The concept of a rural-urban fringe is both complex and elusive. Many examinations of fringe areas have been made since the first half of the 20th century (Smith, 1937) but the clarity of the concept is perhaps lost due to many alterations of both the definitions and the deﬁniendum (Pryor, 1968; Banu & Fazal, 2016).

In many researched locations, a rural-urban fringe represents a space in between, sometimes referred to as a transitional zone (Wehrwein, 1942) of the urban-rural divide as if a certain numeric value on the urban-rural continuum could be ascribed to a specific location. In other studies emphasis is on the description of the peculiar (Gallent, Andersson & Bianconi, 2006) or the distinctive place – a special geographical entity. Rural-urban fringe is also thought of as a contested landscape (James, 2016) or the contact zone of rural and urban land uses as well as a place for special fringe land uses or urban necessities – services and industries essential to a city (Wehrwein, 1942). It is also often labelled as residual land under the threat of urban encroachment (Sinclair, 1967). Nevertheless, the heterogeneity or diversity of the fringe may represent its potential as an interface (Adell, 1999) for both urban and rural ways of life.

Delineation or mapping of a rural-urban fringe poses a practical problem in a geographical study of an area of interest. This particular research of that issue is guided by three notions associated with the fringe and mentioned by Gallent, Andersson and Bianconi (2006): 1) proximity to a built-up area; 2) presence of urban, rural and special fringe land uses; 3) landscape without community.

The aim of this project is to present a framework for the mapping of a rural-urban fringe in a GIS-environment. It explores the possibilities of urban edge delineation and the separation of the rural land uses, such as farming, forestry, recreation, and conservation, from the urban built-up area. Finally, it is focused on finding locations that could be characterised as the rural-urban fringe in the City of Zagreb.

Spatial datasets used for this poster were obtained from public and commercial sources. They include planning and cadastral files of the City of Zagreb and NDVI calculated from RapidEye multispectral imagery. Archive data from 2011 and 2012 were used to match the 2011 Census. Software tools for feature selection by attributes and location, proximity and overlay analysis, and point aggregation in order to derive the final fringe dataset.

Residential and mixed land use as well as polygons of aggregated points of house numbers (addresses) were removed from the built-up area to get the representation of built-up landscape without community.

The dataset was further reduced by selecting the features that are in contact with rural land uses but are not within the rural area itself. Rural area was defined by units of local committees that have the population density of less than 300 inhabitants per sq. km and are not part of urban settlements Zagreb and Sesvete. Additional refinement was done by removing the public and social land uses and sports and recreation land uses.

Fig. 2 Left: Built-up areas with residential land use (dark grey) and area of local committees with <300 inhabitants per sq. km that do not share a border with urban settlements Zagreb and Sesvete (simple green hatches).

Fig. 3 Right: Map of rural-urban fringe areas (red) as concluded in this study. Aggregated point features of house numbers (simple grey hatches) illustrates a generalized morphology of settlements (their enumerated objects).

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References: