

Systematics 2008

Programme and Abstracts

Göttingen 7-11 April 2008

10th Annual Meeting of the
Gesellschaft für Biologische Systematik

18th International Symposium
„Biodiversity and Evolutionary Biology“
of the German Botanical Society



Edited by S. Robbert Gradstein, Simone Klatt, Felix Normann,
Patrick Weigelt, Rainer Willmann and Rosemary Wilson



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Patrick Weigelt	Rainer Willmann	Rosemary Wilson

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Tropical species in northern latitudes: why has the ancient relict plant *Aristolochia manshuriensis* survived?

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Aristolochiaceae Juss. is an ancient family within Piperales L. The Aristolochiaceae family currently consists of 7 genera and about 600 species, 500 of them belong to the genus *Aristolochia*, which are spread mainly in the tropics and subtropics of both hemispheres. However, some *Aristolochia* species grow in more severe conditions in temperate areas. One of these, *Aristolochia manshuriensis* Kom., is an endemic of Manchurian floristic region. It is a woody liana distributed in Korea, China, and the south-eastern part of Russia. *Aristolochia manshuriensis* has a fragmented distribution because only certain habitats are suitable for this liana (broad-leaved forest, bottom of hills, watersheds). Probably, the origin of this species is related with a tropic climate within the territory of modern China.

However, climate changes have limited the species distribution and recent anthropogenic activity has led to further elimination of broad-leaved forests. Consequently the distribution area today is greatly reduced and the species rare. This plant is listed in the "Red Book of Russia" as an endangered species. Which features of *A. manshuriensis* made its survival since tertiary period? And why this species has become endangered today?

In this work we focus on seed reproduction of *A. manshuriensis* to answer these questions. Our data show high seed set (about 95%) and low fruit set (2%). The *A. manshuriensis* flower is adapted for cross-pollination, and a special pollinator is required for successful pollination. We believe this is one of causes for the low fruit set.

Thus, some features of reproductive biology provide stable revival of the species. Nevertheless, in present days some of these characteristics limit the prosperity of *A. manshuriensis* because of lack of suitable pollinators. Our results have applications for the conservation of rare relict plant.