

Caucalido platycarpi-Vicetum michauxii – a new weed association from crop fields of Kyrgyzstan (Middle Asia)

Research Article

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Received 20 March 2013; Accepted 02 September 2013

Abstract: The study presents the results of geobotanical investigations conducted in crop fields in the western Tian Shan Mts in Kyrgyzstan (Middle Asia). The main research focused on classification of weed communities developing within this poorly investigated area, were conducted in the vicinity of Bishkek and Kara-Balta in 2010. Altogether, 299 phytosociological relevés were sampled using the Braun-Blanquet method. Based on all segetal vegetation patches, the analyses distinguished a new association: *Caucalido platycarpi-Vicetum michauxii*. The results of these phytosociological studies fill a gap in the knowledge about the syntaxonomical diversity of the Middle Asia region, which is one of the most crucial for segetal weed species. The study shows that anthropogenic agrocoenoses could harbour relatively rich flora. Extensively cultivated fields could especially serve as a suitable habitat for many xerothermophilous and heliophilous plants. More than 75 species in vegetation plots, mainly permanent weeds, have been found. There is also a considerable share of species coming over from swards, screes and meadows.

Keywords: *Agrocoenoses • Vegetation ecology • Phytocoenoses • Segetal communities • Turgenio-Roemerietalia • Tian-Shan*

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1. Introduction

Middle Asia is a region located in the central part of the Asian continent and comprises several countries such as Kyrgyzstan, Tajikistan and Uzbekistan. In its eastern part, this is a typically mountainous area with several ranges of the Pamirian, Pamir-Alai and Tian Shan mountain systems (Figure 1). Middle Asia is also one of the richest regions as far as plant species diversity in the former Soviet Union is concerned. According to the ten-volume study of the flora of Middle Asia (*Conspectus Florae Asiae Mediae*) [1], more than 8,000 vascular plant species are known from the region. This number is not definitive, as recently some new species have been described from this area [2–10] and new records of its flora have been published [2,11–15]. The flora of Middle Asia is also unique. According to data from the literature

on Tajikistan, approx. 30% of the entire flora of vascular plants are generally accepted endemics of the country (endemics s.str. + subendemics) [16–18]. As one of the floristically richest regions in the world, Middle Asia is threatened by a significant climate change, which could result in plant extinction and vegetation degradation [19]. Middle Asia is also regarded as the region most sensitive in the world to climate change, with the near-lowest adaptive capacity to climate instability [20].

Around the globe, research on the flora and vegetation of crop fields has been carried out within a range of contexts and with different intensity. Most studies investigate European agrocoenoses; however, several are focused on the weed vegetation of southwest Asia [21,22]. In last years several studies have been published, focusing on the problem of maintaining agrocoenoses biodiversity in relation to changes in

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