Optimizing S. cerevisiae Population Networks for Ecological Resilience

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Contemporary advances in graph theory and network science allow ecologists and biologists to develop methods to preserve our ecosystem. One of the ways ecosystems have been preserved is through government involvement. Government-funded organizations safeguard endangered populations by creating protected areas. Such areas can serve a specific purpose, like wildlife corridors that connect populations separated by humans. However, ongoing research demonstrates the need to engage existing areas with artificial landscapes more methodically. Recently, researchers examined populations by approaching ecology using a graph theory framework, reducing a complex population network into an easily approachable two-dimensional figure. Hundreds of biological and ecological principles that determine the resilience of a population can be modeled using graph theory, and computer models can be used to create virtual population networks optimized for such properties.

Awards Won: