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**CURRENT STATE AND PERSPECTIVES ON ANTARCTIC BIOLOGICAL RESEARCH**

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Today, SCAR focuses its scientific efforts on high priority topical areas through its Scientific Research Programs (SRPs), of which there are currently five. Among these programs, two of them related to life sciences: «State of the Antarctic Ecosystem» (AntEco, https://www.scar.org/science/anteco/home/) and “Antarctic Thresholds - Ecosystem Resilience and Adaptation” (AnT-ERA, https://www.scar.org/science/ant-era/home/). The AntEco aims to increase scientific knowledge about biodiversity, from genes to ecosystems that, coupled with growing knowledge about species biology and can be used for the conservation and management of Antarctic ecosystems. The main goal of AnTERA is facilitating the science required to examine changes in biological processes, from the molecular to the ecosystem level, in Antarctic and Sub- Antarctic marine, freshwater and terrestrial ecosystems. Tolerance limits, as well as thresholds, resistance and resilience to the environmental change will be determined. These programs are united by the concept of biodiversity in its broader sense, from identification of particular species and intraspecies variability up to monitoring terrestrial and marine ecosystems with the following arrangement of protected areas in Antarctica, based on the results obtained from the monitoring procedure. The investigation of polar ecosystems provides unique opportunity to understand key factors for existence and key functioning of ecosystems in changing environmental conditions, including anthropogenic effect. Recent years are marked by revolutionary development of molecular biology methods, starting from genetic analysis of particular genes up to whole genome sequencing of particular individuals, as well as groups from natural populations. Effective utilization of these methods in Antarctic research can be the most prolific, given the context of international collaboration. Currently, Ukrainian biologists are working on the wide range of projects conjointly with researchers from the US, Great Britain, Poland, Germany, Turkey, etc., evidenced by shared publications in the international scientific journals. Further Antarctic Ukrainian research should be incorporated in international community with directions that had been highlighted by Scientific Committee on Antarctic Research, namely life sciences, physical sciences, geosciences and humanities. Given the outlines provided by modern Antarctic research community, the main tasks of biological research can be defined as following:

1. Inventory of biodiversity and monitoring of terrestrial and marine ecosystems;

2. Investigating the mechanisms of adaptation and screening of biological properties of Antarctic organisms;

Creating conditions for the conservation of biodiversity and wildlife in Antarctic.