

The possibility of recreation in forest areas is particularly important for residents of urban areas, especially densely populated (metropolises, agglomerations, conurbations), where due to the spatial policy pursued by the authorities, there are relatively few green areas which are subject to constant pressure from other players interested in taking advantage of space - developers. The depletion of green areas in cities is, of course, also associated with the search for places to rest, which also increases the pressure on the natural environment. The significant role of forest areas in meeting one of the basic needs of society, which is contact with nature, has been emphasized for many years in numerous scientific works. It has been known for a long time that forest areas have a positive effect on the well-being and mental health of people who decide to spend time in the forest. The important role of forests in this area could be seen during the lockdown caused by the coronavirus pandemic. Recreation in forest areas is also one of the elements of the so-called ecosystem services, i.e. the benefits that society receives from natural areas.

The role and importance of forest areas, as well as their size, understood as an area per person, is varied. Strong pressure and penetration of forest areas, mainly in the neighborhood of agglomerations and naturally valuable areas, may result in exceeding the natural capacity of forest ecosystems and, consequently, lead to their degradation. Badly organized tourist traffic also poses a threat to the forest in the form of fires, destruction of vegetation, irrational harvesting of undergrowth, disturbing animals, littering the forest, etc. One of the ways of reducing the potential negative effects of recreation and tourism is to gain information about the preferences of the society, times and places of tourism and its intensity. This information can be the basis for making decisions on the location and adaptation of infrastructure for various groups of users, channeling tourist traffic to suit a specific group of users.

Taking the above into account, the project focuses on the possibilities of providing cultural ecosystem services (CES) through urban and suburban forest areas in two metropolitan areas of Warsaw and Vienna. In addition, the public's demand for this type of service will be determined, as well as the elements related to mobility in terms of recreation (hot spots, travel directions) will be examined. In order to map and valorize CES, the project will take advantage of the latest technological solutions and Big Data from multiple sources. Data resources include: social geographic information data (e.g. from Flickr, Twitter); open spatial data from Copernicus, OGD Vienna, survey and GPS data. Therefore, an important goal of the project is also to explore the potential and limitations of Big Data in CES analyzes. The project will use the advanced cyber infrastructure of the Centre for Scientific Geospatial Analyses and Satellite Computations (CENAGIS) to perform the analyzes.

The following results of the project are expected: identification of factors influencing the recreational use of forest areas; CES valorization; mapping the spatial and temporal distribution of activity in forest areas; indicating the directions of social movement from the place of residence to selected forest complexes; developing a methodology for processing and analyzing Big Data in terms of their use for the needs of CES.

The activities planned to realize within the project are to understand the behavior and needs of society in the field of recreation in forest areas. They will also be helpful to indicate areas with the highest potential CES that should be preserved and provide tools for making decisions in the field of forest areas management and spatial planning.

The project will be conducted by an interdisciplinary team of scientists from Poland and Austria. Its potential comes from combining knowledge from social sciences, forestry, recreation monitoring, geoinformation and analysis of large data sets.