

## AN URBAN-RURAL ECOTONE: AS EXEMPLIFIED BY HASTINGS, NEBRASKA

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Urban-Rural Ecotones as functional areas of land utilization with distinct landscapes should be recognized and studied by geographers. Each urban-rural ecotone contains a landscape which is a composite picture containing urban and rural features. In contrast with other geographic land use areas of cities such as residential, industrial, etc. which are unfunctional, the urban-rural ecotone stands out by its dual function. One of its functions, the urban, is related to the city which it encloses, and the other, rural, is related to the rural use of the land in which the city is located.

Just as a frame encloses a picture and serves as a transitional medium between the picture and its surroundings, so does the urban-rural ecotone frame and enclose the urban complex. Geographers who wish to depict a city should not only paint a word picture of the city that others may visualize it, but they should also frame the picture by adequately describing and interpreting the urban-rural ecotone.

In addition to its hybrid landscape and dual function the ecotone is an important area for geographic study because of its comparatively unstable character. Studying the changeable nature of the ecotone helps one to interpret the city. With a clear understanding of the ecotone one is capable of solving such problems as age and vitality of the city, possible direction of growth, and recent and present expansion.

### THE URBAN-RURAL ECOTONE OF HASTINGS, NEBRASKA

**Description:** As one enters the city of Hastings, he passes through an urban-rural ecotone, which lies as a distinct concentric zone of land utilization around the urban complex.

Small barnyards with granaries, barns, chickens and pig pens, small haystacks and manure piles give an atmosphere typical of the farm. Grazing cows and goats and fields of hay and grain remind

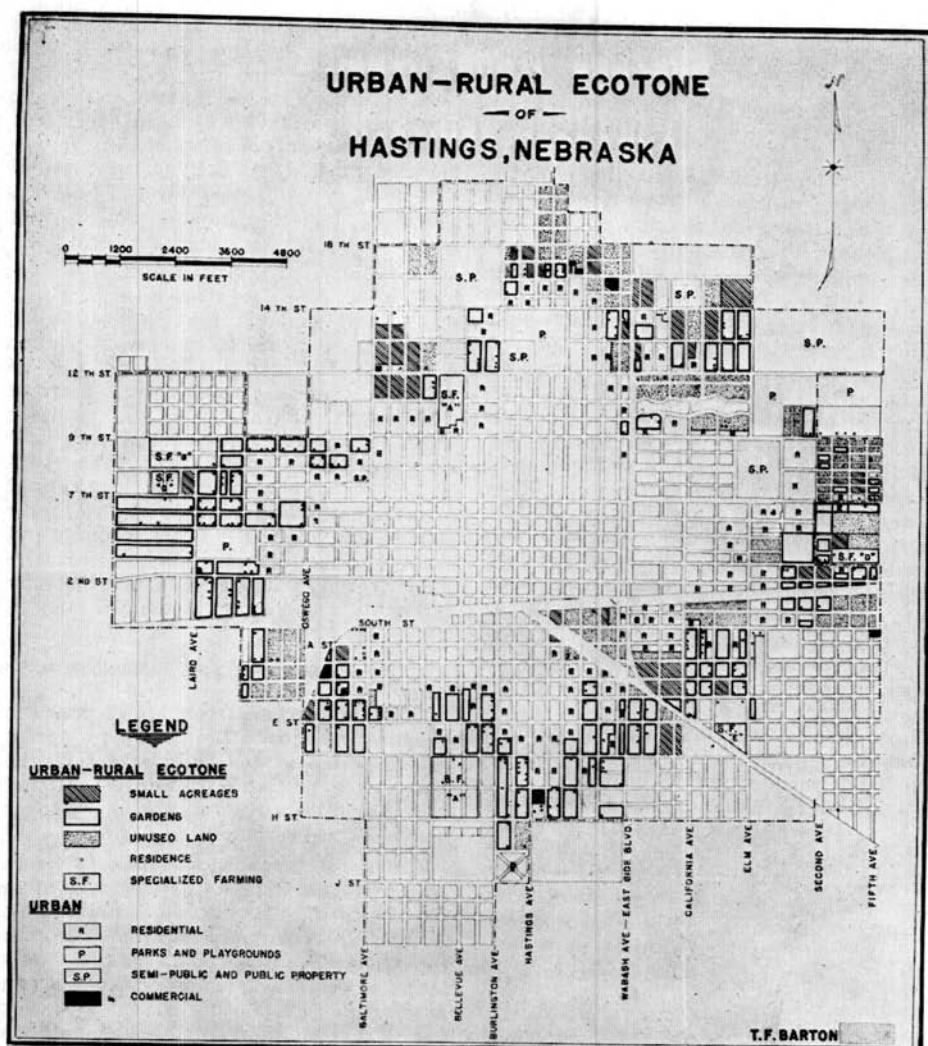
one of rural scenes. Within this zone, the land occupied by hay and cereals is like any other rural area except that plots of ground replace large fields and are often delimited by streets.

The street signs, real estate markers, truck gardens, factories and the cluster of buildings in the background, however, assure one that he is entering a city. Other signs of city development are the paved streets, open storm-water sewers, ditches, and fire hydrants. More closely spaced houses also indicate that one is approaching a city. Yet these houses are so sparsely located that they do not give the appearance of an urban residential area.

The urban-rural ecotone of Hastings, except for a few places, lies within the political boundary of the city (fig. 1). The width of the zone varies. In some places, where the urban development is immediately adjacent to the larger fields, the zone is almost pinched out, and in other places, it is almost half a mile wide.

Land utilization within this transitional zone generally becomes more intensified from the outermost margin to the innermost boundary. In some places along the outer margin, in order to make the land profitable, specialized farming has been temporarily introduced. Some day, no doubt, this ecotonal margin will be used solely for urban purposes. Thus the owner gets a high return from land which, at the same time, increases in potential urban value. In other places, the ground is not occupied, tilled, or used in any other active way. It is simply held as an investment or abandoned because of taxes.

Within the urban-rural ecotone two economic forces, the urban and the rural, compete for the use of land. Rural utilization, yielding lower income than the urban one, is the more easily buffed about and forced to make way for the residential division—the lowest income producing use of urban land. Rural land utilization within the political limits is under the additional handicap of city taxes.



*Land Use:* Land uses within the urban-rural ecotone may be divided into six general classes: (1) commercial, (2) residential, (3) gardens, (4) specialized farming, (5) crop production and barnyards, and (6) idle.

(1) Commercial. A very small amount, less than one per cent, of this ecotone is used for commercial purposes, consisting primarily of community grocery stores and repair shops.

(2) Residential. Two hundred and seventy-one houses lie within this transitional area. Each dwelling occupies a lot

approximately fifty feet wide and one hundred feet deep. Less than five per cent of the ecotone is used for this purpose. There are never more than eight houses in a block of twenty-four lots,<sup>1</sup> the average being about three houses, and over a third of the blocks are not used for residential purposes at all. The largest number of dwellings within the ecotone is found on the south and west side of the city. The residential area of Hastings has been expanding rapidly to the southwest. Land which would have been included in the ecotone in 1930 is

now included in the residential division.

(3) Gardens and poultry yards. Within the urban-rural ecotone approximately fifty per cent of the area is used for poultry yards and vegetable gardens. Although these gardens and yards are found scattered throughout the ecotone, this type of utilization is more prevalent south and west of the city. It is less conspicuous to the north and northeast. The rapid residential expansion of 1920-1930 in these two directions converted large quantities of potential urban land into city use.

The many small gardens and flocks of chickens reflect the efforts of a large number of people, chiefly of the laboring class, adding to their small income by cultivating a few lots and looking after a small flock of chickens. Some retired farmers follow the same practice. A few gardens represent the efforts of boys who peddle the vegetables. During the last two years many of the gardens have been cultivated by unemployed men to whom the city allots vacant lots. Few, if any, of these people engaged in this type of work produce enough to earn a complete subsistence.

(4) Specialized farming. Approximately fifteen per cent of the area within the transitional zone is utilized by six small farming areas. From these farms, owners expect to receive an income sufficient to maintain themselves. The six areas are located on all four sides of the city and are used by: (a) two truck farms, (b) a dairy, (c) a poultry farm, (d) a floricultural area, and (e) a combined truck and poultry farm. (See fig. 1.)

(5) Crop production and barnyards. About five per cent of the urban-rural ecotone is utilized for crop production and barnyards. Two classes, the retired farmers and laboring men, till the soil and use the crops as feed for a few heads of livestock. The cultivation of a small acreage of alfalfa, corn, or sudan grass does not take much time. It takes no longer to cut alfalfa than it does weeds. Most of the cows and goats within the city limits are also in this area.<sup>2</sup> The goats feed on weeds along the street, on uncultivated lands, and on weedy garden patches.

(6) Idle. About twenty per cent of the land in this ecotone remains idle and is held for investment only. It is not pro-

ductive from a commercial, residential or agricultural standpoint. Except for the goats and cows that are grazing on this land, it is an expense because the owner must pay the taxes and keep the weeds down. This land is often quickly put to an urban use. And then again, plots of this land, as that owned by the railroad, are held for investment over a long period of time.

Potential urban land within the ecotonal area is put to a remunerative use, for several major reasons: the income defrays high taxes placed upon the land; when the potential urban land will be utilized is uncertain; the land may be tilled up to the time when it is used for urban purposes; a law requires that land within the city limits held for investment be kept free of weeds; some retired farmers wish to take care of a few acres of land and a few head of livestock; and some workmen try to increase their income or reduce their living expenses by gardening and keeping some livestock.

#### ORIGIN AND USE OF THE WORD ECOTONE

"Ecotone" is a Greek word meaning tension-zone or a battle front along which two forces are endeavoring to occupy the same space, but with the final result that one wins the struggle and advances over the conquered territory.<sup>3</sup>

The word "Ecotone" was first used as a geographic term in an article printed in the *Scientific Monthly* entitled, "The Commercial-Residential Ecotone."<sup>4</sup> When the writer read a paper entitled "Geographic Ecotones" before the American Association of Geographers, Professor Colby of Chicago said he believed the word to be better than "periurban." Periurban has been used by some geographers in referring to the same land utilization area as the writer calls the urban-rural ecotone. Periurban is a hybrid word which is part Greek and part Latin. Urban-rural ecotone, in addition to indicating location, carries connotation of a conflict between two economic uses of land, whereas periurban does not. Another advantage in using the word ecotone is that it can be applied to the transitional area within the commercial and residential divisions as well as between the residential division and the surrounding rural land.

# EXISTENCE OF URBAN-RURAL ECOTONE

The urban-rural ecotone is not a unique land utilization zone found only in Hastings, Nebraska. Similar transitional areas are found surrounding numerous small and large cities throughout the United States. This phenomenon is believed to be especially typical of growing cities which are located in a matrix of agricultural land. In most cases the urban use encroaches upon and replaces the rural use, however, in some cities with a declining population the reverse is sometimes true. In southern Illinois there are

mining cities with ecotones in which the rural use of land has encroached upon the urban one. In Negaunee, Michigan, mining utilization of land has encroached upon the residential division of a city.<sup>5</sup>

Because a traditional land use area exists between the city and the surrounding rural area in many cities, and because these areas are conspicuous as having a distinct landscape and a dual function, the writer believes these areas are worthy of geographic treatment. "Urban-rural ecotone" is a name suggested for these transitional zones.

<sup>1</sup>The writer arbitrarily set the criterion that if one-third or less of the total number of lots in a block were used for residential purposes that the area would be included in the ecotone.

<sup>2</sup>The cows and goats in 1933 numbered one hundred head each.

<sup>3</sup>For a more detailed description see Barton, Thomas F., "The Commercial-Residential Ecotone," *Scientific Monthly*, 1937, Vol. 44, pp. 131-136.

<sup>4</sup>For a more detailed description see Barton, Thomas F., "The Commercial-Residential Ecotone," *Scientific Monthly*, 1937, Volume 44, pp. 131-136.

<sup>5</sup>Whitaker, J. Russell, *Negaunee, Michigan: An Urban Center Dominated by Iron Mining*, p. 65-66.