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Everglades Online Thesaurus: A Standard Vocabulary for the South Florida Ecosystem

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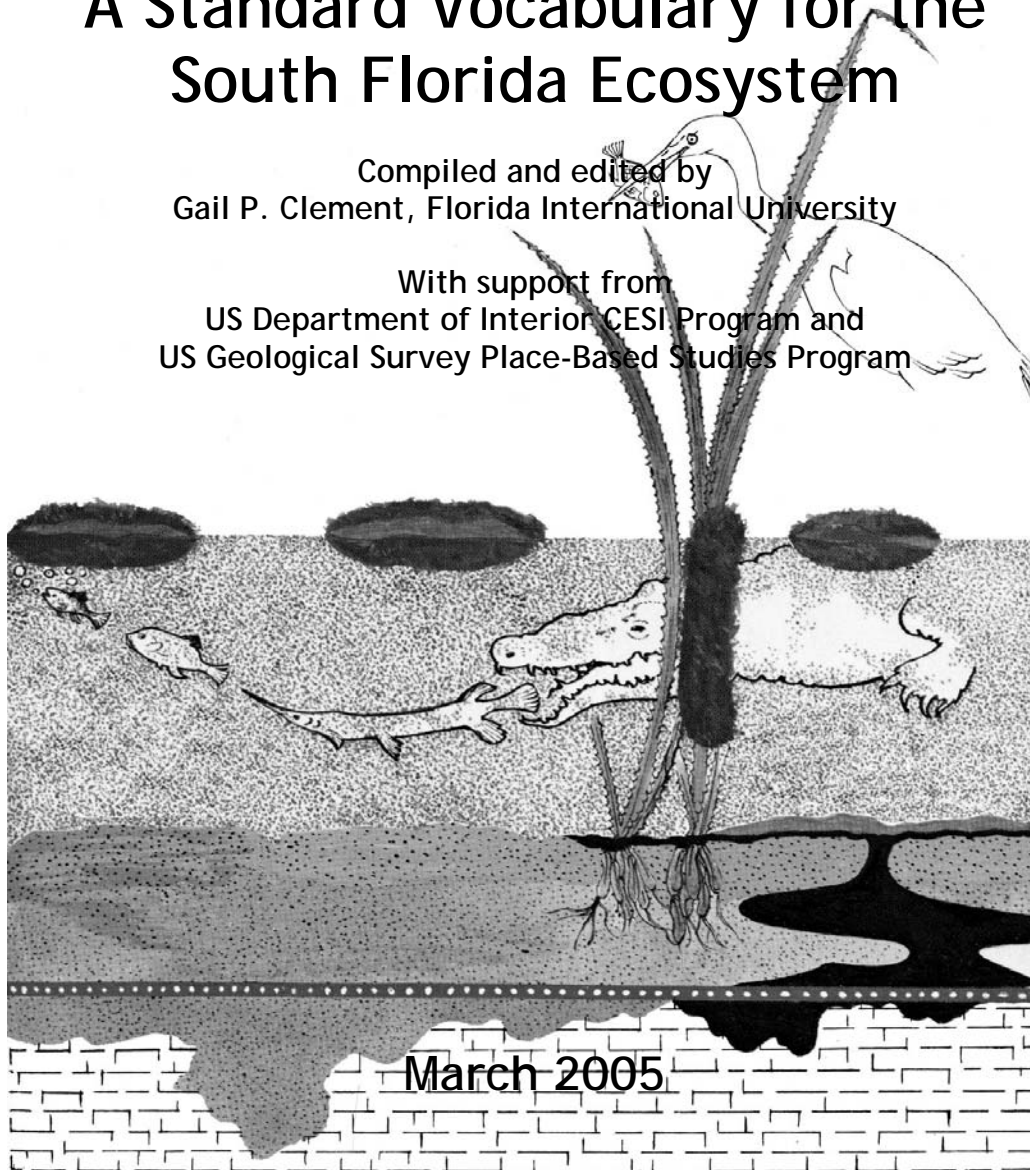
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Everglades Online Thesaurus: A Standard Vocabulary for the South Florida Ecosystem

Compiled and edited by
Gail P. Clement, Florida International University

With support from
US Department of Interior CESI Program and
US Geological Survey Place-Based Studies Program



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INTRODUCTION

Purpose

The *Everglades Online Thesaurus* is a structured vocabulary of concepts and terms relating to the south Florida environment. Designed as an information management tool for both information searchers and metadata creators, the *Thesaurus* is intended to improve information retrieval across the many disparate information systems, databases, and web sites that provide Everglades-related information. The vocabulary provided by the *Everglades Online Thesaurus* expresses each relevant concept using a single 'preferred term', whereas in natural language many terms may exist to express that same concept. In this way, the *Thesaurus* offers the possibility of standardizing the terminology used to describe Everglades-related information — an important factor in predictable and successful resource discovery.

Yet the *Everglades Online Thesaurus* is more than a controlled list of sanctioned keywords. Its structure, developed in conformance with the ANSI/NISO Z39.19 Standard, *Guidelines for the Construction, Format, and Management of Monolingual Thesauri*, provides a database of interrelated terms that enable users to navigate among different terms having the same meaning (synonymy), and among terms used at different levels of detail (granularity). The *Thesaurus* also points users to additional terms associated with their preferred search term, offering the opportunity to develop a broader, more comprehensive search strategy.

For additional discussion on the purpose and benefits of thesaurii in information retrieval, the reader is encouraged to consult the following sources:

Aitchison, Jean, Gilchrist, Alan and Bawden, David, 2000, *Thesaurus construction and use: a practical manual*, 4th edition, Chicago: Fitzroy Dearborn Publishers, 218 pp.

Milstead, Jessica, 2000, *About Thesaurii*, Available online at URL: <http://www.bayside-indexing.com/Milstead/about.htm>; last accessed 3-29-05)

Milstead, Jessica, 1998, *NISO Z39.19: Standard for Structure and Organization of Information Retrieval Thesauri*, paper presented at the *Taxonomic Authority Files Workshop*, Washington, DC, June 23, 1998. Available online at URL: <http://www.bayside-indexing.com/Milstead/z39.htm>; last accessed 3-29-05)

Scope

The *Everglades Online Thesaurus* has a multidisciplinary scope that reflects the diversity of studies and interests in the south Florida environment -- both the natural system and human impacts to it. The *Thesaurus* currently contains approximately 4700 terms - 2800 preferred terms recommended for use and 1700 non-preferred terms not recommended for use. The subject areas included in the *Everglades Online Thesaurus* include the natural, physical and social sciences, as well as non-scientific terms reflecting the long history of human settlement and human impacts on the natural system. A list of major subject categories are show in Figure 1.

Figure 1: Subject Categories in *Everglades Online Thesaurus*

Section 100: Atmosphere (air, climate)

Section 200: Lithosphere (soils, sediments, geologic processes)

Section 300: Biosphere (organisms)

Section 400: Hydrosphere (freshwater and marine water; waters; water bodies)

Section 500: Ecosystem and Landscape (ecological communities, natural environments, landscape)

Section 600: Chemical and Physical Aspects (of naturally occurring materials)

Section 700: Human environment (built environment, human settlements, land setup, resources)

The *Everglades Online Thesaurus* is not, however, intended to be a comprehensive source of vocabulary for the south Florida environment. Rather, it is meant to complement more established and generic sources of vocabulary already established by government or other authorities, such as:

The *Geographic Names Information System* (GNIS), which is the authoritative source for domestic geographic names. It is developed by the US Geological Survey in cooperation with the U.S. Board on Geographic Names (BGN)

The *Integrated Taxonomic Information System* (URL: <http://www.itis.usda.gov/>), which is an authoritative source for the biota of North America. It is maintained by the USGS's National Biological Information Infrastructure (NBII) program and numerous other partner agencies

The Florida Geological Survey's stratigraphic nomenclature, as detailed in several of their publications including:

Scott, T. M., 1992, *A Geological Overview of Florida*, Florida Geological Survey Open File Report 50, 78 p.

Florida Geological Survey Map Series 146, *Geologic Map of the State of Florida*, 2001

Florida Geological Survey Open File Report 80, *Text to accompany the Geological Map of the State of Florida*, 2001.

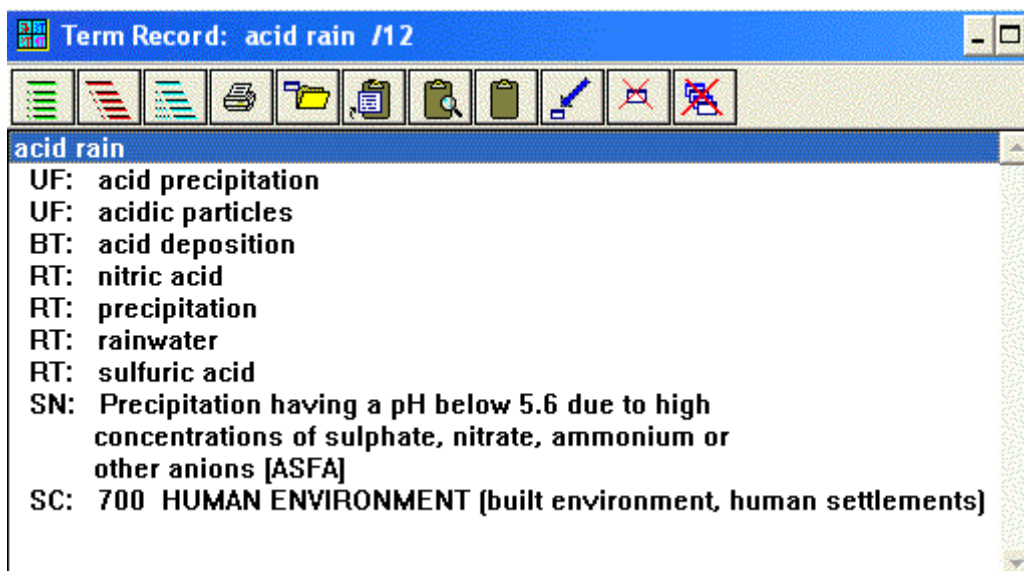
Structure

The structure of a thesaurus can facilitate understanding of a subject area by showing the inter-relationships between concepts. As in other subject thesauri, the terms in the *Everglades Online Thesaurus* are linked together by three types of relationships:

- **Hierarchical relationships**, which link terms to other terms expressing more general and more specific concepts - i.e. broader terms and narrower terms. Hierarchically related terms are grouped under general subdivisions, which in turn are grouped into the areas of knowledge covered by the *Thesaurus*. Broader terms are indicated by the prefix **BT**, narrower terms by the prefix **NT**.
- **Associative relationships**, which link terms to similar terms (related terms) where the relationship between the terms is non-hierarchical. Related terms are indicated by the prefix **RT**.
- **Equivalence relationships**, which link "non-preferred" terms to synonyms or quasi-synonyms which act as "preferred" terms. Non-preferred terms are indicated by the prefix **UF**.

An example of a *Thesaurus* entry displaying all three types of relationships is shown in Figure 2 below.

Figure 2. Sample *Thesaurus* entry showing preferred term (acid rain), along with a broader term



(acid deposition) and associated terms (precipitation, etc.) Displayed from *MultiTes* software.

Thesaurus Development

The *Everglades Online Thesaurus* was developed as a data management standard for information management with funding from the Department of Interior Critical Ecosystem Studies Initiative and the US Geological Survey's Place-Based Studies Program.

The scope of the *Everglades Online Thesaurus* was determined by indexing a corps of approximately 48 documents relating to the greater Everglades ecosystem. These documents include well-established textbooks or reference books; seminal papers; conference proceedings, and web sites. A partial list of source documents indexed for the *Everglades Online Thesaurus* follows:

INTRODUCTION

Davis, Steven M. and John C. Ogden, editors, *Everglades : the ecosystem and its restoration*, Delray Beach, Fla. : St. Lucie Press, c1994, 826 p.

Lodge, Thomas E., *The Everglades handbook : understanding the ecosystem*, Delray Beach, Fla. : St. Lucie Press, c1994, 228 p.

McCally, David, *The Everglades, an environmental history*, Gainesville : University Press of Florida, 1999, 215 p.

Program Management Committee, Florida Bay and Adjacent Marine Systems Science Program, Florida Bay Program & Abstracts, *Joint Conference on the Science and Restoration of the Greater Everglades and Florida Bay Ecosystem "From Kissimmee to the Keys"*, April 13-18, 2003, Palm Harbor, Florida.

South Florida Ecosystem Restoration Task Force and Working Group, *Greater Everglades Ecosystem Restoration (G.E.E.R.) Science Conference, Defining Success*, Naples, Florida, December 11-15, 2000.

U. S. Army Corps of Engineers, Jacksonville District and South Florida Water Management District, *Central and Southern Florida Project Comprehensive Review Study, Final Integrated Feasibility Report and Programmatic Environmental Impact Statement, Summary*. April 1999, 34 p.

U.S. Geological Survey Program on the South Florida Ecosystem : *proceedings of South Florida Restoration Science Forum, May 17-19, 1999, Boca Raton, Florida* / by Sarah Gerould and Aaron Higer, compilers.

U.S. Geological Survey Program on the South Florida Ecosystem : *proceedings of the technical symposium in Ft. Lauderdale, Florida, August 25-27, 1997*.

Terms selected from these documents were organized into one or more subject categories, identified in Figure 1 above. These categories were selected based on a review and concatenation of major subject headings used in existing thesauri that cover natural sciences and the environment. The thesauri consulted for this purpose are as follows:

European Environment Information and Observation Network, *GEMET Thesaurus*, Accessible online at URL: <http://www.eionet.eu.int/gemet>; last accessed 3-29-05.

United Nations Environment Programme, *INFOTERRA Thesaurus* (defunct). Accessible online at URL: <http://www.cedar.at/sitemap.htm?page=/unep/infoterra/index.html>; last accessed 3-29-05.

California Environmental Resources Evaluation System and the National Biological Information Infrastructure (NBII), (1996, now defunct) *CERES/NBII Thesaurus*, Accessible online at URL: http://ceres.ca.gov/thesaurus/help.desk/thesaurus/bs_thes.html; last accessed 3-29-05.

Hill, Linda H., 2001, *USGS Gateway to the Earth Project DRAFT Thesaurus*, Version 5, Accessible online at URL:

http://alexandria.sdc.ucsb.edu/%7EElhill/usgs_terms/usgs/html5/index.htm; last accessed 3-29-05.

U.S. Geological Survey Library, *USGS Enterprise Web Thesaurus*, Available online at URL:http://library.usgs.gov/eweb_thes.html; last accessed 3-31-05.

Use of the *Everglades Online Thesaurus*

The *Everglades Online Thesaurus* can be used in two ways:

- (1) The complete database version, available on CD, is accessible using the thesaurus construction software MultiTees version 8.0. This database version provides all terms (both preferred and non-preferred) in alphabetical order, and enables the user to generate other views of the *Thesaurus* such as a hierarchical view; a classified view; a rotated index; and more.
- (2) The printed version of the *Everglades Online Thesaurus*, included in this document, is presented in a Hierarchical view, with all terms organized according to the subject categories detailed in Figure 1 (e.g, 'ATMOSPHERE', LITHOSPHERE' etc.) The Hierarchical view of the *Thesaurus* includes three types of terms:
 - i. preferred terms, denoted in plainface type, which are the terms recommended for use by searchers and metadata creators;
 - ii. classes, which are denoted in **boldface type**, and serve as the main heading for a group of terms, such as '**fossils**' or '**atmosphere processes**'. Classes are acceptable for use in for information retrieval, but because of their broad nature they should be avoided if a more specific, narrower term is available.
 - iii. Nodes, denoted in *italic typeface*, are non-preferred (that is, non-approved) terms inserted to distinguish related terms and provide easier navigation of the *Thesaurus*. Examples of nodes include: *levels of government*; *soils (by type)*; and *sediment characteristics*.

Future Development

The Everglades Digital Library program at Florida International University's Green Library is the maintenance organization for the *Everglades Online Thesaurus*. Maintenance responsibilities include updates, appropriate version management, recognition of appropriate standards and interoperability considerations, and openness to work with partners to address issues. Persons or organizations interesting in using the *Thesaurus* or in contributing to its future development should contact the *Thesaurus* editor, Gail Clement, at FIU (phone: 305/348-6708; e-mail: clementg@fiu.edu).

Acknowledgements

This first edition of *Everglades Online Thesaurus* was compiled and edited by Gail Clement with input and editorial assistance from the US Geological Survey's South Florida Information Access (SOFIA) information management team. FIU PhD student Tina Ugarte developed the community classification system used in Section 500 of the *Thesaurus* in consultation with existing authorities.

INTRODUCTION

Funding for thesaurus development was provided through the Department of Interior's Critical Ecosystem Studies Initiative (CESI), the US Geological Survey's Place-Based Studies Program, and the Center for Environmental Studies at Florida Atlantic University. The support and encouragement of program managers from these organizations is gratefully acknowledged.

SECTION 100: ATMOSPHERE (air, climate)**atmosphere processes**

- . atmospheric motion
- . . atmospheric circulation
- . . wind
- . atmospheric radiation
- . . solar radiation
- . . . sunlight
- incident light
- rainbows
- . . . ultraviolet radiation
- . climate
- . . climate change
- . . . desertification
- . . . global warming
- . . . greenhouse effect
- . . climate events
- . . microclimate
- . . *seasons*
- . . . autumn
- . . . dry season
- . . . spring
- . . . summer
- . . . wet season
- . . . winter
- . . weather
- . . . air temperature
- . . . clouds
- . . . cold fronts
- . . . dew
- . . . droughts
- . . . fog and haze
- . . . freezes
- . . . humidity
- . . . lightning
- . . . precipitation
- dew
- dust
- frozen precipitation
- rainfall
- . . . sea breeze
- . . . smoke
- . . . storms
- dust storms
- hurricanes and tropical storms

- thunderstorms
- tornadoes
- . . . visibility
- . . . wet-dry cycles
- . evapotranspiration
- . land-atmosphere exchange
- . ocean-atmosphere interaction
- . ozone depletion and superabundance
- . temperature inversions
- atmosphere properties**
- . air quality
- . atmospheric gases
- . . air
- . atmospheric particulates
- . atmospheric pressure
- . atmospheric structure
- . . mesosphere
- . . troposphere
- . . . ozone layer
- . . upper atmosphere

SECTION 200: LITHOSPHERE (soils, sediments, geologic processes)

earth processes

- . accretion
- . calcification
- . compaction
- . diagenesis
- . earthquakes
- . geothermal activity
- . heat flow
- . hydrothermal processes
- . intrusion
- . isostasy
- . *land surface processes*
 - . . biogenic processes
 - . . . bioturbation
 - . . burial
 - . . coastal processes
 - . . compaction
 - . . erosion
 - . . floods
 - . . fluvial processes
 - . . karst processes
 - . . land subsidence
 - . . . soil subsidence
 - . . liquefaction
 - . . mass wasting
 - . . . landslides
 - . . sediment transport
 - . . sedimentation
 - . . soil dynamics
 - . . weathering
 - . . whiting events
 - . . wind transport
- . lithification
- . magmatism
- . metamorphism
- . mineral cycle
- . mineralization
- . seismic activity
- . stress and strain
- . volcanic activity

earth properties

- . geologic age
 - . . absolute age
 - . . relative age

- . geologic anomalies
- . geomagnetism
 - . . paleomagnetism
 - . . rock magnetism
- . geophysical properties
 - . . moisture content
 - . . pore pressure
 - . . porosity
 - . . rock magnetism
 - . . texture
- . lithology
- . soil properties
 - . . soil depth
 - . . soil fertility
 - . . soil mechanics
 - . . soil structure
- . *topographic characteristics*
 - . . terrain elevation
 - . . topographic relief

fossils

- . fossil indicators
- . microfossils
- . nanofossils
- . trace fossils

geologic structures

- . faults
- . rifts and sutures
- . sedimentary structures
 - . . bedding structures
 - . . biogenic structures
 - . . . algal mats
 - . . . alligator holes
 - . . . carbonate banks
 - . . . stromatolites
 - . . turbidity current structures
- . *structural* components of the Earth
 - . . Earth's core
 - . . Earth's crust
 - . . Earth's mantle
- . subsurface openings

landforms

- . alluvial fans
- . bars and spits
- . basins
 - . . geologic basins
- . beaches and shores

- . blowholes
- . borrow pits
- . buried channels
- . capes
- . caves
- . cliffs
- . coastal landforms
- . coastal plains
- . coasts
- . continents
- . deltas
- . deserts
- . dunes
 - . . foredunes
- . escarpments
- . floodplains
- . hills
- . hydrographic banks
- . islands
 - . . barrier islands
 - . . keys
 - . . tree islands
- . karst
- . marshes
- . mud flats
- . natural rock formations
- . piedmont
- . plains
- . reefs
 - . . coral reefs
 - . . . deep coral banks
 - . . . patch reefs
- . ridges
 - . . coastal ridges
- . river beds
- . shorelines
 - . . ancient shorelines
- . sinkholes
- . solution features
- . straits
- . submarine landforms
 - . . continental margins
 - . . continental rise
 - . . continental shelf
 - . . continental slope
 - . . hydrothermal vents

- . . seamounts
- . . submarine canyons
- . . submarine springs
- . terraces
- . tidal flats
- . tide pools
- . valleys
- . volcanoes

water bodies

- . . bays and gulfs
- . . channels
- . . creeks and sloughs
- . . drainage basins
- . . estuaries
- . . lagoons
- . . lakes and ponds
- . . oceans and seas
- . . reservoirs
- . . rivers and streams
- . . . rapids
- . . sediment water interface
- . . springs
- . . wetlands
- . . . constructed wetlands

minerals

- . carbonate minerals
- . . aragonite
- . . calcite
- . . dolomite
- . cinnabar
- . corundum
- . graphite
- . gypsum
- . heavy minerals
- . ilmenite
- . kyanite
- . leucosene
- . monazite
- . petroleum
- . rutile
- . sillimanite
- . spinel
- . staurolite
- . sulfate minerals
- . sulfide minerals
- . topaz

- . tourmaline
- . zircon

physiographic provinces

- . Apalachicola Embayment
- . Atlantic Coast Strip & Miami Rock Ridge
 - . . Miami Rock Ridge
- . Atlantic Coastal Ridge
- . Central Lake District
- . Central Ridge
- . Coastal Barrier Island Chain
- . coastal lowlands
- . Dougherty Karst
- . Eastern Flatlands
- . Eastern Flatwoods District
- . Everglades-Lake Okeechobee Basin
- . Florida Platform
- . Florida reef tract
- . Floridan Plateau
- . Gold Coast District
- . Highlands Ridge
- . Lake Okeechobee
- . Lake Wales Ridge
- . Mangrove and Coastal Glades
- . Miami Rock Ridge
- . Ocala Platform
- . Rocky Glades
- . Southern Coast and Islands
- . Southern Pine Hills District
- . Tifton Upland District

rocks

- . basement rocks
- . bedrock
- . igneous rocks
- . metamorphic rocks
- . sedimentary rocks
 - . . calcareous sandstones
 - . . dolostone
 - . . kaolin
 - . . limestone
 - . . . coquina
 - . . . oolitic limestone
 - . . phosphate rock
 - . . sandstone
 - . . shale
 - . . siltstone

sediments

- . *sediment characteristics*
- . . stratigraphic sequence
- . . . stratigraphic units
- . *sediments <by type>*
- . . carbonate sediment
- . . clastic sediment
- . . clay sediment
- . . evaporite
- . . mud
- . . sand and gravel
- . . silt

soils

- . soil horizons
- . soil profiles
- . *soils <by type>*
- . . loam
- . . marl
- . . mesic soils
- . . mineral soil
- . . organic matter
- . . . humus
- . . . organic litter
- . . organic soil
- . . peat
- . . saline soil
- . . xeric soil

SECTION 300: BIOSPHERE (organisms)

animal life

- . activity patterns
- . . anorectic activity
- . . circadian activity
- . . . crepuscular activity
- . . . diurnal activity
- . . . nocturnal activity
- . . . ultradian activity pattern
- . . cyclical activity
- . . displacement activity
- . . flight activity
- . . hyperactivity
- . . lunar rhythm
- . . physical activity
- . . resting
- . . roosting
- . . seasonal activity
- . . sleep
- . . surface activity
- . . thermoperiodic behavior
- . animal anatomy
- . . animal organs and organ systems
- . . . animal reproductive system
- eggs
- clutches
- mammae
- . . . blood and body fluids
- . . . circulatory system
- blood vessels
- heart
- lymphatic system
- sinuses
- spleen
- . . . digestive system
- . . . endocrine system
- hormones
- . . . immune system
- . . . integumentary system
- baleen
- dermis
- epidermis
- hair
- hooves
- nails

- . . . muscular system
- . . . nervous system
 - brain
 - lateral line
- . . . respiratory system
 - sinuses
- . . . sense organs
 - eyes
 - otoliths
 - sinuses
- . . . special organs
- . . . urinary system and external excretions
 - excretory products
 - urine
- . . animal tissues and cells
 - . . . chromosomes
 - . . . genes
 - . . . marrow
- . . body regions and structures
 - . . . abdomen
 - . . . adhesive organs
 - . . . appendages
 - . . . attachment hooks
 - . . . body cavity
 - . . . body form
 - . . . buoyancy organs
 - . . . byssus
 - . . . central disc
 - . . . cephalothorax
 - . . . electric organs
 - . . . extremities
 - . . . face and neck
 - . . . fat body
 - . . . glands
 - . . . haptor
 - . . . head
 - . . . idiosoma
 - . . . ink gland
 - . . . lopophore
 - . . . mantle
 - . . . milk
 - . . . opisthosoma
 - . . . orifices, pores and cavities
 - . . . pedicle
 - . . . polyp
 - . . . proglottid

- . . . prosoma
- . . . radial arms
- . . . scolex
- . . . silk glands
- . . . siphuncle
- . . . skeletal and supporting structures
 - skeleton
 - bones
 - dentition
 - jaws
 - skull
 - vertebrae
 - . . . stalk
 - . . . strobila
 - . . . tail
 - . . . thorax
- . . . water current system
- . . . water vascular system
- . . . zoid
- . animal behavior
 - . . abnormal behavior
 - . . agonistic behavior
 - . . . aggressive behavior
 - fighting
 - pecking
 - predatory behavior
 - threat behavior
 - . . . defensive behavior
 - . . animal migration
 - . . . anadromy
 - . . . overwintering behavior
 - . . . vertical migration
 - . . animal tracks
 - . . animal signals
 - . . . display
 - . . . flashing
 - . . . scent
 - scent marking
 - vocalization
 - calls
 - . . avoidance behavior
 - . . basking
 - . . competitive behavior
 - . . courtship behavior
 - . . display behavior
 - . . feeding behavior

- . . . cannibalism
- . . . coprophagy
- . . . deposit feeding
- . . . fall feeding
- . . . feeding rate
- . . . filter feeding
- . . . fluid feeding
- . . . food carrying
- . . . foraging
- . . . geophagy
- . . . grazing
- . . . lactation
- . . . lithophagy
- . . . necrophagy
- . . . plankton feeding
- . . . saprophagy
- . . . scavenging
- . . . winter feeding
- . . . xylophagy
- . . flashing
- . . grooming behavior
- . . instinctive behavior
- . . . consummatory behavior
- . . . drive
- . . . motile response
- . . . motivation
- . . . reflex behavior
- . . . releasing mechanism
- . . . ritualized behavior
- . . intraspecies interactions
- . . . attracting
- . . . ignoring
- . . . repelling
- . . learning
- . . mimicry
- . . movements
- . . nest building
- . . nesting
- . . orientation and homing
- . . . kinesis
- . . . animal navigation
- . . . spatial orientation
- . . parental behavior
- . . . care of young
- incubation
- . . play behavior

- . . posture
- . . seasonal behavior
 - . . . aestivation
 - . . . hibernation
 - . . . phenology
- . . sexual behavior
- . . social behavior
 - . . . aggregating behavior
 - flocking
 - herding
 - schooling
 - swarming
 - . . . altruistic behavior
 - . . . colony formation
 - . . . comfort behavior
 - bathing
 - grooming
 - preening
 - . . . communication
 - animal signals
 - display
 - flashing
 - scent
 - scent marking
 - vocalization
 - calls
 - interspecific communication
 - intraspecific communication
 - . . solitary behavior
 - . . species recognition
 - . . social hierarchy
 - . . territorial behavior
 - . . territoriality
 - . . warning behavior
- . animal growth and development
 - . . gestation
 - . . hatching
 - . . life cycle
 - . . . life expectancy
 - . . . maturation
 - . . . mortality
 - . . . natality
 - . . metamorphosis
 - . . molting
 - . . ontogenesis
 - . . progenesis

- . . regeneration
- . . zygote
- . animal habitations
 - . . burrows
 - . . cocoons
 - . . dens
 - . . home range
 - . . honeycombs
 - . . lac cells
 - . . larval cases
 - . . mounds
 - . . nests
 - . . rookeries and roosts
 - . . spawning beds
- . animal life functions
 - . . animal nutrition
 - . . . appetite
 - . . . diet
 - diet deficiencies
 - dietary requirements
 - prey
 - . . . digestion
 - . . . drinking
 - . . . food availability
 - . . . forage
 - . . . herbage
 - browse
 - . . . malnutrition
 - . . . nutrient deficiency
 - . . . nutrient requirements
 - . . . nutrients
 - . . . starvation
 - . . animal reproduction
 - . . . asexual reproduction
 - . . . fertility
 - . . . fertilization
 - selfing
 - . . . hermaphroditism
 - . . . mating
 - . . . sperm
 - . . . sterility
 - . . biological transport
 - . . excretion
 - . . gender
 - . . . females
 - . . . males

- . . homeostasis
 - . . . body temperature
- . . locomotion
 - . . . boring
 - . . . brachiation
 - . . . burrowing
 - . . . ciliary locomotion
 - . . . climbing
 - . . . crawling
 - . . . creeping
 - . . . diving
 - . . . flight
 - . . . jumping
 - . . . looping
 - . . . peristaltic locomotion
 - . . . running
 - . . . swimming
 - . . . walking
- . . metabolism
- . . regulation
- . . respiration
 - . . . aerobiosis
 - . . . anaerobiosis
- . . senses
 - . . . hearing
 - . . . sight
- . animal life history
 - . . anadromous species
 - . . biological age
 - . . biotic potential
 - . . birth rates
 - . . catadromous species
 - . . clutch size
 - . . life span
 - . . nesting success
 - . . reproductive success
 - . . survival
 - . . survivorship
 - . . syngamy
- . animal physiology
 - . . *adaptations of animals*
 - . . . acclimation
 - . . . acclimatization
 - . . . aestivation
 - . . . camouflage
 - . . . coadaptation

- . . . diapause
- . . . hibernation
- . . . specialization
- . . . torpor
- . . developmental stages
 - . . . adults
 - . . . embryos
 - . . . fetus
 - . . . juveniles
 - . . . larvae
 - . . . nymphs
 - . . . postlarvae
 - . . . pupae
- . . senescence
- . . temperature relations
 - . . . heat exchange
 - . . . temperature regulation
 - thermoregulation
- . . water relations
 - . . . water availability
 - . . . water regulation
- . animal societies
 - . . cohorts
 - . . colonies
 - . . familial societies
 - . . guilds
 - . . monogamy
- . description and morphology
 - . . body size
 - . . organism size
- . diseases, disorders and abnormalities
 - . . biological damage
 - . . disease vectors
 - . . fungal diseases
 - . . infestations
 - . . injuries
 - . . parasitic diseases
 - . . protozoan diseases
 - . . symptoms
 - . . viral diseases
- biodiversity
 - . adaptation
 - . . convergence of species
 - . . divergence
 - . biodiversity genetics
 - . . behavioral genetics

- . . gene flow
- . . genetic abnormalities
- . . genetic linkage
- . . genetic variation
- . . inheritance
- . . mutations
- . biological speciation
 - . . allopatric speciation
 - . . allopolyploidy
 - . . geminate species
 - . . hybridization speciation
 - . . reproductive isolation
 - . . sympatric speciation
- . evolution and genetics
 - . . adaptive radiation
 - . . coadaptation
 - . . coevolution
 - . . divergence
 - . . evolutionary rate
 - . . genetic isolation
 - . . genetic strain
 - . . heredity
 - . . natural selection
 - . . evolutionary variation
 - . . . dimorphism
 - . . . ecotypes
 - . . . morphological variation
 - . . . polymorphism
 - . . . seasonal races
 - . . . variation with age
- . genetic diversity
- biological processes and phenomena**
 - . biochemical processes
 - . . bioaccumulation
 - . . biological oxygen demand
 - . . biomagnification
 - . biological interactions
 - . . allelopathy
 - . . competition
 - . . . character displacement
 - . . . competitor exclusion
 - . . . interference competition
 - . . . self-thinning
 - . . defenses
 - . . interspecies interactions
 - . . . competition

- character displacement
- competitor exclusion
- interference competition
- self-thinning
- . . . dominance
- . . . encystment
- . . . predator-prey interactions
- carnivory
- . . intraspecies interactions
- . . . attracting
- . . . ignoring
- . . . repelling
- . . mycorrhizae
- . . social interactions
- . . symbiosis
- . . . commensalism
- phoresy
- . . . mutualism
- seed dispersal
- . . . parasites
- . . . parasitism
- . . wildlife-habitat relationships
- . . wildlife-livestock relationships
- . biological production
- . . algal blooms
- . . primary production
- . . secondary production
- . biological rhythms
- . . circadian rhythms
- . biosynthesis
- . . chemosynthesis
- . . photosynthesis
- biological properties**
- . biological resistance
- . coloration
- . . bioluminescence
- . . bleaching
- . . color aberrancies
- . . color change
- . . markings
- . . . albinism
- . . . erythrism
- . . . leucism
- . . . melanism
- . . . xanthism
- . . pigments

- . eurhalinity
- . fecundity
- . immunity
- . longevity
- . neoteny
- . sexual maturity
- . tolerance
 - . . cold tolerance
 - . . habitat tolerance
 - . . heat tolerance
 - . . salinity tolerance
 - . . shade tolerance

organism groupings (non-taxonomic)

- . biomass
 - . . standing crop
- . candidate species
- . biological consumers
 - . . carnivores
 - . . scavengers
- . extinct species
- . feral species
- . geminate species
- . genotypes
- . hybrids
- . indicator species
- . invasive species
- . keystone species
- . macroinvertebrates
- . migratory species
- . native species
- . nonindigenous species
- . phenotypes
- . pioneer species
- . pollinators
- . biological producers
- . relict species
- . threatened and endangered species
- . type species
- . vegetation
- . wading birds

organisms

- . algae
 - . . calcareous nanoplankton
 - . . cyanobacteria
 - . . diatoms
 - . . dinoflagellates

SECTION 300: BIOSPHERE

- . . green algae
- . animals
 - . . chordates
 - . . . vertebrates
 - amphibians
 - salamanders
 - toads and frogs
 - birds
 - cuckoos
 - doves and pigeons
 - goatsuckers
 - kingfishers
 - owls
 - parrots
 - perching birds
 - raptors
 - shorebirds and gulls
 - swifts and hummingbirds
 - turkeys and quail
 - waterbirds
 - cranes and allies
 - aningas
 - ducks and geese
 - herons and ibis
 - loons and grebes
 - pelicans and allies
 - cormorants
 - woodpeckers
 - fishes
 - bony fishes
 - sharks, skates, and rays
 - . . . mammals
 - armadillos
 - bats
 - bovidae
 - deer, wild pigs, and domestic stock
 - equidae
 - felidae
 - foxes
 - manatees
 - mustelids
 - opossum
 - primates
 - rabbits
 - raccoons and allies
 - rodents

- shrews and moles
- whales, dolphins and porpoises
- reptiles
- crocodilia
- snakes, lizards, and worm lizards
- turtles
- . . . invertebrates
- . . . annelids
- . . . arthropods
- chelicerates
- crustaceans
- copepods
- decapods
- ostracodes
- insects
- ants, wasps and bees
- aphids, cicadas, and leafhoppers
- beetles
- butterflies and moths
- caddisflies
- cockroaches
- dragonflies and damselflies
- earwigs
- fleas
- grasshoppers and crickets
- lacewings
- mayflies
- praying mantids
- termites
- thrips
- true bugs
- true flies
- spiders
- . . . brachiopods and bryozoans
- . . . cnidarians
- . . . corals
- . . . echinoderms
- . . . helminths
- aschelminths
- platyhelminths
- . . . mollusks
- bivalves
- cephalopods
- gastropods
- pelecypods
- . . . sponges

- . . protochordates
- . archaea
- . bacteria
- . fungi
- . plants
 - . . lichens
 - . . non-vascular plants
 - . . . bryophytes
 - . . pteridophytes
 - . . vascular plants
 - . . . angiosperms
 - dicots
 - monocots
 - orchids
 - palms
 - rushes
 - sedges
 - sawgrass
 - true grasses
 - . . . gymnosperms
 - conifers
 - cycads
 - . protists
 - . . foraminiferans
 - . . protozoans
 - . . . flagellates
 - . . radiolaria
 - . viruses

plant life

- . description and morphology
 - . . body size
 - . . organism size
- . diseases, disorders and abnormalities
 - . . biological damage
 - . . disease vectors
 - . . fungal diseases
 - . . infestations
 - . . injuries
 - . . parasitic diseases
 - . . protozoan diseases
 - . . symptoms
 - . . viral diseases
- . plant growth and development
 - . . bud development
 - . . dormancy
 - . . flowering

- . . fruiting
- . . life cycle
 - . . . life expectancy
 - . . . maturation
 - . . . mortality
 - . . . natality
- . . plant growth habits
 - . . . annual plants
 - . . . epiphytes
 - . . . forbs
 - . . . graminoid
 - . . . macrophytes
 - . . . perennial plants
 - . . . shrubs
 - . . . trees
 - arborvitae
 - . . . vines
- . . sprouting
- . plant physiology
- . . adaptations of plants
 - . . . acclimation
 - . . . acclimatization
 - . . . camouflage
 - . . . fire resistance
- . . metabolism
- . . photoperiodism
- . . photosynthesis
- . . plant nutrition
 - . . . nutrient deficiency
 - . . . nutrient requirements
 - . . . nutrient uptake
 - . . . nutrients
- . . respiration
 - . . . aerobiosis
 - . . . anaerobiosis
- . . senescence
- . . temperature relations
 - . . . heat exchange
 - . . . temperature regulation
 - thermoregulation
- . . translocation
- . . transpiration
- . . tropism
 - . . . phototropism
- . . water relations
 - . . . water availability

- . . . water regulation
- . plant reproduction
 - . . asexual reproduction
 - . . fertility
 - . . fertilization
 - . . . selfing
 - . . hermaphroditism
 - . . pollen
 - . . pollination
 - . . seed germination
 - . . sperm
 - . . sterility
- . plant structure and function
 - . . plant structures
 - . . plant fluids and secretions
 - . . plant organs
 - . . . flowers and buds
 - . . . fruits
 - . . . leaves
 - . . . roots
 - . . . somatic organs
 - . . . stems
 - . . plant respiration
 - . . plant tissues and cells
 - . . . cellulose
 - . . . xylem
- . seeds

SECTION 400: HYDROSPHERE (freshwater and marine water; waters; water bodies)

hydrologic properties

- . flow resistance
- . flow velocity
- . hydraulic conductivity
- . hydraulic gradient
- . hydraulic head
- . hydrostatic pressure
- . specific retention
- . specific yield
- . storage capacity

hydrosphere processes

- . condensation
- . discharge
- . drainage
 - . . overdrainage
- . drawdown
- . drydown
- . evaporation
- . evapotranspiration
- . flooding
 - . . flash floods
- . hydrologic alteration
- . hydrologic cycle
 - . . water budget
- . infiltration
- . mixing
 - . . wind-driven exchanges
- . ocean processes
 - . . ocean circulation
 - . . ocean currents
 - . . ocean waves
 - . . ocean-atmosphere interaction
 - . . temperature inversions
 - . . tides
 - . . . tidal range
 - . . . tidal rhythm
- . overturn
- . overwithdrawal
- . percolation
- . recharge
- . runoff
- . saltwater intrusion
- . sea level changes
 - . . eustatic changes

- . . sea level rise
- . seepage
- . stream capture
- . water exchange
- . water movement
 - . . advection
 - . . capillarity
 - . . eddies
 - . . upwelling
 - . . water circulation
 - . . . ocean circulation
 - . . . surface circulation
 - . . . wind-driven circulation
 - . . water currents
 - . . . countercurrents
 - . . . ocean currents
 - . . water flow
 - . . . density flow
 - . . . flow direction
 - . . . freshwater delivery
 - . . . freshwater flow
 - . . . ground water flow
 - conduit-type flow
 - laminar flow
 - porous media flow
 - . . . inflow
 - . . . minimum flows
 - . . . outflows
 - . . . overland flow
 - runoff
 - sheetflow
 - . . . peak flow
 - . . . streamflow
 - . . . turbulent flow
- hydrosphere systems***
 - . *drainage systems*
 - . . dendritic drainage
 - . . natural drainage systems
 - . *ground water systems*
 - . . aquifer boundaries
 - . . aquifers
 - . . . confined aquifers
 - potentiometric surface
 - . . . *named aquifers*
 - Biscayne Aquifer
 - Floridan aquifer system

- surficial aquifer system
- . . . unconfined aquifers
- . . confining beds
- . . intermediate zone
- . . recharge area
- . . saturated zone
- . . . capillary fringe
- . . unsaturated zone
- . . . intermediate zone
- . . . soil zone
- . . water table
- . water reservoirs
- . . hydrologic sinks
- . . ice
- . . pore water
- . . rainwater
- . . soil moisture
- . . subsurface water
- . . . ground water
- . . . pore water
- . . surface water
- . . . bottom water
- . . water vapor
- water characteristics*
- . *water <by type>*
- . . brackish water
- . . freshwater
- . . heavy water
- . . mesotrophic water
- . . oligotrophic water
- . . relict water
- . . saltwater
- . water column
- . . deep layer
- . . mixed layer
- . . surface layer
- . water properties
- . . chemical oxygen demand
- . . chlorophyll a concentration
- . . fetch
- . . hydropattern
- . . light absorption
- . . light attenuation
- . . light penetration
- . . light transmission
- . . nutrient content

- . . osmotic pressure
- . . oxygen content
- . . salinity
- . . specific heat
- . . specific volume
- . . stage
- . . stream velocity
- . . surface reflectance
- . . suspended matter
 - . . . suspended inorganic matter
 - . . . suspended organic matter
 - . . . suspended particulate matter
- . . thermal stratification
- . . water color
- . . water density
- . . water depth
- . . water hardness
- . . water levels
 - . . . sea level
- . . water mass
- . . water pH
- . . water temperature
 - . . . surface temperature
- . . water transparency
- . . water turbidity

SECTION 500: ECOSYSTEM AND LANDSCAPE (ecological communities, natural environments, landscape)

ecological characteristics

- . community characteristics
 - . . community composition
 - . . community dynamics
 - . . community structure
 - . . . species diversity
 - relative abundance
 - species richness
 - . . energy characteristics
 - . . . functional response
 - . . species composition
 - . . trophic levels
 - . . . decomposers
 - . . . grazers
 - . . . omnivores
 - . . . predators
 - . . . primary consumers
 - detritivores
 - herbivores
 - . . . primary producers
 - . . trophic relationships
 - . . trophic structure
 - . . . food webs
- . ecological equilibrium
- . ecological tradeoffs
- . ecotones
- . habitat
 - . . habitat preferences
 - . . habitat utilization
 - . . . mating grounds
- . landscape characteristics
 - . . geographic characteristics
 - . . . geographic distribution
 - . . . spatial extent
 - . . . spatial variations
 - . . landscape patterns
 - . . . inundation patterns
- . . temporal characteristics
 - . . . temporal distribution
 - . . . temporal variations
 - annual variations
 - seasonal variations

- . *levels of organization*
- . . ecosystems
- . . individual organisms
- . . populations
- . . . breeding population
- . niche
- . . fundamental niche
- . nutrient availability
- . population characteristics
- . . population density
- . . population dynamics
- . . population number
- . . population structure
- . prey availability
- ecological communities <by type>*
- . aquatic communities
- . . *aquatic plant communities <by type>*
- . . . estuarine plant communities
- tidal forest
- mangrove forest
- black mangrove forest
- buttonwood mangrove forest
- mixed mangrove forest
- red mangrove forest
- white mangrove forest
- . . . wetland plant communities
- estuarine wetland herbaceous communities
- salt flat
- tidal marsh
- spartina marsh
- estuarine wetland shrub communities
- scrub mangrove community
- freshwater wetland forest communities
- broadleaf deciduous wetland forest
- gum pond
- mixed wetland hardwood community
- pop-ash swamp
- titi swamp
- broadleaf evergreen wetland forest
- bay swamp
- hydric hammock
- pond apple swamp
- willow and elderberry head
- dome swamp
- freshwater coniferous wetland
- atlantic white cedar

- cypress forest
- hydric pine flatwood
- hydric pine savannah
- freshwater wetland herbaceous communities
- emergent freshwater wetland herbaceous communities
- depression marsh
- fen
- freshwater marsh
- bullrush marsh
- cattail marsh
- sawgrass marsh
- spikerush marsh
- glade community
- marl everglades
- mire
- wet prairie
- floating and submerged vegetation
- subemergent aquatic vegetation
- submerged aquatic vegetation
- grass beds
- seaweed-based community
- peat bog
- freshwater wetland shrub communities
- palmetto savannah
- peat bog
- scrub cypress
- shrub bog
- . . nekton
- . . periphyton
- . . plankton
- . . . phytoplankton
- . . . zooplankton
- . climax community
- . pioneer community
- . terrestrial communities
- . . terrestrial plant communities
- . . . terrestrial forest communities
- broadleaf deciduous forest
- southern mixed forest
- broadleaf evergreen forest
- maritime forest
- temperate hammock
- mesic hammock
- tropical hammock
- longleaf/turkey oak
- terrestrial coniferous forest

- clayhill
- mesic pine flatwood
- pine barren
- pine flat
- pine rockland
- pine-wiregrass
- sand pine scrub
- sandhill
- . . . terrestrial herbaceous communities
- coastal prairie
- dry prairie
- dry sand grass prairie
- wiregrass and saw palmetto
- . . . terrestrial shrub communities
- coastal scrub
- scrubby flatwood

ecological processes

- . colonization
- . decomposition
- . dispersal
- . . emigration
- . . immigration
- . ecological succession
- . . primary succession
- . . secondary succession
- . energy flow
- . eutrophication
- . mass mortalities
- . matter cycling
- . . nutrient cycling
- . natural disturbance
- . . habitat alteration
- . . loss of spatial extent
- . nutrient dynamics
- . . nutrient cycling
- . recolonization
- . recovery
- . species extinction

environmental conditions

- . anoxic conditions
- . carrying capacity
- . chemical sinks
- . eutrophic conditions
- . historical conditions
- . limiting factors
- . natural periodicities

- . . annual cycles
- . . fire frequency
- . . hydroperiods
- . refugia
- . substrate
- . . bottom characteristics
- . . hardbottom
- . . mud bottom
- . . sandy bottom
- natural environments <by type>***
- . aquatic environment
- . . freshwater environment
- . . . lentic environment
- bottom environment
- limnetic zone
- euphotic zone
- littoral zone
- sublittoral zone
- profundal zone
- . . . lotic environment
- bottom environment
- hyporheic zone
- riparian zone
- . . marine environment
- . . . abyssal zone
- . . . aphotic zone
- . . . bottom environment
- . . . hadal zone
- . . . littoral zone
- sublittoral zone
- . . . neritic province
- . . . pelagic environment
- . . . photic zone
- . estuarine environment
- . subsurface environment
- . terrestrial environment

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SECTION 600: CHEMICAL AND PHYSICAL ASPECTS (of naturally occurring materials)

chemical and physical phenomena

- . absorption
- . adhesion
- . adsorption
- . contamination
- . convection
- . diffusion
- . . osmosis
- . dispersion
- . ionizing radiation
- . light
- . . infrared light
- . . ultraviolet light
- . . visible light
- . non-ionizing radiation
- . stratification
- . . destratification
- . turbulence
- . vibration

chemical and physical properties

- . absorbance
- . acoustic properties
- . anisotropy
- . bulk density
- . density
- . . relative density
- . diffusivity
- . . thermal diffusivity
- . dry weight
- . electrical properties
- . . conductivity
- . . . specific conductance
- . . . thermal conductivity
- . . electrical resistivity
- . flammability
- . heat
- . luminescence
- . . fluorescence
- . . phosphorescence
- . magnetic properties
- . . magnetic field properties
- . . magnetic susceptibility
- . . magnetism
- . . remanent magnetization

- . mass
- . mechanical properties
 - . . brittleness
 - . . deformation
 - . . elasticity
 - . . strength
 - . . viscosity
- . odor
- . optical properties
 - . . attenuation
 - . . color
 - . . irradiance
 - . . reflectance
- . permeability
- . pressure
 - . . vapor pressure
- . radioactivity
- . specific gravity
- . thermal properties
- . transmissivity
- . volume
- . weight
- . wet weight
- chemical cycles
 - . biochemical cycles
 - . geochemical cycle
 - . . biogeochemical cycle
 - . . . nutrient cycles
 - carbon cycle
 - nitrogen cycle
 - phosphorus cycle
 - . oxygen cycle
 - . sulfur cycle
- chemical properties**
 - . acidity
 - . alkalinity
 - . chemical composition
 - . chlorinity
 - . environmental fate
 - . half-life
 - . oxidation reduction potential
 - . pH
 - . reactivity
 - . redox potential
 - . residence time
 - . salinity

- . . hypersalinity
- . saturation
- . solubility
- . total organic carbon
- . toxicity
- chemical reactions**
- . accumulation
- . . ion accumulation
- . acid-base reactions
- . acidification
- . biodegradation
- . chemical degradation
- . chemical fluxes
- . chemical fractionation
- . chemical speciation
- . chemical substitution
- . chemical synthesis
- . chemical transport
- . combustion
- . corrosion
- . dechlorination
- . denitrification
- . diffusion
- . . osmosis
- . dilution
- . dispersion
- . fermentation
- . fixation
- . . nitrogen fixation
- . heat transport
- . hydration
- . ion exchange
- . ionization
- . leaching
- . methane production
- . methylation
- . nitrification
- . oxidation
- . oxygen depletion
- . oxygenation
- . photochemical reactions
- . radioactive decay
- . reduction
- . . sulfate reduction
- . sublimation
- . transport processes

- . vaporization
- chemical substances**
- . chemical compounds
 - . . acids
 - . . alumina
 - . . amino acids
 - . . ammonium compounds
 - . . . ammonium chloride
 - . . . ammonium sulfate
 - . . aromatics
 - . . bases
 - . . biochemical compounds
 - . . . chlorophyll
 - . . calcium carbonate
 - . . calcium phosphate
 - . . carbon and hydrocarbon compounds
 - . . . carbon dioxide
 - . . . carbon monoxide
 - . . . chlorinated hydrocarbons
 - . . . methane
 - . . . volatile organic compounds
 - . . chlorinated hydrocarbons
 - . . copper sulfate
 - . . defoliants
 - . . dioxins
 - . . dissolved constituents
 - . . . dissolved gases
 - . . . dissolved organic carbon
 - . . . dissolved organic matter
 - . . . dissolved oxygen
 - . . . dissolved solids
 - . . fatty acids
 - . . gases
 - . . . dissolved gases
 - . . . greenhouse gases
 - . . . methane
 - . . . methyl bromide
 - . . . nitrous oxide
 - . . . ozone
 - . . . perfluorocarbons
 - . . . radon
 - . . . trace gases
 - . . halons and halogens
 - . . . chlorofluorocarbons
 - . . . hydrochlorofluorocarbons
 - . . . hydrofluorocarbons

- . . humic acids
- . . hydrocarbon compounds
- . . hydrocarbons
- . . hydrochloric acid
- . . hydrogen sulfide
- . . inorganic compounds
- . . inorganic polymers
- . . major ions
 - . . . bicarbonate
 - . . . carbonate
 - . . . chloride
 - . . . cyanide
 - . . . fluoride
 - . . . nitrate
 - . . . phosphate
 - . . . sulfate
- . . methylmercury
- . . nitrates
- . . nitric acid
- . . nitrites
- . . nitrogen compounds
 - . . . ammonia
 - . . . nitric acid
 - . . . nitric oxide
 - . . . nitrogen
 - . . . nitrogen dioxide
 - . . . nitrogen oxides
 - . . . nitrous oxide
- . . nitrosamines
- . . non-aqueous phase liquids
- . . organic compounds
- . . organic solvents
- . . organohalogen compounds
- . . organophosphates
- . . organophosphorus compounds
- . . organosilicon compounds
- . . oxidants
- . . oxides
- . . oxyacids
- . . oxygen compounds
 - . . . oxygen
 - . . . ozone
- . . phenols
- . . photochemical agents
- . . polychlorinated biphenyls
- . . preservatives

- . . solvents
- . . sulfur compounds
 - . . . sulfur dioxide
 - . . . sulfur hexafluoride
 - . . . sulfur oxides
 - . . . sulfuric acid
- . . sulfur dioxide
- . . water
- . **chemical elements**
 - . . aluminum
 - . . argon
 - . . arsenic
 - . . barium
 - . . cadmium
 - . . calcium
 - . . carbon
 - . . cesium
 - . . chlorine
 - . . chromium
 - . . cobalt
 - . . columbium
 - . . copper
 - . . helium
 - . . iron
 - . . isotopes
 - . . . stable isotopes
 - . . lead
 - . . magnesium
 - . . manganese
 - . . mercury
 - . . molybdenum
 - . . nickel
 - . . nitrogen
 - . . oxygen
 - . . phosphorus
 - . . platinum
 - . . potassium
 - . . radium
 - . . selenium
 - . . silica
 - . . silver
 - . . sodium
 - . . strontium
 - . . sulfur
 - . . tantalum
 - . . tin

- . . trace elements
- . . tritium
- . . uranium
- . . vanadium
- . . zinc
- . contaminants
 - . . natural contaminants
 - . industrial chemicals
- . metals
 - . . heavy metals
 - . . trace metals
- . radioactive substances
- hazardous substances**
 - . environmental agents
 - . . biological agents
 - . . chemical agents
 - . toxic substances

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SECTION 700: HUMAN ENVIRONMENT (built environment, human settlements, land setup, resources)**environmental management**

- . conservation and protection
 - . . biosafety
 - . . bounties
 - . . breeding programs
 - . . forestation
 - . . habitat preservation
 - . . land retirement
 - . . recycling and reuse
 - . . . waste use
 - . . . wastewater reuse
 - . . release and relocation
- . environmental accounting
 - . . environmental auditing
 - . . environmental costs
 - . . environmental valuation
- . environmental assessment
 - . . adaptive assessment
 - . . decision support analysis
 - . . environmental impact analysis
 - . . failure analysis
 - . . needs assessment
 - . . risk assessment
- . environmental economic issues
 - . . cost-analysis
 - . . cost-benefit analysis
 - . . economic development
 - . . economic impacts
 - . . environmental subsidies
 - . . landowner compensation
- . *environmental management <by type>*
 - . . coastal zone management
 - . . . shore protection
 - . . ecosystem management
 - . . emergency management
 - . . growth management
 - . . resource management
 - . . . fire management
 - . . . fisheries management
 - fish culture
 - fish channels
 - hatcheries
 - . . . forest management

- . . . land management
 - land acquisition
- . . . natural areas management
- . . . resource appraisal
- . . . water management
 - seepage management
 - water diversion
 - water storage
 - aquifer storage and recovery
- . . . wildlife management
- . . risk management
- . . river basin management
- . . scientific management
- . . . adaptive management
- . . waste management
 - . . . bioremediation
 - . . . waste conversion
 - . . . waste disposal
 - dumping
 - ocean dumping
 - incineration
 - landfill
 - waste treatment
 - electrolytic recovery
 - incineration
 - land disposal
 - salvage
 - sludge treatment
- . environmental monitoring
- . . ecosystem monitoring
- . environmental planning
 - . . alternative scenarios
 - . . contingency planning
 - . . development planning
 - . . disaster preparedness
 - . . environmental treaties
 - . . regional planning
 - . . restoration goals
 - . . siting of facilities
 - . . strategic planning
 - . . transport planning
 - . . urban planning
 - . . urban renewal
- . environmental policy
 - . . decision making
 - . . . claims making

- . . eminent domain
- . . environmental quality standards
 - . . . air quality standards
 - . . . water quality standards
- . . policy alternatives
- . . polluter-pays principle
- . . restoration policy
- . environmental regulation
 - . . oversight
- . environmental restoration
 - . . hydrologic restoration
- . environmental security
 - . . ecoterrorism
 - . . homeland security
- . financial management
 - . . budgeting
 - . . cost recovery
 - . . pricing
- . mitigation and restoration
 - . . chemical treatment
 - . . decontamination
 - . . detoxification
 - . . disaster relief
 - . . ecosystem restoration
 - . . . species recovery
 - . . flood mitigation
 - . . reclamation
 - . . . lake reclamation
 - . . . land reclamation
 - . . . soil reclamation
 - . . . water reclamation
 - . . reforestation
 - . . revegetation
 - . . sediment removal
 - . . water treatment
 - . . . aeration
 - . . . chlorination
 - . . . desalination
 - . . . disinfection
- . population management
- . prevention and control
 - . . animal control
 - . . back pumping
 - . . biological control
 - . . . biological pest control
 - . . biosafety

- . . channelization
- . . disaster prevention
- . . drought control
- . . fire control
 - . . . firebreaks
- . . flood control
- . . permitting
 - . . . tradeable permits
 - . . . wetland permitting
- . . plant control
- . . pollution control
- . . population control
 - . . . introduction of species
- . . product labelling
- . . quality control
- . . scheduling
- . . standardization
 - . . . international standardization
- . . zoning
- hazards and disasters**
- . catastrophic phenomena
 - . . explosions
 - . . famines
 - . . fires
 - . environmental accidents
 - . . accidental release
 - . . nuclear accidents
 - . . spills
 - . . . oil spills
 - . hazards of pollutants
- human impacts**
- . man-caused disturbance
 - . . anchor damage
 - . . habitat loss
 - . . pollution
 - . . . atmospheric deposition
 - dry deposition
 - wet deposition
 - . . . *pollution <by environment>*
 - air pollution
 - marine pollution
 - soil contamination
 - water pollution
 - groundwater contamination
 - . . . *pollution <by source>*
 - acid deposition

- acid rain
- agricultural pollution
- noise pollution
- nonpoint source pollution
- oil pollution
- point source pollution
- radioactive contamination
- thermal pollution
- . . weather modification
- . . wildlife decline
- . resource use
- . . deforestation
- . . land use
- . . resource acquisition
- . . . fishing
- commercial fishing
- . . . hunting
- . . . illegal harvest
- . . . mining and quarrying
- . . . well drilling
- . . resource depletion
- . . . aquifer depletion
- . . . overkill
- . . resource exploration
- . . . mineral exploration
- . . . oil exploration
- . . sustainable use
- . . water use
- . . . ground water withdrawals
- human settlement and society**
- . economic characteristics
- . . business and commerce
- . . . industry
- agribusiness
- agriculture
- agricultural practices
- afforestation
- agricultural production
- agricultural yields
- artificial regeneration
- best management practices
- breeding methods
- animal breeding
- artificial fertilization
- captive breeding
- hybridization

- plant breeding
- selective breeding
- clearcutting
- controlled fires
- crop protection
- crop rotation
- cutting
- clearcutting
- logging
- fertilizer applications
- harvesting
- irrigation and drainage
- pest control
- biological pest control
- crop dusting
- integrated pest management
- planting
- plowing
- propagation
- seed production
- soil conservation
- soil improvement
- spraying
- stocking/transplanting
- tillage
- conservation tillage
- waterlogging
- *agriculture <by type>*
- apiculture
- aquaculture
- food production
- forestry
- horticulture
- truck farming
- farming systems
- contour farming
- organic farming
- subsistence farming
- fertilizers
- cement industry
- petroleum refining
- rubber industry
- tourism
- ecotourism
- . . . international trade
- . . costs

- . . . cost of work
- . . . cost variance
- . . development patterns
- . . . housing density
- . . . land booms
- . . . sustainable development
- . . . urban development
- urban decay
- . . economic incentives
- . . goods and services
- . . . agricultural chemicals
- chemical fertilizers
- growth regulators
- pesticides
- . . . commodities
- agricultural products
- composts
- food products
- dairy products
- food crops
- citrus products
- rice
- sugarcane
- forest products
- wood products
- livestock products
- non-food crops
- pollutants
- effluents
- cooling waters
- waste heat
- emissions
- exhaust emissions
- gas emissions
- heat emissions
- odor emissions
- particulate emissions
- wastes
- agricultural wastes
- hazardous wastes
- industrial wastes
- municipal waste
- sewage
- . . . dangerous goods
- . . . industrial products
- . . . power sources

- . . . real property
- . . . recycled materials
- . . . telecommunications
 - broadcasting
 - computer conferencing
 - data transmission
 - electronic discussion groups
 - electronic mail
 - mobile communications
 - satellite communications
 - teleconferencing
 - video communications
- . . land values
- . . living conditions
 - . . . homelessness
 - . . . overcrowding
 - . . . poverty
- . . ownership
 - . . . land ownership
 - . . . private ownership
 - . . . public ownership
- . . taxes
- . government and administration
 - . . federal-state aid
 - . . government agencies
 - . . inspection
 - . . . vehicle inspection
 - . . law enforcement
 - . . laws and legislation
 - . . . agreements and treaties
 - contracts
 - cooperative agreements
 - global conventions
 - permits
 - . . . court decisions
 - . . . executive orders
 - . . *levels of government*
 - . . . federal government
 - . . . local/regional government
 - . . . state government
- . human activities
 - . . activities of daily living
 - . . . commuting
 - . . . computer use
 - . . . disposal of the dead
 - . . . frontier life

- . . . travel
- . . . working
 - scientific careers
- . . communications
- . . . disclosure
- . . . explanation
- . . . feedback
- . . . interviews
- . . . meetings and workshops
- . . . negotiation
- . . computer operations
 - . . . computer applications
 - . . . computer programming
 - . . . computer security
 - . . . data processing
 - data distribution
 - database conversion
 - digitization
 - . . . documentation
 - . . . software reuse
- . . construction
 - . . . road maintenance
 - . . . trail laying
 - . . . well construction
 - . . . well drilling
- . . human events
 - . . . conferences and meetings
 - . . . expeditions
 - exploratory expeditions
 - scientific expedition
 - . . . fishing season
 - . . . historical occurrences
 - . . . hunting season
- . . military activity
- . . recreation
 - . . . alligator wrestling
 - . . . outdoor recreation
 - backpacking
 - boating
 - canoeing
 - camping
 - off-road driving
- . human health and safety
 - . . human diseases and disorders
 - . . . disease outbreaks
 - . . . disease treatment

- drugs
 - antibiotics
 - antidotes
 - tranquilizers
- . . . fungal diseases
- . . . human allergies
- . . . parasitic diseases
- . . . poisoning
- . . . protozoan diseases
- . . . viral diseases
- . . human nutrition
- . . medical treatment
- . . nuclear safety
- . . occupational health and safety
- . . public health and safety
- . . road safety
- . . traumas
- . human knowledge
 - . . *disciplines of knowledge*
 - . . . agricultural science
 - . . . aquatic science
 - limnology
 - oceanography
 - . . . atmospheric science
 - . . . biological science
 - biochemistry
 - botany
 - ecology
 - genetics
 - microbiology
 - systematics and taxonomy
 - zoology
 - . . . chemistry
 - . . . earth science
 - geology
 - geophysics
 - hydrology
 - paleontology
 - soil science
 - oceanography
 - . . . engineering and applied sciences
 - civil engineering
 - genetic engineering
 - hydraulic engineering
 - . . . information science
 - computer science

-
- geographic information science
 - informatics
 - . . . mathematics and statistics
 - . . . medical science
 - veterinary medicine
 - . . . social sciences
 - anthropology
 - economics
 - geography
 - cartography
 - hydrography
 - demography
 - history
 - pedagogy
 - political science
 - psychology
 - religious studies
 - . . education and culture
 - . . . cultural resources
 - . . . environmental education
 - . . . primary education
 - . . . public education
 - . . . secondary education
 - . . knowledge management
 - . . . classification of organisms
 - taxa
 - new taxa
 - taxonomic classification
 - . . . collection management
 - . . . data management
 - . . . document management
 - . . . information organization
 - cataloging and indexing
 - database design
 - . . . information preservation
 - . . . information processing
 - image processing
 - . . . information resources
 - *information resources <by type>*
 - abstract
 - annual report
 - archival register
 - audiovisual resource
 - bibliography
 - biography
 - book

- book review
- catalog
- checklist
- classification scheme
- curriculum material
- data report
- database
- *data <by type>*
 - digital elevation model
 - digital line graph
 - digital orthophoto quadrangle
 - digital raster graphics
 - empirical data
 - georeferenced data
 - historical data
 - multimedia
 - real-time data
 - statistical data
 - well log
- digital collection
- directory
- electronic mail message
- environmental impact statement
- ephemera
- exhibit
- factsheet
- FAQ document
- faunal work
- final report
- glossary
- graphics
 - cross-sections
 - flow nets
- guidebook
- historical account
- identification key
- images
 - orthophotographs
 - remote sensing images
 - satellite imagery
 - stereo pair photographs
- implementation report
- interim report
- legal document
- manual
- map

- thematic maps
- geologic maps
- hydrologic maps
- land use maps
- vegetation maps
- topographic and base maps
- weather maps
- memorandum
- metadata
- model
- conceptual models
- database models
- mathematical models
- scale models
- museum collection
- natural history account
- news release
- newsgroup posting
- newsletters
- nomenclator
- non-scholarly article
- opinion document
- oral history
- performance
- periodical
- photograph
- planning report
- preliminary report
- presentation
- oral presentations
- poster presentations
- slide presentation
- procurement documents
- professional paper
- conference proceedings
- project plan
- records
- report card
- scholarly article
- scientific specimen
- geologic cores
- software
- sound recording
- species account
- specification
- technical report

- terminology
- thesis
- transcript
- video recording
- animation
- web page
- web site
- workshop report
- . . . information retrieval
- . . . information security
- . . . information storage
- information preservation
- storage media
- magnetic media
- optical media
- photographic films
- microforms
- . . . information systems and services
- decision support systems
- digital libraries
- document delivery
- expert systems
- geographic information systems
- information clearinghouses
- information networks
- Internet
- World Wide Web
- real-time data access
- reference services
- relational databases
- statistical information systems
- . . . knowledge dissemination
- information exchange
- public information
- publishing
- scientific communication
- . . . records management
- . . references
- . . . altitude
- . . . classes and codes
- hydrologic unit codes
- land cover classes
- . . . contours
- . . . geologic time periods
- . . . map coordinate systems
- geographic coordinate systems

-
- grid coordinate systems
 - horizontal datums
 - vertical datums
 - . . . nomenclature
 - biological nomenclature
 - homonymy
 - synonymy
 - type description
 - type genus
 - type locality
 - type material
 - geographic names
 - historic place names
 - geologic names
 - . . . scales
 - geographic scale
 - macroscale
 - mesoscale
 - microscale
 - time scale
 - . . . standards and indexes
 - emission standards
 - environmental indicators
 - baseline conditions
 - biological indicators
 - climate indicators
 - performance indicators
 - restoration targets
 - social indicators
 - lethal limits
 - management recommendations
 - minimum water levels
 - monitoring criteria
 - National Priorities List
 - performance measures
 - pollution index
 - precursor success indices
 - reference systems
 - safety standards
 - . . . stratums
 - . . . trends
 - long-term trends
 - . . research
 - . . . *investigation <by type>*
 - C&SF Project
 - cooperative research project

- feasibility study
- historical reconstruction
- inventory and monitoring
 - long term ecological monitoring
- pilot project
- prediction and forecasting
 - long-term forecasting
 - weather forecasting
- Restudy
- scientific expedition
- status and trends
- . . . research equipment
 - attractants
 - instrument design and development
 - observation equipment
 - recording equipment
- . . . research methods
 - breeding methods
 - animal breeding
 - artificial fertilization
 - captive breeding
 - hybridization
 - plant breeding
 - selective breeding
 - computational methods
 - image processing
 - mathematical modeling
 - predictive tools
 - relative abundance analysis
 - spatial analysis
 - geospatial analysis
 - statistical analysis
 - text processing
 - topological analysis
 - visualization methods
 - field methods
 - field experiments
 - dosing experiments
 - flume experiments
 - mesocosm experiments
 - microcosm experiments
 - tracer experiments
 - field identification
 - photoidentification
 - scene identification
 - field sampling

- biological inventory and monitoring
- animal capturing
- fishing methods
- immobilization
- animal tracking
- physical examination in the field
- sexing
- specimen collecting
- overcollection
- tagging and marking
- borehole logging
- gamma-ray logging
- core sampling
- drilling and coring
- field spectroscopy
- geophysical methods
- acoustical methods
- seismic methods
- plot sampling
- sediment sampling
- transect sampling
- trenching
- water sampling
- geolocation measurement
- aerial surveying
- altimetry measurement
- bathymetry measurement
- GPS measurement
- land surveying
- geophysical surveys
- gravity measurement
- in-situ monitoring
- sediment trapping
- streamflow monitoring
- video monitoring
- weather monitoring
- inventory and monitoring methods
- acoustic methods
- sonar methods
- aquifer tests
- CTD measurement
- electromagnetic surveying
- social surveys
- telemetry
- tiltmeter measurement

- vocalization methods
- laboratory methods
- age dating methods
- radiometric age determination
 - carbon-14 analysis
 - rubidium-strontium analysis
- relative-age methods
- chemical analysis
 - atomic absorption analysis
 - chromatography
 - gas chromatography
 - liquid chromatography
 - mass spectroscopy
 - neutron activation analysis
 - particle-beam spectroscopy
- x-ray diffraction
- coral banding analysis
- core analysis
- culturing methods
- faunal and floral census
- genetic techniques
- grain size analysis
- isotopic analysis
 - radiometric age determination
 - carbon-14 analysis
 - rubidium-strontium analysis
 - stable isotope analysis
- meristics
- microscopy
 - electronic microscopy
 - optical microscopy
- paleomagnetic analysis
- plant and animal testing
 - biometrical techniques
- sample preparation
- therapeutic methods
- tree ring analysis
- photographic methods
 - color infrared photography
 - underwater photography
- remote sensing
 - aeromagnetic surveying
 - aeroradiometric surveying
 - airborne imaging
 - LIDAR
 - Side-Looking Airborne Radar

- hyperspectral imaging
- multispectral imaging
- panchromatic imaging
- photogrammetry
- satellite imaging
- infrared imaging
- AVHRR
- microwave imaging
- SMMR
- radar imaging
- thermal imaging
- . human population
- . . consumption patterns
- . . crowding
- . . human migration
- . . human population groups
- . . . children
- . . . citizens
- . . . decision makers
- . . . educators
- . . . environmental activists
- . . . farm workers
- . . . fishermen
- . . . hunters
- . . . indigenous people
- Native Americans
- . . . landowners
- . . . lawmakers
- . . . migrant workers
- . . . minorities
- . . . pioneers
- . . . refugees
- . . . resource managers
- . . . stakeholders
- . . . students
- . . . tourists
- . . vital statistics
- . human services
- . . community services
- . . . community development
- . . public services
- . infrastructure
- . . areas and sites
- . . . abandoned sites
- . . . administrative areas
- . . . agricultural sites

- fisheries
 - coastal fisheries
 - marine fisheries
- . . . brownfields
- . . . built-up areas
- . . . cadastral areas
- . . . commercial sites
 - industrial sites
- . . . conservation areas
 - biosphere reserves
 - botanical gardens
 - critical habitat
 - greenbelts and greenways
 - marine conservation areas
 - natural resource lands
 - wildlife management areas
- . . . parks and preserves
 - botanical gardens
 - zoological parks
 - public gardens
 - wildlife refuges
- . . . disaster areas
- . . . disposal sites
 - landfill sites
- . . . fallow sites
- . . . historical sites
- . . . Indian lands
- . . . land parcels
- . . . military sites
- . . . offshore areas
- . . . populated places
 - cities
- . . . protected areas
- . . . quarries and pits
- . . . recreation sites
- . . . reference locations
 - absolute location
 - map regions
 - map quadrangle regions
 - UTM zones
- . . . research sites
 - archaeological sites
 - paleontological sites
 - sampling sites
- . . . residential areas
- . . . Restudy study areas

- Biscayne Bay
- Everglades Agricultural Areas
- Everglades National Park
- Florida Bay Area
- Florida Keys
- Kissimmee River Basin
- Lake Belt Area
- Lower East Coast
- Lower West Coast
- Upper East Coast
- . . . rural areas
- . . . water management areas
 - stormwater treatment areas
 - water conservation areas
 - water preserve areas
- . . boundaries
 - . . . administrative and political boundaries
- . . built structures
 - . . . artificial reefs
 - . . . buildings
 - . . . pipelines
 - . . . storage structures
 - . . . transportation structures
 - bridges
 - tunnels
 - waterways
 - inland waterways
 - channels
 - . . . water control structures
 - breakwaters
 - built drainage systems
 - canals
 - culverts
 - dams and levees
 - evaporation ponds
 - filtration marsh
 - harbors and ports
 - hydroelectric developments
 - impoundments
 - piers and jetties
 - pumping stations
 - . . . wells
 - artesian wells
 - injection wells
 - oil wells
 - recovery wells

- test well
- water-table wells
- . . facilities
- . . . cultural facilities
- . . . data centers
- . . . desalination plants
- . . . emergency shelters
- . . . gaging stations
- . . . harbors and ports
- . . . hospitals
- . . . housing
- chickees
- low-cost housing
- . . . information repositories
- archives
- gene banks
- libraries
- museums and exhibits
- natural history museums
- seed banks
- . . . nuclear reactors
- . . . power plants
- . . . research facilities
- data collection facilities
- meteorological stations
- remote sensing center
- experiment stations
- field stations
- GIS laboratory
- . . . sports facilities
- boat landings and ramps
- . . . transportation facilities
- airports
- . . . waste treatment plants
- . . systems
- . . . distribution systems
- . . . electrical power
- . . . food storage
- . . . food supply
- . . . global positioning system
- . . . managed system
- . . . monitoring systems
- . . . municipal water systems
- . . . natural system
- . . . public utilities
- . . . refuse disposal

- . . . South Florida ecosystem
- . . . warning systems
- . . . water supply and demand
 - agricultural water supply
 - conveyance capacity
 - urban water supply
 - water conveyance
 - water deliveries
 - water releases
- . . technology
 - . . . clean technologies
 - . . . construction technology
 - . . . dredge and fill activities
 - . . . electronics
 - . . . food technology
 - . . . information technology
 - . . . recirculating systems
 - . . . technology transfer
- . institutions and organizations
 - . . academic institutions
 - . . cultural organizations
 - . . . biological museums
 - . . government agencies
 - . . interagency entities
 - . . international organizations
 - . . non-governmental organizations
 - . . societies
 - . . . natural history societies
 - . . tribal organizations
 - . . water authorities
- . social characteristics
 - . . human relations
 - . . . conflicts
 - conflict resolution
 - warfare
 - environmental warfare
 - Seminole Indian Wars
 - . . . environmental crime
 - harassment
 - poaching
 - terrorism
 - . . gender issues
 - . . hunter-landowner relationships
 - . . landowner-government relations
 - . . public relations
 - . . public-private partnership

- . . . race relations
- . . human values and attitudes
 - . . . aesthetic values
 - . . . bioethics
 - . . . conflicting attitudes
 - . . . cultural diversity
 - . . . economic value
 - . . . effectiveness
 - cost-effectiveness
 - currentness
 - efficiency
 - obsolescence
 - permanance
 - quality
 - reliability
 - usability
 - utility
 - . . . environmental literacy
 - . . . green consumerism
 - . . . historic heritage
 - . . . indigenous knowledge
 - . . . liability
 - . . . natural character
 - . . . public access
 - access to the sea
 - . . . public involvement
 - . . . recreational value
 - . . . rights
 - environmental justice
 - human rights
 - legal rights
 - mineral rights
 - property rights
 - easements
 - rights of way
 - riparian rights
 - water rights
 - . . . scientific value
 - . . . sustainability
- . . living conditions
 - . . . homelessness
 - . . . overcrowding
 - . . . poverty
- . transportation
 - . . airplanes
 - . . boats

- . . maritime transport
- . . public transit
- . . railroads and railways
- . . roads
 - . . . access roads
 - . . . Tamiami Trail
- . . space transportation
- . . trails
- . . vehicles
 - . . . motor vehicles
 - . . . off-road vehicles

natural resources

- . biological resources
- . . animal resources
 - . . . animal products
 - feathers
 - pelts
 - shells
 - . . . animals and man
 - animal care
 - artificial diets
 - care in captivity
 - animal housing
 - animals as sport
 - animals as tools
 - animals in medicine
 - attacks on man
 - communication with man
 - damage caused by animals
 - . . . fishery resources
 - commercial fish
 - fish stocks
 - forage fish
 - game fish
 - rough fish
 - . . . game animals
 - game birds
 - game fish
 - . . . nongame animals
 - nongame birds
 - . . . nongame birds
 - . . . wildlife
- . . food resources
 - . . . animals as food
 - . . . eggs as food
 - . . . food fish

- shellfish
- . . . fruits as food
- . . . grain as food
- . . . insects as food
- . . . milk as food
- . . plant resources
- . . . carnivorous plants
- . . . foliage
- . . . forest resources
- indigenous forests
- old growth forests
- overstory
- riparian forests
- second growth forests
- slash
- understory vegetation
- wood
- . . . ground cover
- . . . mast
- . . . medicinal plants
- . . . old fields
- . . . plants as food
- . . . presettlement vegetation
- . . wildlife habitat
- . energy resources
- . . biomass energy
- . . coal resources
- . . . charcoal
- . . geothermal energy
- . . hydroelectric power
- . . nuclear fission
- . . oil and gas
- . . solar energy
- . . thermal sea power
- . . tidal energy
- . . wind energy
- . land resources
- . . flyways
- . . *lands <by use>*
- . . . agricultural land
- . . . barren lands
- . . . burned lands
- . . . disturbed lands
- . . . mined lands
- . . . natural resource lands
- wildlife management areas

- . . . posted lands
- . . . rangeland
- . . . waterlogged lands
- . . soil resources
- . . . peatlands
- . . . surface-litter layer
- . . . topsoil
- . . vegetation cover
- . . wilderness
- . . wildlife corridors
- . mineral resources
- . . economic minerals
- . . mineral deposits
- . . mineral fuels
- . . oil and gas
- . . oil shales
- . non-renewable resources
- . renewable resources
- . water resources
- . . drainage water
- . . drinking water
- . . irrigation water
- . . offshore water
- . . reclaimed water
- . . stormwater
- . . waste water
- . . water quality
- . . water quantity

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