

SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: 18201

STSM title: Genetic and genomic approaches in plant conservation

STSM start and end date: 29/08/2021 to 18/09/2021

Grantee name: Meleksen Akin

PURPOSE OF THE STSM:

This STSM was linked to the WP5 1st Goal that refers to the preparation of review papers, in particular, a “Review paper of the use of genetic and genomic information in the conservation of European threatened plants and their integration into management, conservation plans, and regulatory framework”. Therefore, the literature on the state-of-the-art genomic tools utilized in plant conservation was searched in Web of Science Database utilizing Boolean topic search strategy with the specified keywords. Query links of all of the Boolean searches on the review paper topics were saved to be shared with the rest of the working group members. In this way, all group members will have access to the Web of Science Database page with the corresponding literature on each topic section of the review paper.

Besides, developing long-term collaboration and knowledge sharing between the applicant and the host lab in up-to-date genetic and genomic technologies in plant conservation was aimed.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

Re-evaluation of the WG5 Core Group Paper Repository, validation of Endnote reference lists for two groups of papers: (a) conservation genetics in plant conservation, (b) conservation genomics in plant conservation.

Boolean literature search was performed in Web of Science Database for the **Review Paper topics/questions**.

The first topic search for “Why genetics (QG, neutral markers) or genomics, epigenetics (gaps)?“ was performed with the following keywords:

conservation AND (plant* OR tree*) AND ("adaptive potential" OR "local adaptation")
NOT (animal* OR mammal* OR bird* OR fish* OR vertebrate* OR insect* OR fungi*)

which end up with 11 636 articles (restricted with English language and SCI-Expanded).

The second step was to restrict this search with only review articles. The total number of review articles was 760.

The second topic search for “Where and when adaptive potential and local adaption is important for plant conservation?” was performed with the following keywords:

conservation AND (plant* OR tree*) AND ("adaptive potential" OR "local adaptation")
NOT (animal* OR mammal* OR bird* OR fish* OR vertebrate* OR insect* OR fungi*)

which end up with 419 articles (restricted with English language and SCI-Expanded).

The second step was to restrict this search with only review articles. The total number of review articles was 46.

The third topic search for “Theory (tools, sampling design, concise overview)” was performed with the following keywords:

conservation AND (plant* OR tree*) AND "sampling design" NOT (animal* OR mammal*
OR bird* OR fish* OR vertebrate* OR insect* OR fungi*)

which end up with 115 articles (restricted with English language and SCI-Expanded).

The second step was to restrict this search with only review articles. The total number of review articles was 5.

The fourth topic search for “Life traits, mating systems (LHC)” was performed with the following keywords:

conservation AND (plant* OR tree*) AND ("life traits" OR "mating system*" OR mating)
NOT (animal* OR mammal* OR bird* OR fish* OR vertebrate* OR insect* OR fungi*)

which end up with 796 articles (restricted with English language and SCI-Expanded).

The second step was to restrict this search with only review articles. The total number of review articles was 31.

The fifth topic search for “Challenges (landscape/ecosystem level) including modelling adaptive potential” was performed with the following keywords:

conservation AND (plant* OR tree*) AND (landscape OR ecosystem OR "adaptive potential") NOT (animal* OR mammal* OR bird* OR fish* OR vertebrate* OR insect* OR fungi*)

which end up with 13 559 articles (restricted with English language and SCI-Expanded).

The second step was to restrict this search with only review articles. The total number of review articles was 806.

The sixth topic search for “Genetic consequences of alternative approaches: assisted migration, translocation, ex situ conservation” was performed with the following keywords:

conservation AND (plant* OR tree*) AND (translocation OR "assisted migration") NOT (animal* OR mammal* OR bird* OR fish* OR vertebrate* OR insect* OR fungi*)

which end up with 517 articles (restricted with English language and SCI-Expanded).

The second step was to restrict this search with only review articles. The total number of review articles was 40.

Query links for all of the aforementioned Boolean searches was saved to be shared with the rest of the working group members. In this way the group members will have access to the Web of Science Database page with the specified Boolean searches and corresponding literature.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

The literature on the state-of-the-art genomic tools utilized in plant conservation were collected using Boolean topic search tool with the specified keywords. Query links of all of the Boolean searches on the corresponding topics were saved to be shared with the rest of the working group members. In this way, all group members will have access to the Web of Science Database page with the corresponding literature on each topic section of the review paper which is going to be written.

FUTURE COLLABORATIONS (if applicable)

The STSM holder and the host explored several options to this effect. For instance to use specific software that would allow for the quantitative evaluation of published literature. Further ideas were exchanged and networking activities were performed laying the foundations for future collaborations.