

Why periodicity important for periodical cicadas

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Periodical cicadas
Magicicada septendecim

Periodicity: Populations that live longer than one year are much more numerous in some years than others and gradually develop a fixed schedule over time.

Broods: According to the year cicadas emerged as adults from the underground.

Nymphs: Immature form of insects

How did periodicity develop?

Synchronization in its brood (fixed development time) – During the nymphal stage, the fast-developing individuals will wait for the slow one to catch up.



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Advantages of having periodicity

Prevention of over-hunting

A vast number (sometimes up to millions!) of individuals appear simultaneously will saturate the predators fast. The size of the population will not be affected by predation.

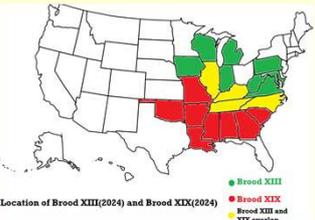


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Higher survival rate

During the ice age, cicadas that stayed underground during the summer had a better survival rate. Also, the longer the life cycle, the more likely it is to avoid the rare cold summers.

Periodicity reduces the probability of cicadas interbreeding with different species or generations of cicadas, increasing the survival rate of offspring.



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What happens to those who do not keep up with the primary brood development time?

They died due to the natural selection force.

Intraspecific competition – older nymphs will take the younger nymphs' habitat. Without suitable habitat, the nymphs will die.

Predation and lack of mating – For those individuals that do not co-occur as the main brood. Without the advantage in numbers, they will be preyed upon by predators before they can reproduce.

Reference

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