The planned study will include an analysis of the reproduction of valuable natural undergrowth plants growing in strongly isolated urban forests compared to large forest complexes. The research aims to answer a few questions which are research aims. The main elements of the project are:

1) analysis of the fauna of flower guests

2) field experiment on pollination biology of the studied species (breeding system)

3) analysis of seed production of the studied species (including pollen limitation)

4) analysis of the influence of individuals flowering period on the background of the entire population on seed production

5) analysis of the viability and fate of propagules of selected species

The first part (1) concerns the diversification of species richness and abundance of floral guests visiting selected species of flowering perennial plants occurring in isolated urban forests compared to large forests. The second part (2) focuses on verifying the reproductive system of certain species of undergrowth plants. The study is focused on four species of undergrowth, associated with old forests (called. ancient forest species) *Anemone nemorosa* L., *Corydalis solida* (L.) Clairv., *Stellaria holostea* L., *Galeobdolon luteum* (L.) Ehrend. et Polatschek. The third part (3) is to assess the degree of reduction of generative reproduction of selected species, measured by seeds production. The fourth part (4) is designed to test whether reproductive success depends on the number of individuals of the species coexisting in a compact patch.

The fifth part (5) aims at assessing the germination of seeds and explain fate of the propagules in the natural environment subjected to pressures of predators and abiotic factors.The sixth part (6) of the project will be to assess whether the differences in flowering phenology of individuals forming studied populations affects the reproductive success of individuals (flowering early or late). Research hypothesis predicts that old-growth forests plant populations occur in urban forests with a different degree of anthropogenic pressure from large forest complex, differ in the number of floral guests visits and reproductive success measured by the number of seeds. The main reason for reduced reproductive success of undergrowth plants in urban forests compared to large reference forest is less number of visits of pollinators and smaller species richness of animals. Furthermore, individuals of plants that occur sporadically (with a small density) in the undergrowth may be less visited by pollinators than those found in large numbers in patches. The impairment of reproduction of these species may lead to their extinction and the decline of forest species diversity subjected to strong anthropogenic pressure. The reason for taking this subject is a worldwide trend of increasing human pressure on the environment, causing in decline of biodiversity. Increasing urbanization modifies the existing systems and ecosystems. Such modifications can be observed in urban forests. The issue is even more interesting and worth investigating that in case of inhibition the reproduction of those selected valuable species may be highly vulnerable to extinction, because due to the strong fragmentation of forests and slow spread of the population of these species re-colonization of urban forests would be very unlikely.