

# Modern Genetic and Dynamic Forest Typology: Priority Development Areas and Outstanding Problems

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## INTRODUCTION & AIM

The success of forest management depends to a large extent on the ecological classification on which it is based [1]. The purpose of this work is to review the current state, priority lines of development and unresolved problems of the original directions of ecological classification: genetic and dynamic forest typologies.

## METHOD

Papers were searched using the national database Elibrary. We selected and analyzed 94 journal articles on genetic and dynamic forest typologies from the last 10 years. The presence of a DOI was a prerequisite for inclusion in the analysis. The analysis followed the PRISMA guidelines.

## RESULTS & DISCUSSION

We assumed that the distribution of publications by year would show an increase in publication activity in this area, as it is necessary for forestry. However, this is not the case (Figure 1). The number of publications is not increasing, although researchers are still interested in forest typology.

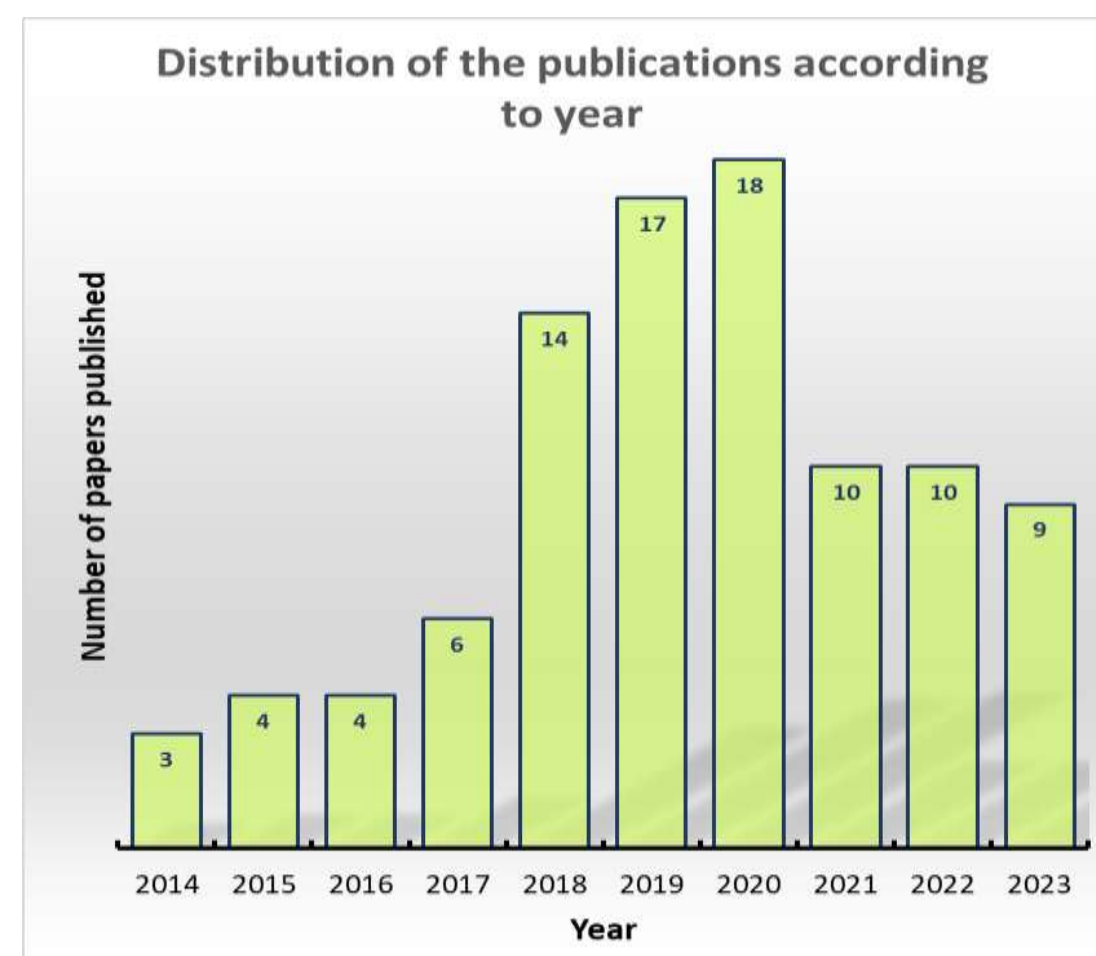


Fig 1. Distribution of the publications according to year.

Since its inception, genetic forest typology has focused on the study and classification of forests with complex structure and dynamics, and the use of new data analysis methods. The dynamic forest typology was originally developed to classify the disturbed vegetation of northern areas, which have relatively simple structures and dynamics. We have shown that these approaches to forest typology are now beginning to converge. For example, taking into account the dynamics of vegetation in forest typological units when classifying forests is the main scientific direction (Figure 2).

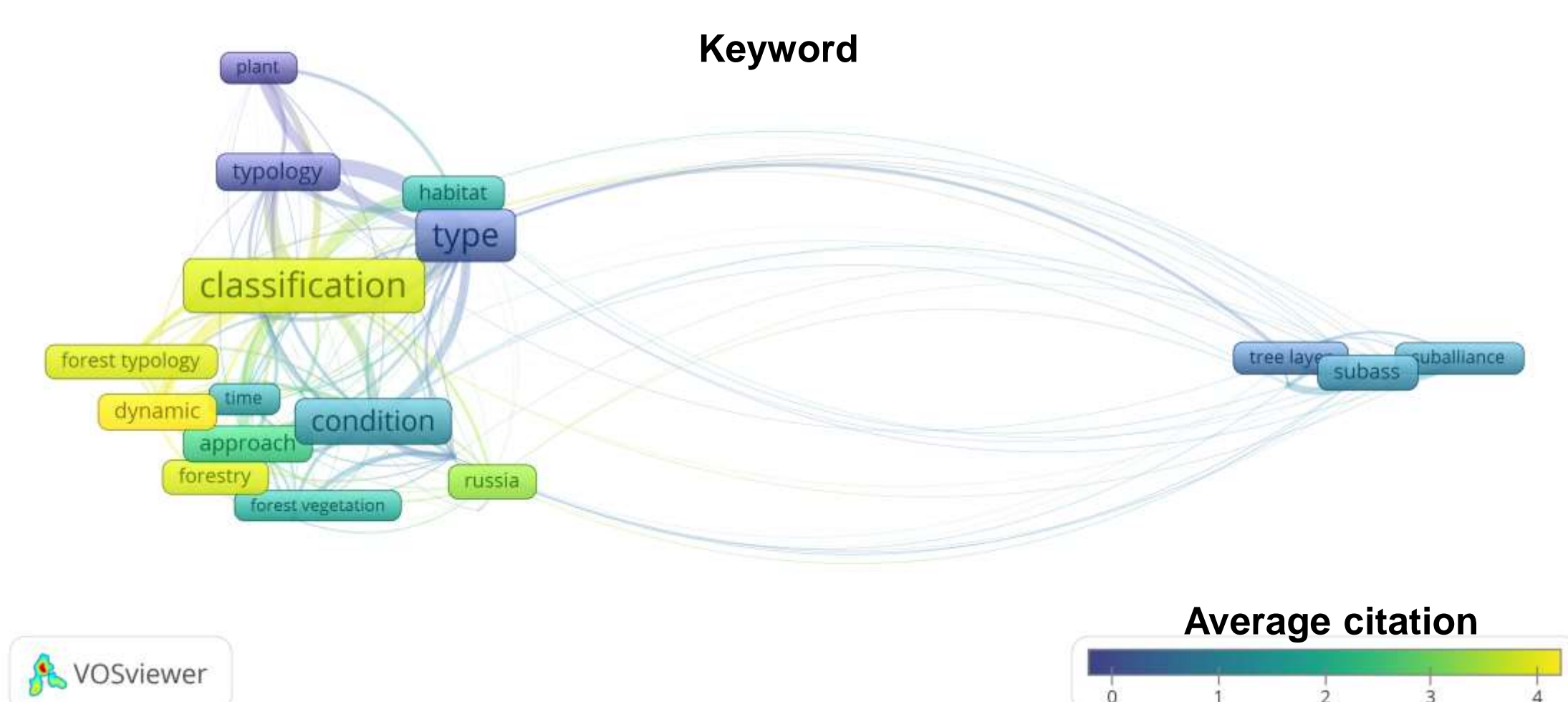


Fig 2. A network of keyword relationships. Coloured highlighting indicates the average number of Crossref citations of papers related to that keyword.

The current priority research areas of genetic and dynamic forest typology are the improvement of the conceptual and methodological bases of accounting in classification units for forest dynamics; the development of systems of regional classification of disturbed territories for their restoration; and the improvement of the methodology for identifying forest types based on the remote sensing of territories and modern data analysis methods. In Figure 2, a cluster associated with the application of the Braun-Blanquet approach to forest typology occupies a separate position. This approach is used in both dynamic forest typology and genetic forest typology [2].

The citation analysis showed that 52% of the papers included in the analysis were cited at least once. The most frequently cited papers are 3 papers [1, 3, 4].

Our additional special studies have shown that the Ellenberg and Landolt ecological indicators can be effective in assessing habitat factors in forest typology studies [5, 6].

## CONCLUSION

Currently, these typologies are being developed in parallel, using their scientific basis as well as the strengths of the European forest ecological classifications [1] and the Braun–Blanquet approach [2]. These typologies are of key importance for forest management in the Russian Federation and have great potential for further development under conditions of climate change and anthropogenic impacts.

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