

PUBLIC COMMENTS SUBMITTED AT
HIGHLANDS COUNCIL MEETING
MAY 18, 2023

Glossary of Scientific Terms

Anti-entropic: Also known as negentropic. Any open system that takes in more energy than it releases and stores that energy in growth and increasing complexity.

Beltian bodies: Small globules on the leaf tips of the Bull's-horn acacia that are harvested by acacia ants for protein.

Bifurcation: A rapid, large-scale change in a complex system's behavior due to iterative, positive feedback within the system.

Biodiversity: Biological diversity at any scale, but if the scale is not defined it is inferred to be at the species level, which is the number of species within an ecosystem. In this regard biodiversity is the same thing as species richness.

Biomass: The total amount of both living and nonliving organic matter in an organism or ecosystem.

Biosphere: The largest scale of biological organization, which includes all of the ecosystems that cloak the planet.

Butterfly effect: The idea that a small-scale change in a complex system through feedback can eventually result in large-scale consequences.

Carrying capacity: The maximal population size that an ecosystem can support without being degraded.

Cellular respiration: The breaking down of carbohydrate molecules within a cell to access the stored energy within the molecules.

Chaos theory: The original name given to the study of nonlinear systems. It is now called complex systems science.

Closed system: A system into which energy and materials cannot enter.

Coevolution: The process by which species adapt to each other so that they can more successfully coexist.

Competitive exclusion: The process by which a very competitive species excludes other species from an ecosystem.

Complex system: A nonlinear system that feeds back on itself as the parts interact in different ways at different times.

Complex systems science: The study of nonlinear systems. It used to be called chaos theory.

Convergence: The process in which minor perturbations within a system tend to cancel each other out.

Dynamic equilibrium: The state in an open system where the amount of energy entering the system equals the amount leaving the system.

Ecosystem: An open system that includes populations of species, nonliving biomass, and the physical environment all interacting together.

Emergent properties: Aspects of a complex system's behavior that result from interactions within the system that couldn't have been predicted by an examination of the system's parts. Due to emergent properties, in a complex system the whole is greater than the sum of its parts.

Entelechy: Self-completing, Aristotle's view of the natural world. Matter and form are linked in a continuous process of change.

Entropy: A process in which a system becomes disorganized and simplified because it loses more energy from its transformations.

Ephemeral vernal wildflowers: flowering plants that grow early in the spring and die back to ground level when the forest canopy leafs out.

First law of thermodynamics: Law of conservation of energy that states that energy can neither be created nor destroyed.

Fuzzy boundaries: Spatial boundaries that allow for the movement of energy, materials, and information between nested complex systems.

Habitat: The ecosystem or ecosystems in which an organism lives.

Intermediate levels of disturbance: A disturbance to an ecosystem that is moderate and not large-scale.

Isotope: any of two or more forms of an element that have the same chemical properties but differing atom weights based on differing numbers of neutrons.

Keystone predator: A predator that keeps competitive exclusion in check and therefore fosters high levels of species richness within an ecosystem.

Kilocalorie The energy needed to raise 1000 grams of water one degree Celsius.

Kinetic energy: The energy of motion.

Law of conservation of energy: The first law of thermodynamics, which states that energy can neither be created nor destroyed.

Law of entropy: The second law of thermodynamics, which states that when energy is transformed from one state to another, some of the energy is lost from the system where the transformation occurs, resulting in entropy.

Limits to growth: The law that states that all systems have to reach dynamic equilibrium in order to sustain themselves.

Linear system: A system in which all the parts work in a lockstep pattern, like a machine.

Microhabitat: A sub-portion of a habitat where an organism exists.

Mutualism: A mutually beneficial interaction between two individuals from different species that is essential for the survival of one or usually both individuals.

Mycorrhizae: Fungi that get their carbohydrate energy from the roots of plants while allowing the plants to dramatically increase their uptake of nutrients and water.

Natural selection: A process in nature where organisms best adapted to their environment have greater chances for survival.

Negative feedback: Feedback within a complex system that maintains the system's status quo.

Nestedness: Complex systems at different spatial scales that are nested one within another.

Niche: The totality of all an organism's interactions with other organisms and the physical environment; its total ecological role.

Nonlinear system: A complex system that feeds back on itself as the parts interact in different ways at different times.

Old growth forest: A forest that has reached dynamic equilibrium.

Open system: A system in which energy and materials flow in and out.

Photosynthesis: The cellular process by which light energy is used to combine carbon dioxide and water, forming carbohydrate energy storage molecules.

Positive feedback: Directional, iterative feedback that may bring about a bifurcation event.

Proximate knowledge of initial conditions: The idea that absolutely accurate measurements are not necessary for making accurate predictions.

Punctuated equilibria: The theory that the development of new species occurs quickly, not gradually, and is followed by long periods of stasis where little further change occurs.

Reductionism: The scientific approach that complex phenomena can be understood by examining their parts.

Saprophytes: Decay-producing organisms that get their energy from nonliving organic material.

Second law of thermodynamics: The law of entropy, which states that when energy is transformed from one state to another, some of the energy is lost from the system where the transformation occurs, resulting in entropy.

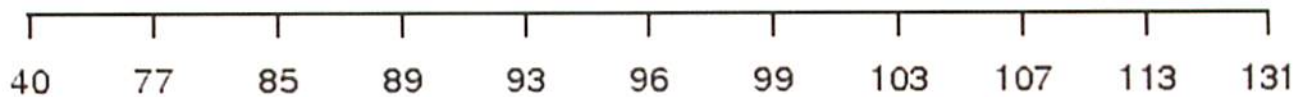
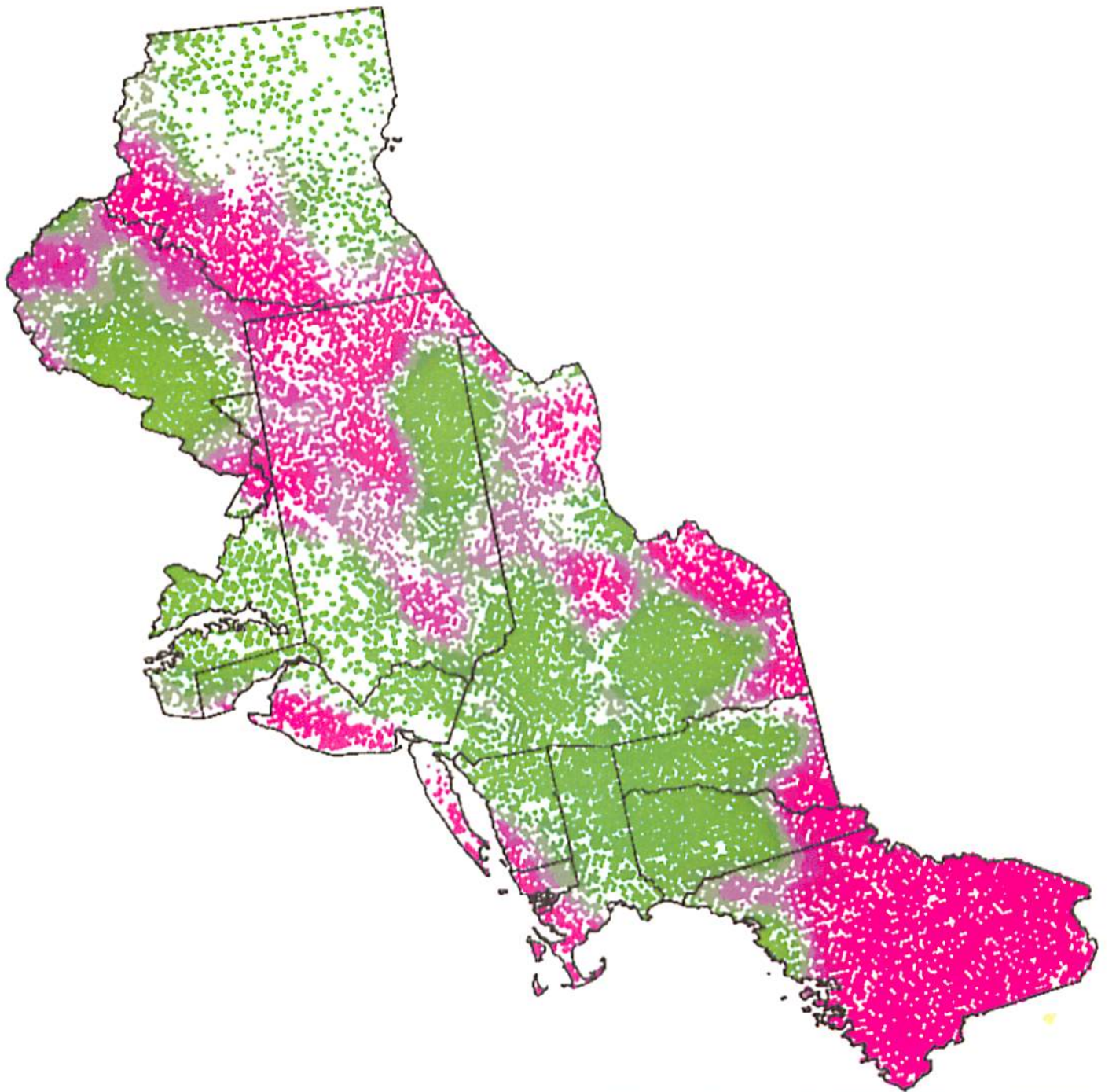
Self-organization: Increasing complexity in a complex system as it takes in more energy than it releases.

Species richness: The number of species in an ecosystem.

Static equilibrium: The final entropic state of a closed system that has dissipated its energy.

Succession: Changes in populations of species in an ecosystem through time, initiated by some form of disturbance.

Uniformitarianism: Hutton's theory that all geological features could be explained by slow, accumulative change.



Committee Meeting

of

SENATE ENVIRONMENT COMMITTEE
ASSEMBLY ENVIRONMENT AND SOLID WASTE COMMITTEE

SENATE BILL No. 1

and

ASSEMBLY BILL No. 2635

(The "Highlands Water Protection and Planning Act")

LOCATION: Skylands Manor
Ringwood State Park
Ringwood, New Jersey

DATE: March 30, 2004
7:00 p.m.

MEMBERS OF COMMITTEES PRESENT:

Senator Bob Smith, Co-Chair
Assemblyman John F. McKeon, Co-Chair
Assemblyman Michael J. Panter, Co-Vice Chair
Senator Henry P. McNamara
Assemblyman Robert M. Gordon
Assemblyman Reed Gusciora
Assemblyman Louis M. Manzo
Assemblyman Guy R. Gregg
Assemblyman John E. Rooney



ALSO PRESENT:

Judith L. Horowitz
Carrie Anne Calvo-Hahn
Lucinda Tiajloff
Office of Legislative Services
Committee Aides

Kevil Duhon
Senate Majority
Committee Aide
David Eber
Assembly Majority

Thea M. Sheridan
Assembly Republican
Committee Aide

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Hearing Unit, State House Annex, PO 088, Trenton, New Jersey

What I was struck by today is, that in a lot of ways, I always think that we, kind of, live the same lives, we're just in different places. I heard people -- "Yeah, I was on the zoning board, but the new administration kicked me out because I was pro-development." Someone else got up and said, "Yeah, I'm the Republican, and we're with that group." And, you know, it's the same, regardless of whatever town or city you're in, anywhere in the State of New Jersey.

The difference is that those that aren't within what we've designated to be the core -- and make mistakes -- like in my own community, in West Orange, where I'm the Mayor -- Our mistakes are translated, maybe, into a loss of the quality of life, maybe more traffic, air not as clean as it could be, probably extra taxes because of the school children that come in. And there's permutations of the debate over condos -- they're not going to have school children, we'll make money, whatever it might be. But if we make a mistake, that's where the transgression goes to, our own individual quality of life, ergo home rule.

If there are mistakes made by local government, relative to the core that's remaining, the entire State of New Jersey will suffer, not to mention Pennsylvania, New York. This implication goes beyond even New Jersey. And this is why, in a way, I pray for wisdom for all of us, as we go through this evaluative process, to make certain that we do the right thing, because we can't afford not to.

And with that, we look forward to working hard together. And thank you all, again.

I'm going to turn it over to Senator Smith. (applause)

SENATOR SMITH: Thank you, Chairman.

The Assembly Environment Committee and Chairman McKeon, have worked long and hard on this. And we're going to be working longer and harder. We've got a pretty hectic schedule ahead of this. But your comments tonight make all the difference in the world.

If there was one lesson tonight, it was the voice in the background from Tom Cruise, "Show me the money." (laughter) And Chairman McKeon and I pledge to you that we will show you the money. We're currently working with the Governor's Office to put together the dedicated and guaranteed source of funding so that the Highlands, which is making a sacrifice for the rest of the state, is properly compensated. We will show you the money.

And let us not lose track of the fact that this is a bill about water. It's about a lot of things, but it's the water supply for the future of the State of New Jersey. We can't have-- Are there any builders left in the room? There will be no residential housing if there's not water. There will be no building, no factories, no anything if there isn't a good, clean, sufficient water supply.

If you look at the Task Force's report, it indicated that the cost of water treatment is estimated to increase \$30 billion if we don't protect this water supply. What more do we need to know? How many times do we have to be hit in the side of the head with a 2x4? This is one of our last chances to keep New Jersey's future bright.

Now, some comments that you need to know: If you would like to supplement our record or send in comments that you'd like us to consider, please take this address: Assembly and Senate Environment Committees, State House Annex, P.O. Box--

UNIDENTIFIED SPEAKER FROM AUDIENCE: Wait a minute.

