生物多様性・生態系評価へ向けたGRENE-eiによるデータ整備
Data management for evaluating biodiversity and ecosystems conducted by GRENE-ei (Green Network of Excellence - environmental information)

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The loss of biodiversity and its impact on ecosystem functions and services are the biggest environmental issues. It needs to assess present status of biodiversity and ecosystems to address these problems. In addition, many kinds of environmental information such as biodiversity, ecological, climatological and geographical data are required for developing indicators that are effective in assessing the conditions of biodiversity and ecosystems. However, most existing data are not comprehensively available because they are scattered among many various databases that are independent of each other. Therefore, our Green Network of Excellence - environmental information (GRENE-ei) project aimed to manage metadata about biodiversity and ecosystem information at the first. We connected existing metadata databases through cooperation with Japan Long Term Ecological Research Network (JaLTER) and Data Integration and Analysis System (DIAS). JaLTER Metacat (http://db.cger.nies.go.jp/JaLTER/) provides information such as location, availability and format of ecological observation data in Japan. We created the data element mappings between JaLTER and DIAS metadata formats and integrated JaLTER metadata catalogue into the search and discovery system for DIAS datasets (http://dias-dss.tkl.iis.u-tokyo.ac.jp/ddc/). The next step was accumulation of biodiversity and ecosystems data. We collected observational data from separate layers such as species distribution, community structure, ecosystem and flux. One of the main data sources at the species and community levels is the vegetation survey data conducted by The Ministry of the Environment, Japan. Using the output of this survey, the plant distribution database including 718,211 records with 4,683 species names was developed. The data format of this species occurrence database was compliant with the Darwin Core (http://rs.tdwg.org/dwc/) in order to maximize interoperability. The third step was the creation of spatial interpolated distribution datasets of species and community. We constructed the species distribution models (SDMs) of each plant both from the occurrence data mentioned above and environmental factors (such as climate, topography, geography and land cover data), and predicted the potential distributions of species suitable habitats in Japan. These interpolated datasets of plant species and community distribution would be an indispensable infrastructure for mapping the potential distribution of organisms that interact with plants, such as herbivore insects. Our main achievements, particularly interpolated datasets of plants, are preparing publication through DIAS data archives.

キーワード：データ整備、生物多様性、生態系、相互運用性、GRENE環境情報分野、地球環境情報統融合プログラム

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