

INFLUENCE OF TEMPERATURE ON PRIMARY PRODUCTIVITY OF MEADOW ECOSYSTEMS WITHIN CHERNIHIV POLISSYA (UKRAINE)

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Climatic indicators determine the processes of the formation of natural ecosystems and determine their further adaptation to changes in bioclimatic factors.

When estimating the dependence of the growth of net primary production of meadow ecosystems of Polissya on the dynamics of surface temperature, a correlation-regression analysis was used, in which the correlation coefficient allows determining the presence, nature and density of the connection. The maximum, minimum and average monthly temperatures of the vegetative seasons in 2017-2019 were used in the study. In the regression analysis, the obtained data were evaluated on the Cheddok scale.

According to the results obtained from September to November in 2017-2019, there is a moderate directly proportional dependence of the biomass growth rate on the value of the maximum temperature. During the fall, the plants gradually prepare for dormancy, so the growth rate and metabolic rate decrease. With the increase in the maximum temperature at this time (as it was recorded in 2019), there is an increase in biomass growth, the vegetative season of plants ends later, and they do not have time to prepare well for the physiological rest. It is recorded that the abnormal increase in the amplitude between the maximum and average temperatures in these months has a negative effect on the state of meadow cenoses.

The weak effect of the maximum temperature on the growth of net primary production in April can be explained by the beginning of the vegetating season, during which the growth of biomass occurs gradually. The inverse link for the maximum temperature in May and June is typical, in July and August, the link is absent at the maximum values of temperature.

It was found that the growth of biomass for meadow ecosystems in Polissya depends more on minimum temperatures than on maximum temperatures, as most species of meadow plants in Polissya are thermophiles, and therefore critical minimum temperatures negatively affect their physiological characteristics and biochemical processes. The increase in amplitude between the minimum and average temperature disrupts the life processes and causes a depressed state of the species. It should be noted that all the data obtained for the correlation coefficient for the minimum temperature are directly proportional, so the more the minimum temperature falls, the less the value of biomass growth is observed.

Our results confirm that the low temperature in the period from August to October causes a slight increase in biomass growth. According to the data obtained, in the period from May to July, there is the link, but it is weak at minimum temperatures. This can be explained by seasonality, because in the above mentioned months, the

minimum temperature is higher than in another period, and therefore, even with the minimum values is acceptable to maintain the viability of plants. When calculating the impact of minimum temperatures on the growth of biomass, there were some temporary abnormal one-time temperature drops in the summer of 2017, which were not taken into account.

According to the results of the regression analysis, the correlation coefficient for the average value of temperature by months has mainly a moderate effect on the growth of net primary production of meadow ecosystems in Polissya.

Thus, the proven directly proportional dependence of biomass growth of meadow ecosystems on the amplitude of temperature values in the temperate climate of Polissya allows us to predict that the main threat to the biodiversity of this region will be a change in the amplitude of temperature values. With the change of seasonality and the predicted increase in temperatures according to climate change scenarios, the quantitative indicator of vegetation biomass growth will decrease, which, in turn, will negatively affect the characteristics of fauna, soil processes and adaptation indicators of plant coenoses.