave a brief resume of the pan-European strategy[1] released in in the form of a EUFORGEN Thematic publication in 2015. The strategy foresees the establishment of a core network of dynamic GCUs, selected from among the conservation units entered in the EUFGIS information system[2]. These units are not interconnected by geneflow, but instead, as a whole aim to capture the current adaptive diversity across the European continent, with the ultimate objective of conserving the evolutionary potential of the species. In order to

1 Pan-European strategy for genetic conservation of forest trees and establishment of a core network of dynamic conservation units http://www.euforgen.org/publications/publication/pan-european-strategy-for-genetic-conservation-of-forest-trees-and-establishment-of-a-core-network-o/
2 http://portal.eufgis.org/

mitigate the negative effects of climate change on forest genetic resources, the strategy should be complemented by the development of specific measures, including identification of vulnerable tree populations, identification of potential climate change indicators and threats, and a review of possible active management measures.

In addition, he provided details of the work of the EUFGIS project and its three key outcomes: minimum requirements for GCUs, a European network for EUFGIS focal points and the EUFGIS database. At the current time, the EUFGIS information system contains data on 3310 units and 101 tree species in 34 countries. The units harbour a total of 4210 tree populations.

M. Bozzano emphasized that the pan-European strategy serves as a tool to identify conservation gaps in the network of existing GCUs across Europe. By analysing the distribution of GCUs in the various environmental zones, it is possible to understand what is actually being conserved in terms of adaptive diversity. Each country should aim to establish at least one GCU in each environmental zone, for each species.
He presented the example of conservation gaps for *Pinus sylvestris*, one of the five best conserved species in Europe, for which most of the adaptive diversity is still not properly safeguarded, according to the strategy.

2.2 Approaches to the conservation of forest genetic resources in Europe in the context of climate change

C. Kelleher presented a summary of the 2015 EUFORGEN Thematic publication *Approaches to the conservation of forest genetic resources in Europe in the context of climate change*[3] developed by a working group during the Phase IV. This report forms the foundation for the work of this working group.

C. Kelleher highlighted the need for assessing the risk that the GCUs located on the edge of their natural distribution range and in marginal habitats within their natural distribution range may be facing, including the need to identify which external factors are influencing these populations. This is an essential part of the conservation strategy because these populations are most vulnerable to climate changes. Furthermore, such populations hold essential genetic material that may differ from the material of the populations within the core of the natural distribution range. The management solutions to conserve such GCUs, both *in situ* and *ex situ*, are the core part of the decision cascade tool we aim to develop in this working group.

C. Kelleher stressed that to use of the decision cascade tool properly, there is still insufficient research and understanding of topics related to adaptability of tree species, modalities and the potential risks and benefits of assisted migration.

3 http://www.euforgen.org/publications/publication/approaches-to-the-conservation-of-forest-genetic-resources-in-europe-in-the-context-of-climate-chang/

2.3 GenTree: Optimizing management and sustainable use for forest genetic resources in Europe

B. Fady gave a presentation on the GenTree project and highlighted the fields of common interest and potential collaboration between the project and this working group.

The objective of GenTree is to "provide the European forestry sector with better knowledge and new tools for efficient management and sustainable use of forest genetic resources in the context of environmental change and evolving societal demands". The project aims to make the new scientific information immediately usable to support conservation decisions and breeding activities.

GenTree and EUFORGEN share a common interest in identifying threats at species and population levels, which will guide the definition of priorities for conservation. B. Fady highlighted some specific GenTree outcomes that are likely to be of interest to EUFORGEN and this working group. These included a European-wide network of permanent conservation plots, a database on conservation and use for European forest genetic resources, a forest genetic resources monitoring scheme and policy options.

2.4 COST Action FP1202

2.4.1 Strengthening conservation: a key issue for adaptation of marginal/peripheral populations of forest trees to climate change in Europe (MaP-FGR)

F. Ducci presented the COST FP1202 MaP-FGR Action, whose main objective was to generate relevant knowledge on the role and use of MaP populations to adapt forests to global changes using a multidisciplinary approach. MaP populations may hold different values for adapting forests to climate change, because they emerge from different processes. The COST Action brought together scientists and stakeholders from 30 European countries and associated countries to raise awareness of the need to conserve and sustainably use the genetic resources of MaP populations. The Action has also established a series of databases on MaP populations in Europe as well as a methodology to identify environmentally (climatically) and geographically MaP populations using statistical approaches, which may be of relevance for future priority settings within the pan-European strategy.

More information on the COST Action FP1202 is available at: http://map-fgr.entecra.it/

2.4.2 Distribution maps and database on marginal populations originated from COST Action FP1202

B. Fady gave an overview of the distribution maps and databases developed through the COST Action FP1202. Both tools aimed at "defining, categorising and identifying marginality of forest tree populations" in Europe and neighbouring countries. Marginal populations are particularly under threat due to climate changes and other human related activities. Marginal populations have unique genetic and ecological properties that make them valuable for the future of European forests and forestry; at the same time MaP

populations, particularly those at the rear edge or low elevation and ecological margins, are uniquely vulnerable.

The COST Action has released 24 species distribution maps of Mediterranean tree species based on published literature; they will be hosted on the EUFORGEN website. In addition, the Action has produced an expert based database on MaP populations and mapped occurrence and distribution of marginal / peripheral populations.

More information is available on the action website and in the article: *Evolution-based approach needed for the conservation and silviculture of peripheral forest tree populations* (Fady et al., 2015). http://www.sciencedirect.com/science/article/pii/S0378112716302559

B. Fady suggested that information from the database could be integrated into the EUFGIS information system, to identify the marginal populations. The possibility to host and maintain the database generated by the Action will be evaluated at the next EUFORGEN Steering Committee.

2.5 IUCN Global Tree Specialist Group - Red listing

M. Bozzano gave an overview of the discussion related to initiating a 'red list' over marginalized and endangered populations within EUFORGEN. The existing *IUCN red list* focuses on species and ecosystems, rather than populations. Moreover, the *IUCN red list* does not imply conservation effort, in contrast to that of EUFORGEN.

The possibility of developing a 'list of threatened populations' was discussed, potentially joining forces with IUCN, to better identify threatened populations and define priorities for conservation. A. Newton, vice-chair of the IUCN Global Tree Specialist Group (GTSG), was consulted through teleconference.

He explained that IUCN's red list is a brand with an important international profile, highly focusing on gaining and maintaining credibility. Extensive procedures are required for external actors to get new species on to the list[4]. Nevertheless, A. Newton acknowledged the important position of EUFORGEN in the cooperation with IUCN.

EUFORGEN's initiative to list populations is relevant and the possibility of linking it with IUCN should be explored. A. Newton recommended that the working group create its own database and maintain it.

He also encouraged EUFORGEN to produce a position paper, to raise awareness of the need to create a red list of populations of forest tree species. He expressed willingness to collaborate on the task.

4 The guidelines for how to assess what species to add on the red list can be found online http://www.iucnredlist.org/technical-documents/assessment-process

It was agreed to postpone the discussion on the list of threatened populations to the next working group meeting. The next meeting should focus further on identification of such a list of threatened populations. The working group also decided to agree on a better name for the list because the name 'red list' already has a specific connotation in the domain of nature conservation. This will be discussed at the next meeting of the working group.

3 Decision cascade tool – background, development and discussion

3.1 Introduction to the idea of a decision cascade tool for identification and management of threatened populations of forest trees

A. Rudow presented the first draft of the tool. "Decision cascade tool" is the working title for a decision system for the management, at national level, of the core network of genetic conservation units of the Pan-European strategy for genetic conservation of forest tree[5].

The decision making process presents indicators and associated measures (actions)that relate to the increasing threat to forest genetic resources under climate change. As the level of the threats increase then the recommended level of the intensity of management action increases accordingly with six levels of action:

1) no or general management only,
2) *in situ* silvicultural management in GCU,
3) *in situ* replacement/reorganisation of GCU,
4) *ex situ* assisted migration/geneflow to new GCU,
5) *ex situ* preservation in collections/gardens,
6) *ex situ* preservation in seedbank/ cryoconservation

A. Rudow highlighted that the further development of the decision cascade tool required the following tasks to be carried out: (i) definition of indicators and verifiers, (ii) definition of appropriate measures according to indicators, (iii) definition of interfaces to knowledge system and (iv) report of findings and recommendations

5 http://www.euforgen.org/publications/publication/pan-european-strategy-for-genetic-conservation-of-forest-trees-and-establishment-of-a-core-network-o/

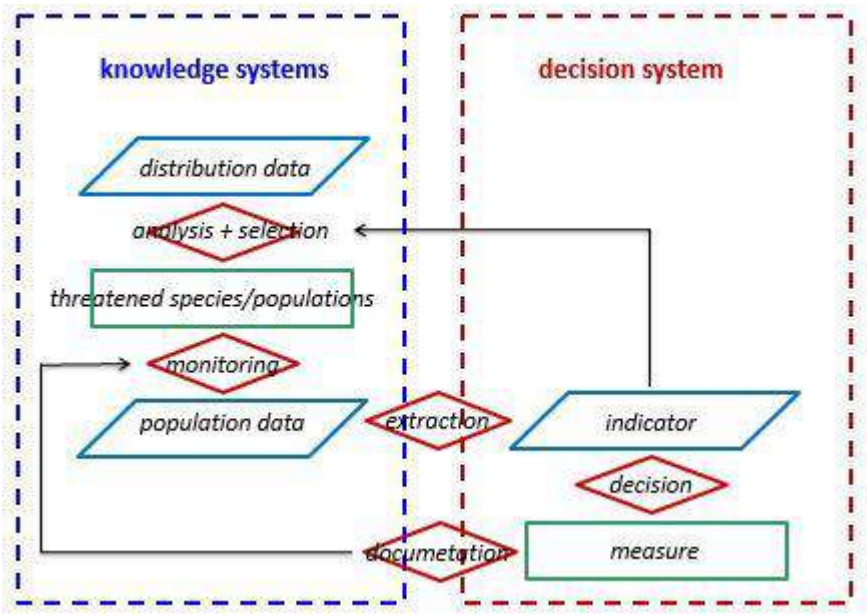

Figure 1: The conceptual map behind the decision cascade tool

A. Rudow's presentation initiated a discussion about the tool and its future use. It was agreed that the two functional levels of the tool have to be separated (see aims of the tool in section 1.2, see different functional levels in *figure 2*). The main use of the tool will be for monitoring already existing GCUs (Focus I) I). This aims to assess whether units continue to meet the minimum requirements of a GCU and to detect whether the number of units is declining (an early warning system). Management measures and best practices are recommended to ensure a GCU is rehabilitated to fulfil the requirements of a GCU. The next step would entail the other aim of the tool, namely the identification of possible alternative existing GCU or the safeguarding of the genetic material elsewhere (Focus II).

The decision cascade tool builds on monitoring data (demographic, genetic if available) It was suggested that the monitoring of the units should follow a 10 year interval (data can be collected throughout the 10 years), to allow a proper assessment of the situation, evaluate the changes and provide a timely guide for the selection of the appropriate management decision using the decision cascade tool.

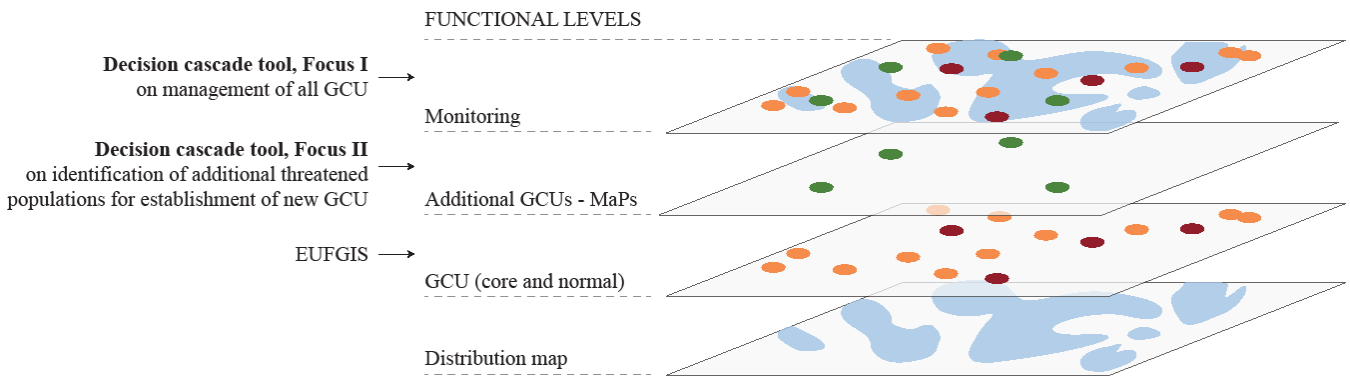

Figure 2 Functional levels of the conservation in GCU

Countries will be strongly encouraged to use the tool so that the *Pan-European strategy for genetic conservation of forest tree* is uniformly implemented and monitored throughout Europe.
When circulating the first draft to the *email contributors*, they will be encouraged to give feedback and suggestions for improvement of the tool.

3.2 Elements of the decision cascade tool

The discussion on best applicability of the decision cascade tool led to the conclusion, that the tool should be built up as simple as possible. The tool will provide a common standard for the consistent management of GCU. From inter-correlated indicators only the one with best availability of verifier data should be integrated. Per indicator several alternative verifiers can be defined.

The decision cascade tool has three main elements:

1. *Indicators*, describing the situation in the forest (e.g. decline of a target population));
2. *Verifiers*, the means (parameter data) to measure the indicator;
3. *Actions*, the management activities that should be implemented to react to the threat.

The complete list of indicators and the tentative list of related verifiers are provided in *Annex 1 (Draft outline of the report)*, the updated decision support tool in *Annex 2 (table of the relations of indicators/verifiers and actions).* To simplify the reading of the table it was suggested to transpose it. To aid its understanding and use by the GCU managers, it was suggested to structure the elements in boxes, to make them stand out clearly in the report and to transform the matrix into a decision "tree" or "net" that would allow several entry points. This work on visualisation of the tool will be further discussed and developed during the next meeting.

Annex 1 also provides the list of working group members who will be responsible for generating the first drafts. The working group agreed that all members would share co-authorship of the final product. Working group members who were unable to attend the first meeting have been assigned to different sections; they can switch if they feel more familiar with other topics.

Additional points to be discussed at the next meeting and added to the report as appropriate include: (i) complement the tool for the identification of list of threatened populations, (ii) complement the tool for integration of non-native species and (iii) overall recommendations.

It was suggested to create a section on the EUFORGEN website that will collect relevant definitions. There was a general agreement on using definitions from existing qualified knowledge products and literature (ie from CBD, IUCN[6] and EUFGIS[7]) where applicable.

A. Rudow was appointed to be the chair of the working group, M. Westergren was elected to be the vice-chair. The draft outline of the report is presented in *Annex 1*, the work plan of the working group is presented in A*nnex 3*

4. Wrap up session:
A. Rudow and M. Westergren wrapped up the meeting by expressing satisfaction with the cooperation, progress and results. M. Bozzano expressed his gratitude to the chair and co-chair for agreeing to take on the responsibility for further development of the decision cascade tool and the report.

The **next meeting** will take place in Switzerland tentatively during week 36 (4-8th September 2017). The length of the meeting should be similar to this meeting.

A. Rudow officially closed the meeting.

6 IUCN has recently recognized that *in situ* conservation units of genetic resources fall into IUCN conservation Category 4IV, where management is allowed. So the recommendation to manage DCU, as indicated by EUFORGEN, is already taken into account by IUCN (- recent deliberation from the IUCN congress in Hawaii, Sept 2016 https://portals.iucn.org/congress/motion/040)
7 ie minimum requirements
http://portal.eufgis.org/fileadmin/templates/eufgis.org/documents/EUFGIS_Minimum_requirements.pdf

Annex 1. Draft outline of the report and drafting groups

Preface (M. Bozzano)

Preamble/introduction (Subgroup 1: C. Kelleher, J. Cottrell, K. Järve)

- Why GCUs are needed and why a decision making tool to manage the units is needed (Aim of the tool) (including considerations derived from draft cascade tool)
- Evolution of the network of GCU and expected enlargement to accommodate new GCU to address the need for conservation in climate change (assisted migration aspects and the need to focus on marginal populations)
- Management of the National Network of GCU (to mention the integration of the National Network as a contribution to the pan-European strategy)
    - Manage each unit (by the EUFGIS focal point and the manager responsible of the unit)
    - Manage the selection of units in case of changing or integrating new ones (for the EUFGIS FP)
- Relationship to knowledge and to monitoring

Decision system on GCU management (Subgroup 1: C. Kelleher, J. Cottrell, K. Järve)

- Overview of the Units (different functions of the units (ie using the graphic illustration)
- Describe the tool (also showing the element)
    - GRAPH
    - **indicators** of demographic/genetic information
    - **measurable verifiers** (each indicator is defined by measurable verifier(s))
    - **management actions**
- other considerations
    - recommendations on the establishment of new units or replacement of the threatened units with existing EUFGIS Units taking into account vertical buffer (ie the more vertical buffer there is the more likely the units will be able to survive)

- the tool is designed based on demographic information, as soon as more specific genetic information will be available, this will be used to identify risk for genetic erosion, etc. (alternative genetic indicators)
- managers should take into account existing risks in the neighbourhood that could endanger the long-term survival of the population (eg pests and diseases, invasive neophytes)
- management action of the replacement of a GCU by an equivalent GCU

Indicators and verifiers – Part one (Subgroup 2: J. Buiteveld, A. Rudow, M. Westergren, L. Nagy, D. Kajba)

1. (I1) Relative decline in number of potentially reproducing trees (% per 10 years)
    a. Counted declining number of reproducing trees
    b. Statistical estimated declining number of reproducing trees
    c. Inferred estimate of declining number of reproducing trees (growing stock, remote sensing, etc.)
    d. Counted number of dead trees
    e. Estimated number of dead trees
    f. Decline of population share (area of occupancy)

2. (I2) Lack of natural regeneration over > 10 years
    a. the amount of established regeneration in sites where it would be expected is sufficient for the long-term sustainable management of the population

3. (I3) Presence of threatening biotic factors that could endanger the long-term survival of the population
    a. pest and diseases
    b. invasive neophyte
    c. competing species

d. seed predation and browsing

4. (I4) Absolute number of reproducing trees declining under minimum requirements*(the term 'reproducing tree' has to be clearly defined, and the way how to measure this number has also to be clearly defined).*

    a. Number of reproducing trees under threshold (when the objective is to conserve gene diversity of widely occurring and stand-forming conifers or broadleaf species),

    b. Number of reproducing trees under threshold (when the objective is to conserve adaptive or other traits in marginal or scattered tree populations) or 50 seed bearing trees (scattered tree species with sexual dimorphism), and

    c. Number of reproducing trees under threshold (when the objective is to conserve remaining populations of rare or endangered tree species)

Indicator I4		***Actions***			
Verifier per Population Justification	**Population Reproducing Trees**	***in situ***	**Assisted migration/ geneflow**	***ex situ* (living trees)**	***ex situ* (in statis)**
Field 38	**Field 39**	**A3.1/3.2**	**A4**	**A5**	**A6**
I4a	**500**	500	250	100	50
I4b	**50**	50	25	15	15
I4c	**15**	15	15	15	15

Table 1 Threshold values for indicator 4 for different GCU types according to EUFGIS minimal requirements

Indicators and verifiers – Part two (Subgroup 3: M. Liesebach, L. Nagy,S. Stojnić, V. Buriánek, V. Baliuckas)

5. (I5) Upcoming loss of the area/habitat due to foreseen anthropogenic events (land use change)

6. (I6) High probability of loss of the population due to natural stochastic catastrophes (e.g. need to collect FRM from a GCU because of high likelihood of forest fires)

7. (I7) Actual loss of the population due to natural stochastic catastrophes natural stochastic catastrophe destroyed the population (e.g. fire, avalanches, storm, other such as ice sleet, frost, flooding, and land slide). Still there might be a possibility to recover material (grafting or recovering seeds) but the action may be replacement of the unit with another unit in the same country/zone - verifier in binary form (y/n).

Indicators - Part three (Subgroup 4: M. Westergren, C. Kelleher, F. Ducci, J. Buiteveld, M. Aliona)
Genetic alternatives to indicator 1 and 4:

8. (I1*) Relative decline in genetic variation (genetic drift)
9. (I4*) Decline in genetic variation under a minimum genetic diversity (inbreeding effects, allelic richness, heterozygosity)

Management actions (Subgroup 5: F. Ducci, L. Yrjänä, M. Villar, B. Cengel)
Definition of the levels of management actions *in situ* & *ex situ*, to which Indicators and Verifiers lead.

1. (A0/A1) no or general management only
2. (A2) *in situ* silvicultural management in GCU
3. (A3.1) *in situ* enlargement of GCU
4. (A3.2) *in situ* replacement/reorganisation of GCU
5. (A4) *ex situ* assisted migration/geneflow to new GCU
6. (A5) *ex situ* preservation in collections/gardens (as living trees)
7. (A6) *ex situ* preservation in seedbank/ cryo-conservation (in stasis)

The levels of action A0/A1 can be considered as the general basis (existing GCU). There are no indicators leading to them. They could be explained in the chapter preamble to the decision cascade tool (underlying basic conditions).

Decision system on the identification of threatened populations
Recommendations on knowledge system
Overall recommendations
References
Annexes

It is noted that each working group member is free and encouraged to give input to all subgroups.

Annex 2: Updated draft elements of the decision cascade tool

		Indicator								
		I1 (%)	**I1***	**I2 (0/1)**	**I3+**	**I4**	**I4***	**I5+ (0/1)**	**I6**	**I7+**
		%		(0/1)(no/yes)	Ordinal classification from 1-5	Table		(0/1)(no/yes)	(0/1)(no/yes)	(0/1)(no/yes)
Action	**A0/A1**									
	A2	25%	o	1	1					
	A3.1 Enlargement	50%	o	1	2	Table	o			
	A3.2 Replacement		o	0	2 to 5	Table	o	1	1	1
	A4	75%	o		3	Table	o	1	1	
	A5				4	Table	o	(1) (table)	(1) (table)	1
	A6				5	Table	o	(1) (table)	(1) (table)	1
	Comments				Depends on the severity of the declination of the biotic factor (how severe is the pest). The numbers indicate how severe the threats are. I3 severity of biotic factors. Expected decline in population: 1: 20% 4: 80% 2: 40% 5: 100% 3: 60%	See Table for I4		(1) (table): differentiation of type of GCU as for I4	ditto	(some genetic material may still be available even though the population is gone)

* alternative genetic indicators (I1*/+4*)

\+ emergency indicators (I3+/I5+/I7+), leading to immediate management actions (independent of monitoring period and data)

Indicators and verifiers will follow the following naming standards:

Number or code For simplifying the visual appearance	Unit of measurement Within an indicator there can be different units of measurement.	Short description A clear concise sentence that describe the element.	Explanation An elaboration of the element.	References

Annex 3: work Plan of the working group

Task/Activity	Outputs	Date (When activity will be completed)	Who	Comments
First draft of chapters/parts by SUBGROUPS	First drafts of the defined chapters/parts, one compilation per SUBGROUP	31 Jan 2017	WORKING GROUP Members, organised in 5 SUBGROUPS	send to A. Rudow (andreas.rudow@env.ethz.ch) and M. Westergren (marjana.westergren@gozdis.si) Cc to M. Bozzano (m.bozzano@cgiar.org)
First draft of the report	Compiled and integrated draft of the WORKING GROUP Report Feedback on first draft	18 Feb 2017 28 Feb 2017	Chair and vice-Chair WORKING GROUP members	Send to all WORKING GROUP members to Chair and vice-Chair
Second draft of the report	Revised draft of the WORKING GROUP report Feedback on the second draft Consolidated draft	31 March 2017 15 April 2017 1 May 2017	Chair and vice-Chair WORKING GROUP members Secretariat	Send to all WORKING GROUP members to Chair and vice-Chair to email contributors and steering committee

Annex 4: Agenda of the meeting

First meeting of the EUFORGEN Working group on the development of a decision cascade tool for genetic conservation of forest trees

Tuesday 25 October		
Morning	Arrival to Fiumicino Airport and train to the hotel	Hotel H10 ROMA CITTA' Via Amadeo Avogadro,35 00146 Rome, Italy
13-14	Buffet lunch at the hotel – as needed	
14:00	Opening of the meeting ● Welcome opening from Bioversity (J. Loo) ● Introduction to the meeting (M. Bozzano) ● Adoption of the agenda ● Nomination of rapporteurs	
14:15	EUFORGEN update and expected outputs of the working group (M. Bozzano) ● Discussion	
14:45	Pan-European strategy for genetic conservation of forest trees and establishment of a core network of dynamic conservation units (M. Bozzano) ● Discussion	
15:15	Approaches to the conservation of forest genetic resources in Europe in the context of climate change (C. Kelleher) ● Discussion	
15:45	Coffee/tea break Lunch	
16:15	COST Action FP1202 - Strengthening conservation: a key issue for adaptation of marginal/peripheral populations of forest trees to climate change in Europe – outputs and relevance for the WORKING GROUP (F. Ducci) ● Discussion	
17:15	Preliminary Decision cascade tool for genetic conservation of forest trees (A. Rudow) ● Discussion	
18.50	Wrap-up of the day (M. Bozzano)	
19:30	Social dinner	Osteria Mavi

Wednesday 26 October		
09:00	Distribution maps and database on marginal populations originated from COST Action FP1202 (Bruno Fady) ● Discussion	
10:00	Decision cascade tool for genetic conservation of forest trees ● Discussion (continued)	
11:00	Coffee/tea break	
11:00	Decision cascade tool for genetic conservation of forest trees ***in situ*** ● Discussion (continued)	
12:30	Lunch	
14:00	Decision cascade tool for genetic conservation of forest trees ***ex situ*** ● Discussion (continued)	
15:30	Coffee/tea break	
16.00	IUCN Global Tree Specialist Group (A. Newton - teleconference) ● Discussion - Red List of populations	
16:00	Report of the Working group ● Development of the table of contents ● Discussion	
18.50	Wrap-up of the day (M. Bozzano)	
	Dinner on your own	

Thursday 27 October		
09:00	Initiation of the WORKING GROUP tasks (plenary and/or small groups) ● Compilation of data, relevant publications etc.	
12:30	Lunch	
14:00	Initiation of the WORKING GROUP tasks – Drafting of relevant content	
18.50	Wrap-up of the day (M. Bozzano)	
	Dinner on your own	

Friday 28 October		
09:00	Finalisation of the WORKING GROUP tasks ● Discussion	
10:30	Coffee/tea break	
11:00	Next steps before the second WORKING GROUP meeting ● Tasks and deadlines	
12:15	Wrap-up session ● Any other business ● Date and place of next meeting	
12:00	Lunch	

Annex 5: List of participants

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