

THE POLISH AGRICULTURE TRANSFORMATION AND FOREST COMPLEXES AREAS CREATION

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Zalesianie gruntów rolnych stało się aktualnie najpowszechniejszym i najbardziej oczekiwanym zabiegiem transformacji polskiego rolnictwa, szczególnie na obszarach kraju o niskiej jakości bonitacyjnej gruntów. W artykule podjęto próbę przedstawienia problemów tworzenia kompleksów leśnych w aspekcie powierzchniowym, co obok innych analiz winno być brane pod uwagę w procesie planowego kreowania nowych kompleksów leśnych na danym obszarze.

Introductory remarks

The problems connected with an issue existence and development of Polish agriculture at the present economic moment, are being undertaken by many authors. The main attribute of all its scientific descriptions is to show necessity of its branch transformation, difficulties and risks associated with its process. In spite of all – investigators are consent in problem of sense and inevitability of changes in direction of kinds of production.

In consideration of agrar production specification, which without its own economical subjectivity with its own name and structure organization, includes its influence to define territory, agriculture is in sphere of interest of many related natural science, including surveying. Systeme changes, which have taken place during last decade of XX century in Poland, show necessity of verification of opinions about kind of evolution spatial and economical functions in agriculture. It was associated with changes of economical and ecological life in Polish country and requiments in relation to food products. This situation is inclined to undertake decisions of ecological or integrated kind of production, especially in areas predestinated to it (Runowski 1996)

Afforestation of rural areas as an instrument of spatial management

According to land management, country spatial structure is forming two main elements:

- the ownership structure of grounds;
- structure of using grounds.

Actual condition of its elements is a result of superposition of natural factors and actual community – economic level of society. Changes in an area of the ownership structure of grounds could be generate by trade turnover (buying sale), land consolidation, exchange of agricultural plots or by division of real estate. During about last fifteen years, we can notice phenomenon of intensive changes in structure of using grounds, mainly generated by economical factors. It consists mainly in fallowing of arable grounds.

In connection with this phenomenon there are effects of typical forest plants succession on big areas, especially on weak, non cultivated grounds (arable and grasslands). Quite often owners of weak grounds take an interest in afforestation, encouraged by law regulations, especially by *The act of arable grounds afforestation* (Ustawa 2001). Unfortunately, this act was not correlated with other regulations, especially in field of spatial planning, and for example there were not defined optimal created forest areas. It can generate a lot of problems in future (like problems in European Union countries generated by *Council Regulation (EEC) N° 2080/92* [5]). Besides this afforestation of agricultural lands is especially important in respect of traditional way of using grounds in area of country, where were there drastic deforestation has taken place for last centuries (Fig.1).

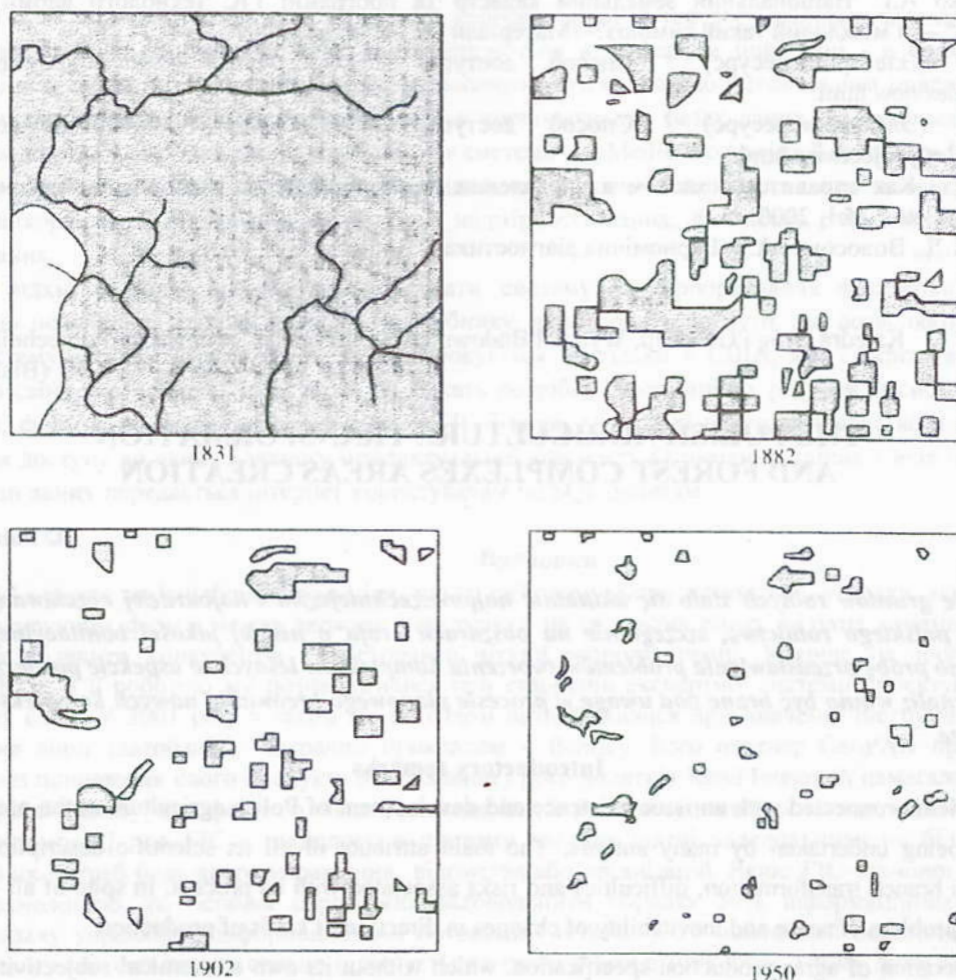


Fig. 1. Reduction of total forest area and fragmentation of forest territory in Cadis District, Wisconsin State (USA), during years 1831-1950 (according to Krebs 1996).

Problem of forest areas creation

Among specialists representing different lines of science activity associated with forest knowledge there is no unanimity about existence of any optimal forest complex area. In this work the main stress was put on three ways of interpretation of forest complex:

- according to *Act about forests* (Ustawa 1991);
- according to foresters;
- in opinion of the general group of naturalists.

Problem of existing forest area was most precise formulated in *Act about forests*, where according to article 2 (Ustawa 1991) forests are regarded as grounds:

- 1) with compact area at least 0.10 ha, covered by forest plants (forest growing) – trees and shrubs and ground cover – or temporarily devoid of its:
 - a) destined for forest production or
 - b) established as nature reserve or included in national park or
 - c) registered to register of monuments,
- 2) associated with forest management, occupied for associated with forest management buildings and structures, land melioration utilities, forest graduation lines, forest roads, areas of electrical supply lines, nurseries of young trees, places of timber yards and territories used as forest parking spaces and touristic utilities.

The least unit considered as „forest” is ground of area at least 0.01 ha. This rule is cited by series of law regulations associated with forests and forest management, including fundamental regulation of Polish cadaster [8]. As regards subject - matter „area” in this regulation is extended on grounds „temporarily devoid of forest plants” and „grounds associated with forest management”. It extends meaning of objects treated as “forests”.

In forest science there exists definition, which in classical description form gives *The small forest encyclopedia* [1]: “forest it’s a one of revive natural resources, forming in forest made process as an complex, in which flora, specific for a given biogeographical region, is distinguished by remarkably number participation of compact growing trees, animal world, local climate, water relations and is associated with soil with mutual influences and dependences”. Its definition does not introduce any criteria of area, but from economical point of view, understood as a forest raising, it’s made an assumption of minimum forest area as 5 ha. This criterion was adopted in creating of law regulations in relation to forest – field border forming [10]. Minimal area of forest complex as 5 ha was adopted in principles of the *National program for forestation enlargement* [6].

Interesting view of forming forest areas problem is representing by naturalists. According to them the main determinant of existing forest complex is existing of forest ecosystem under the given conditions, with specific biological diversification of forest biocenoses. The question of minimal area of ecosystem is the main problem of many ecological works, and any attempts tending to solve the issue meet a lot of difficulties. Generalize – population of species depend on area of forest, small forest are inaccessible for the following groups of species:

- species that require forest microclimate, which occurs in forests that cover large areas;
- species be characterized by great specimen areas in forest (predators);
- species connected by interdependences (predatory, symbiosis, parasitism) with other species locating under the given conditions.

The next problem, essential to species acting is their spatial preferences, associated with differences of, skirt and inner of, forest biocenoses. On the ground of its feature, species can be specified by 3 ecological groups:

- without clear spatial preferences (generalists);
- preferring skirt of forest;
- preferring interior of forest.

In theory of forest ecosystems, on the ground of empirical observations, there is isolated zone of „skirt of forest”. It is the area of existing forest and non forest species (species, which existing in the neighbourhood of forest, for example in agroecosystems). Other zone, be called “interior of forest”, is defined as free of strong outer influence. In this zone there exists only species characteristic for interior of forest. A lot of investigations confirm, that only inside of forest complex, about 200m from skirt of forest, there exists species specific for interior of forest and only to a depth of 200 meters from this boundary there are formed typical forest biocenoses. On this ground it was founded that in forest of square form and maximum area to 16 hectares there is exclusively a biotope of skirt of forest [4]. Minimal areas of species typical for inside of forest were indicated on the base of investigations only in forest areas more than 25 hectares [2, 3]. In 25 ha forests there are possibility of existing in case of example birds – one couple, which initialize population. It is only a sample of existing *flickering species*. Stability of population gives only its adequate numerous. Only populations defined as MVP (*minimum viable population*) aren’t in state of emergency of their genetical differential degradation and sufficient secure. It is possible only in suitable large area for interior of forest species [4].

A lot of ecologists and naturalists pay attention to problem of fragmentation of forest population seats, describe them as "islands" settled by a lot of individuals (Fig. 2). They show positive and negative features of this effect [4, 7, 9].

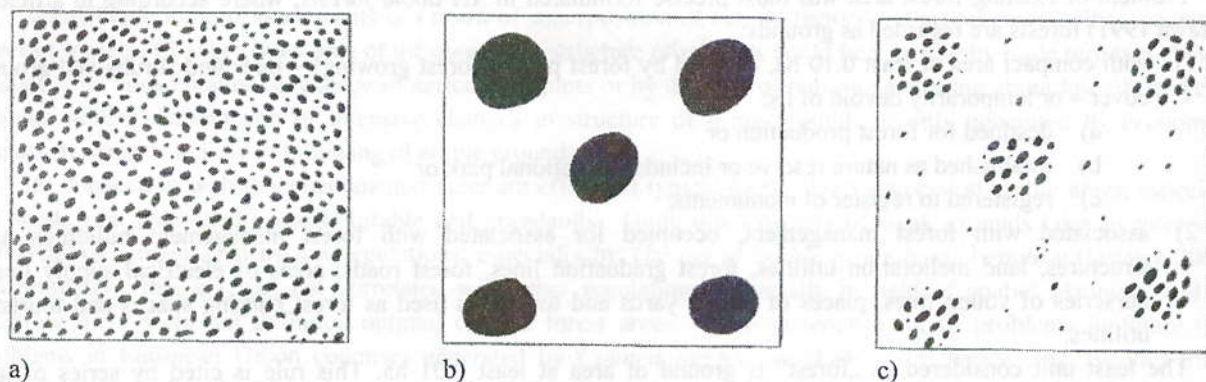


Fig. 2. The three different kinds of forest „islands” location, formed on the way of fragmentation: a) dispersed, b) island, c) cumulated (according to Krebs 1996).

Conclusion

Afforestation of useless for agriculture grounds could be considered to be a good method to exploit weak grounds, to bear in mind, taking any of decisions about afforestation – it settles a question of using this grounds “practically for ever”. Realization of afforestation should be executed according to the plan. This paragraph is focused on space problems, but in wide extend of analysis there appears problems of preservation of living on “islands” species, problem of spatial interactions: agrar – forest and forest agrar complexes, problem of landscape forming, problem of different manage an estate then agrar or forest. Therefore it’s an evident conclusion, that processes of afforestation on defined area should be preceded by a number of analyses, whose the aim will be elimination of spatial conflicts, which should take place in the future.

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