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

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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:


Milstead, Jessica, 2000, *About Thesaurii*, Available online at URL: http://www.bayside-indexing.com/Milstead/about.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.
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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:

**Structure**

The structure of a thesaurus can facilitate understanding of a subject area by showing the interrelationships 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


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](http://www.eionet.eu.int/gemet); 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](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:
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 MultiTes 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
SECTION 100: ATMOSPHERE

... 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
- geotherm 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
  . nannofossils
  . 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
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
SECTION 200: LITHOSPHERE

. . 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
. leucoxene
. monazite
. petroleum
. rutile
. sillimanite
. spinel
. staurolite
. sulfide minerals
. sulfate 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
... lophophore
... mantle
... milk
... opisthosome
... 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
... zooid
... 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
ontogeny
progenesis
SECTION 300: BIOSPHERE

.. 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
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
anhingas
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
grashoppers 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
SECTION 300: BIOSPHERE

- 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
nataly
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
SECTION 400: HYDROSPHERE

- 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
nektom
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
SECTION 600: CHEMICAL AND PHYSICAL ASPECTS

- mass
- mechanical properties
  - brittleness
  - deformation
  - elasticity
  - strength
  - viscosity
- odor
- optical properties
  - attenuance
  - 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

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
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>

c. 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
SECTION 700: HUMAN ENVIRONMENT

... . 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
SECTION 700: HUMAN ENVIRONMENT

. . . . . . 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&S/F 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
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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