**Ecology at Inner Mongolia University**

**Missions and Orientations**

Inner Mongolia University (IMU) is the first university in China that delivers the degree of ecology. The degree program started in 1977 with the approval of the Ministry of Education of China, while the training and research in ecology in the university started at the very beginning of the establishment of the university in 1957, when Professor Jitong Li joined the university as a vice-president, along with his 'ecology and geobotany' group from Peking University. With the development over past six decades, IMU is now well-known for its training and research programs in ecology, and its research programs are oriented to the grassland ecosystems on the Mongolian Plateau. Taking the Mongolian Plateau as a research platform, grasslands as major ecosystems, the ecology group at IMU has made important achievement in vegetation ecology and grassland ecosystem ecology, and played a key role in supporting national and regional economic and social development. The current mission of the ecology programs at IMU is to keep the leading position in tertiary education in ecology in China's university system, to develop an international centre of excellence for ecological research characterized by the ecosystems on the Mongolian Plateau, and to provide scientific and technical support to ecological civilization , sustainable resources use and agro-pastoral development. We strive to develop the IMU to a world first-class university for ecology training and research.

**Superiorities and Features**

*Training*: IMU has an ecology program of national importance, accredited by the Ministry of Education of China. The university delivers bachelor, master and PhD degrees, and provides facilities for post-doc research programs in ecology. It has a national training centre for scientific research and education, with ecology as a core discipline. The teaching team at IMU is accredited as a 'national-class teaching team', and the ecology major is accredited as a 'major with special features'. The 'Ecology' textbooks edited by the professors of ecology at IMU have been widely used in universities in China. Up till now, IMU has delivered B.Sc. degrees of ecology to 1300 students, M.Sc. to 270 students, and Ph.D. to 60students. The university is well-known for its ecology graduates with solid knowledge and practical skills.

*Scientific Research*: The ecology team at IMU is capable of carrying out core research and development projects from the state. During the past 5 years (the period of the 12th 5-year plan of China), the team carried out two National Basic Research ('973') projects and four National Scientific and Technical Support projects, funded by the Ministry of Science and Technology of China, and several large projects in agriculture and environmental protection, as well as the projects from National Natural Science Foundation of China and the Department of Science and Technology of Inner Mongolia Autonomous Region.

*Research Platform:* The IMU hosts a Key Laboratory of Grassland Ecology, a candidate for State Key Laboratory accredited by the Ministry of Science and Technology of China; it also has a 'field base for grassland ecology research' in Xilingol region of central Inner Mongolia. The laboratory and the field research base provide platforms and facilities for long-term ecosystem research, international collaboration, and development and demonstration of the best practices for environmental protection and agro-pastoral system development.

**Education Goals**

The IMU will continue to deliver high-quality ecology training programs, providing the graduates with complete ecological knowledge and practical skills. The recent goals with priority include: (a) to enhance the international collaboration and exchanges in education by providing students more opportunities to study overseas or participate in international conferences, and inviting oversea professors giving lectures; (b) to encourage the students to do the research and development based on their interest, or to involve the students in the ecological research programs to boost their innovation spirits; (c) to edit/update ecology textbooks based on the science advancement and experience in education; and (d) to provide different directions for students to select in ecology major, e.g., 'basic ecology' or 'ecological planning and resources management'.

**Research Directions**

The ecology at IMU has four key research themes:

*1-Grassland ecosystem ecology:* has a focus on the responses of the grassland ecosystem components and functional processes to climate and land use changes, covering the patterns and dynamics of biodiversity and biological traits and their relations with ecosystem processes, such as water balance and nutrients cycling. The ecosystem-level research is addressed by combination of ecosystem experiments and

modeling.

*2- Macro-ecology on the Mongolian Plateau*: has a focus on tempo-spatial patterns of the climate, soil, plants/vegetation, animals and microbes on the Mongolian Plateau, and their formation and driving mechanisms. The research include to establish and maintain the data centre of biodiversity and ecosystems of the Mongolian Plateau, and to predict ecosystem responses to global changes and develop adaptive management strategies. Ecosystem services is also a research theme to support sustainable resources use and social development.

*3- Plant molecular ecology and evolution:* has a focus on the systematics and evolution of the plants in the Eurasian steppes, revealing the molecular mechanisms of the plants adapting to anthropogenic stresses, including human-induced climate and environmental changes to understand the organizing mechanisms of plant communities.

*4- Restoration ecology and sustainable management of natural resources*: Facing on the ecological problems in social development, the research in this direction focuses on the principles and techniques to support the restoration of degraded land, rehabilitation of mining sites, protection of environments from pollution, and reduction of greenhouse gas emissions; the research also covers the conservation and sustainable management of grassland ecosystems.

**The Influences**

The ecology programs at IMU are now well-known for its excellence in education and research. The indicators for the good reputation include (1) great capability to carry out state key research and development projects in ecology and natural resources, including those core projects funded by the Ministry of Science and Technology and Natural Science Foundation of China; (2) significant progress achieved such as the wining of the national award of natural science in 2011 for the work on 'Vegetation Map of China'; (3) publication of a series of research achievements on Mongolian steppes as special issues or columns in international journals, such as Rangeland Journal (2014) and Landscape Ecology (2015); (4) Much research to support regional economic and social development, covering the research and planning for natural conservation, and drawing up the standard for grassland and forest utilization in Inner Mongolia, that directly support the decision-making of local government and agencies; and (4) training of a large number of graduates in ecology who are currently well-known in China and in the world, such as the editor-in-chief of Landscape Ecology and professors in many universities.