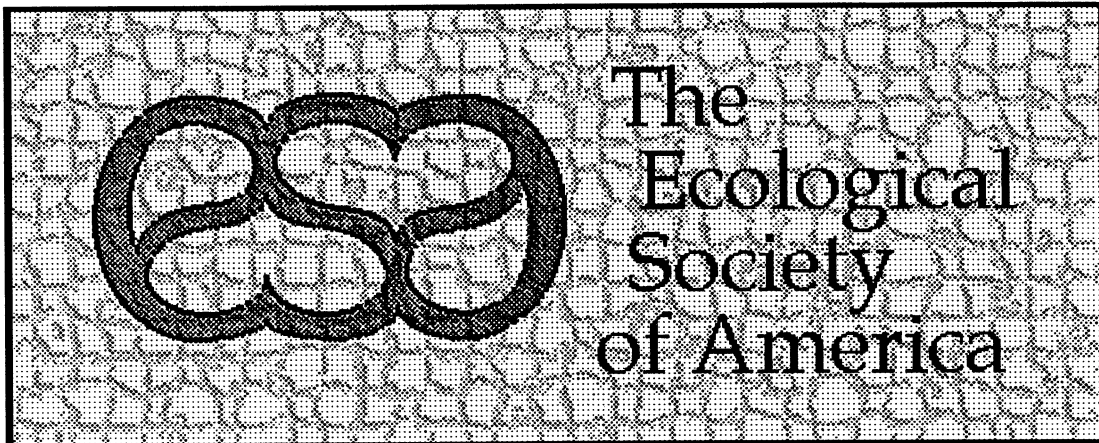


**Final Report of the
Ecological Society of America
Committee on the
Future of Long-term Ecological Data (FLED)**



compiled by

Katherine L. Gross, Chair

and

Catherine E. Pake, Research Associate

**Volume II: Directories to Sources of
Long-Term Ecological Data**

December 1995



Final Report of the Ecological Society of America

Committee on the

Future of Long-term Ecological Data (FLED)

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Directory 1

UNITED STATES AGENCIES AND ORGANIZATIONS

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Introduction

This Directory provides an overview of the activities and efforts of more than 25 U.S. agencies and organizations that collect and maintain long-term ecological data. The descriptions are intended to provide a general introduction to the agency or organization and the types of ecological information they collect as part of their mandate and associated research activities. The summaries are admittedly incomplete as the activities of these agencies and the individuals who work in them are diverse. Our intent with these summaries is to provide a general introduction to assist individuals in locating the appropriate agencies or organizations which would have information of interest.

Among these agencies, we have highlighted specific programs or activities that we believe are particularly relevant to ecologists. This list of programs is not intended to be exclusionary, but rather reflects programs that were brought to our attention by individuals who work in or with these agencies and organizations.

Many of these agencies are currently in the process of providing on-line access to data that they maintain or collect. To reduce redundancy and inaccuracies in these summaries we have included in the description of each agency and organization an Internet address (when available). Because information is constantly being updated, we encourage individuals to access the latest information available on the Internet.

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Introduction

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Agency: U.S. Department of the Interior (DOI)

Mission and Description: As the Nation's principal conservation agency, the DOI is responsible for nationally owned public lands. It acts as the custodian of the Nation's national resources and includes many subagencies with specific responsibilities.

The DOI is the parent organization for 10 agencies that oversee activities of varying relevance to ecologists and long-term ecological data. We have provided mission statements and addresses for all of these, with more detailed information on the most pertinent agencies.

ONLINE Information: <http://www.usgs.gov/doi/doi.html>
for DOI searches: http://info.er.usgs.gov/doi/doi_html

Contact: Bruce Babbitt, Secretary of the Interior
1849 C Street, N.W.
Washington, D.C. 20240

Phone: (202) 208-3171

Agency: U.S. Department of the Interior
National Biological Service (NBS)

Mission and Description: To work with others to provide the scientific understanding and technologies needed to manage the nation's biological resources. A fundamental part of this mission is to make data and information on biological resources accessible.

The NBS was established in November 1993 through consolidation of the biological research, inventory and monitoring, and information transfer programs of seven Interior bureaus. Formal NBS partnerships with several Federal Agencies (more than twenty), states and private organizations such as The Nature Conservancy and the Association of Systematics Collections focus on the need to increase access to biological data among scientists, decision makers, and the public. In a recent memorandum of understanding between the NBS and NSF, the agencies have acknowledged their common interests and pledged to link activities and data sets, especially long-term monitoring efforts.

Ecological Activities: The National Biological Information Infrastructure (NBII) is an initiative of the NBS to foster the development of a distributed electronic "federation" of biological data and information, relying on a network of partners and cooperators to make the data they generate and/or maintain available to others through this federation. Examples of significant biological data and information currently available from NBS through NBII include the North American Breeding Bird Survey, data from the nationwide GAP analysis program, wildlife health bulletins, and data on non-indigenous aquatic species including the zebra mussel. Many agencies and organizations already are making data and information accessible over the Internet, and NBII is linking these providers. These include the National Wetlands Inventory database of the U.S. Fish and Wildlife Service, the Global Change Master Directory of data and information, information on the 50 state Natural Heritage Programs and on state fish and wildlife data, and metadata and data in the National Spatial Data Infrastructure. Other agencies and organizations are working with NBS to help automate, describe and provide their information, some of which (such as data on specimens in natural history collections) may not currently be available in electronic format.

The NBS, in collaboration with five other agencies, also sponsors the Interagency Taxonomic Information System (ITIS). ITIS provides a comprehensive standardized source of information on scientific names and synonyms, common names, and information about location and distribution of biological species of North America and surrounding waters.

ONLINE Information: <http://www.nbs.gov>

for NBII: <http://www.nbs.gov/nbii/>
for ITIS: <http://www.itis.usda.gov>
for a list of biological databases:
http://www.its.nbs.gov/nbs2/nbs3_3_7.htm

Contact: Ronald Pulliam, NBS Director
Office of Public Affairs
National Biological Service, Department of the Interior
1849 C Street, N. W.
Washington, D. C. 20240

Phone: (202) 482-3048

Trudy Harlow
Public Affairs Director

Phone: (202) 482-2996

Agency: U.S. Department of the Interior
National Park Service (NPS)

Mission and Description: The principal responsibility of the Park Service is administration of the National Park System (369 areas including parks, monuments, battle fields, and others). The National Park Service is mandated to protect U.S. natural and cultural resources.

Ecological Activities: More than 2000 scientific projects are an integral part of the NPS. The Annual Science Report Inventory of Research Activities in the National Parks provides a directory which contains projects listed by park name, project title, investigator, address, phone, % project completed, end date and funding sources. In addition to the hard copy there is a dos compatible searchable software called the Investigator Annual Report.

ONLINE Information: <http://www.nps.gov/>

Contact: Roger G. Kennedy
Director, National Park Service
Office of Public Affairs
N. P. S. - D. O. I.
P. O. Box 37127
Washington, D. C. 20013-7127

Phone: (202) 208-6843

**Agency: U. S. Department of the Interior
Fish and Wildlife Service (USFWS)**

Mission and Description: To conserve, protect, and enhance fish and wildlife and their habitat for the continuing benefit of the American people. The USFWS manages more than 500 national wildlife refuges to provide habitat for migratory birds, endangered species, and other wildlife and wildlife-orientated public recreation. It also sets migratory bird hunting regulations, leads the national effort to protect and restore endangered and threatened animals and plants in the United States and other countries, and administers Federal grant programs for state fish and wildlife restoration programs.

Ecological Activities: The USFWS governs the NWI (National Wetlands Inventory) which has on-line MAPS Database geographical display format and digital data available for order or as ftp. They also collect information on avian populations, plants, and soils. The USFWS cooperates with the NBII and some of their information may be available through the NBII server. The USFWS Web Server HomePages contain a current listing of endangered and threatened species, information on fisheries management and conservation, descriptions of various wildlife species, and related information.

ONLINE Information: <http://www.fws.gov/>
for NWI: to download maps and digital data:
<http://www.nwi.fws.gov>

Contact: Mollie Beattie
Director, U. S. Fish and Wildlife Service
U. S. Fish and Wildlife Service
1849 C St., NW
Washington, D. C. 20240

Phone: (202) 208-5634

Agency: U.S. Department of the Interior
Bureau of Land Management (BLM)

Mission and Description: The BLM has a unique mandate of multiple-use management, making its responsibilities varied and complex. The BLM today administers what remains of the nation's public domain, about 272 million acres, 1/8 of the nation. It also manages the mineral estate underlying 572 million acres, 300 million acres of which are administered or owned by other agencies or private interests. The agency carries out its mission through four administrative functions: Land and Renewable Resources Programs (recreational areas, forests, wilderness, range, cultural resources, wildlife), Minerals Programs, Support Services Programs, and Management Services Programs.

Ecological Activities: Information available on BLM lands includes: land use (land exchanges, mineral patents, other land use authorizations), range management (acreage by ecological status, grazing leases), forest management (timber sales), fish and wildlife, wild horse and burro management (population counts, Threatened and Endangered species, visitors), and energy and mineral resources. This information is referenced in the following booklets: Public Lands Statistics (DOI-BLM Sept 1994) and Public Land Statistics (1993, Vol. 178, BLM/SC/ST-94/001+1165).

On-line Information: <http://www.blm.gov/>

Contact: Office of Public Affairs
Bureau of Land Management
Department of the Interior
Washington, D. C. 20240

Phone (202) 208-5717

Agency: U. S. Department of the Interior
United States Geological Survey (USGS)

Mission and Description: The USGS is a scientific fact-finding and research organization which is the principle source of scientific and technical expertise in the earth sciences within the federal government.

Ecological Activities: The USGS monitors and maps earthquake activity. The Global Land Information System (GLIS) has graphs, maps, and models of land surfaces. The National Water-Quality Assessment (NAWQA) Program of the USGS collects data on benthic invertebrates, algae, stream habitat, contaminants in biological tissues, and fish communities.

Much USGS geographical information is available online through the NSDI (National Spatial Data Infrastructure) including charts, maps, graphs, and photographs. The NSDI promotes cost-efficient production, availability, and use of high quality geospatial data. The Federal Geographic Data Committee (FGDC), a subset of NSDI and coordinated by USGS, is charged with coordinating various surveying, mapping and spatial data activities of federal agencies to meet the needs of the Nation. Major objectives of FGDC are to avoid duplication and minimize costs in mapping and spatial data activities, which involves establishing standards and providing wider access to geospatial data. The FGDC also has been charged with coordinating geospatial data related activities with other levels of government and other sectors

ONLINE Information: <http://www.usgs.gov/>

To view USGS data products see:

<http://info.er.usgs.gov/fgdc-catalog/main/usgs.html>

Contact: Gordon P. Eaton
Public Affairs Officer
U. S. G. S. - D. O. I.
119 National Center
Reston, VA 22092

Phone: (703) 648-4460

Agency: U. S. Department of the Interior
Bureau of Indian Affairs (BIA)

Mission and Description: To encourage and assist Indian and Alaskan Native people to manage their own affairs under the trust relationship to the federal government.

On-line Information: <http://info.er.usgs.gov/doi/bureau-indian-affairs.html>

Contact: Ada E. Deer
Assistant Secretary-Indian Affairs
Public Affairs Office
Bureau of Indian Affairs
Department of the Interior
Washington, D. C. 20240

Phone: (202) 208-3983

**Agency: U. S. Department of the Interior
Bureau of Reclamation**

Mission and Description: To manage, develop, and protect water and related sources in an environmentally and economically sound manner in the interest of the American public.

Ecological Activities: The Bureau of Reclamation is involved in many projects related to water conservation, recycling and re-use. Pilot water reclamation projects are helping Los Angeles to meet its water supply needs. Water conservation guidelines have been developed to assist residential communities and farmers. Studies are conducted to assess the status of plants, animals, and terrain in managed river systems. Some specific projects conducted by the Bureau of Reclamation include: (1) studying ways to meet competing demands for water in the lower Colorado River Basin, (2) studying the effects of the Glen Canyon Dam on the natural riverine environment of the Colorado River, (3) working alongside state agencies to preserve wetlands in the cypress Basin of NE Texas and in the cottonwood Drain of central Wyoming.

On-line Information: <http://www.usbr.gov/>

Contact: Paul Bledsoe
Bureau of Reclamation
Director, Public Affairs Division
Bureau of Reclamation
Department of the Interior
Washington, D. C. 20240-0001

Phone: (202) 208-4662
FAX: (202) 208-3484

Agency: U. S. Department of the Interior
Minerals Management Service (MMS)

Mission and Description: The MMS mission is to manage the mineral resources on the Nations's Outer Continental Shelf (OCS) in an environmentally sound and safe manner and to collect, verify, and distribute mineral revenues from Federal and Indian Lands. The MMS administers 27 million acres of the OCS, which supply over 25 percent of the natural gas and 12 percent of the oil produced in the United States. It also collects about \$4 billion per year from mineral leases on Federal lands and distributes these funds to the General Treasury, States, Indian Tribes, the Land and Water Conservation and the Historic Preservation Funds.

Ecological Activities: The MMS Environmental Studies Program (ESP) was initiated in 1973 to support marine mineral resource management activities. The goal of the ESP, as established by the OCS Lands Act Amendments of 1978, is to provide information needed for prediction, assessment, and management of impacts from offshore activities on human, marine and coastal environments. Research is conducted specifically to identify and evaluate potential environmental problems associated with offshore activities, identify possible mitigating measures to address those problems, and to monitor the effects of offshore activity on the environment to determine whether protection is adequate or requires change.

Multiyear studies of marine ecological monitoring, benthic ecology, fisheries, marine mammals, seabirds and turtles are sponsored through the ESP. Studies are currently underway to describe the fate of potential OCS related pollutants (e.g. oil, noise, drilling muds and cuttings, products of final combustion) in the marine environment and in the atmosphere. Also large scale field studies of oceanographic circulation and modeling efforts are underway in the Gulf of Mexico and the coastal ocean off southern California. Process oriented studies are undertaken to relate physical characteristics, biological activity and habitat. Oceanographic studies designed to evaluate potential long-term cumulative effects of offshore activities and long-term chronic effects studies are carried out to develop an understanding of how OCS activities might affect people in terms of jobs and economies, direct and indirect effects on local cultures, and to explore the "psychological " effects of proposed OCS activities

On-line Information:

<http://info.er.usgs.gov/doi/minerals-management-service.html>

Contact: Dr. Kenneth W. Turgeon
Chief, Environmental Services Branch

Minerals Management Service
381 Elden St.
Herndon, VA 22070

Internet: Ken_Turgeon@smtp.mms.gov
Phone: (703) 787-1717
FAX: (703) 787-1053

Agency: U. S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement (OSM)

Mission and Description: The mission of the Office of Surface Mining Reclamation and Enforcement is to administer the Surface Mining Control and Reclamation Act in cooperation with coal states and tribes. OSM's primary objectives are to ensure that coal mines are operated in a manner that protects citizens and the environment during mining and assures that the land is restored to beneficial use following mining, and to minimize the effects of past mining by aggressively pursuing reclamation of abandoned coal mines.

On-line Information: <http://www.osmre.gov/>

Contact: Robert Uram, Director
Office of Communications
Office of Surface Mining Reclamation and Enforcement
U.S. Department of the Interior
1951 Constitution Ave.
Washington, D. C. 20240

Phone: (202) 208-2719

FAX: (202) 501-0549

Agency: U. S. Department of Agriculture (USDA)

Mission and Description: To improve and maintain farm income and to develop and expand markets abroad for agricultural products; to curb and cure poverty, hunger, and malnutrition; to enhance the environment and to maintain our production capacity by helping landowners protect the soil, water, forests and natural resources.

The USDA is the parent organization for many agencies and programs, several of which collect and archive long-term data relevant to ecology. We present mission statements and addresses for a subset of these agencies, and more detailed information on the most pertinent agencies: the U S Forest Service, Natural Resources Conservation Service, and Agricultural Research Service.

On-line Information: <http://www.usda.gov/>

Contact: Office of Communications
US Department of Agriculture
Fourteenth Street and Independence AV, SW
Washington, D.C. 20250

Phone: (202) 720-2791

Agency: US Department of Agriculture
US Forest Service (USFS)

Mission and Description: To achieve quality and management of the nation's forests under the sustainable multiple use management concept to meet the diverse needs of the people.

Ecological Activities: Forest monitoring at a national scale began in the United States with the need for a timber supply inventory in the 1930's. The USDA Forest Service's Forestry Inventory and Analysis (FIA or Forest Survey) Program has evolved over the years toward more holistic, ecological assessments. The FIA Program is today undergoing accelerated redirection toward ecological concerns while continuing its mission to assess US timber supplies.

A service wide memo of understanding exists between the USFS and NSF, whereby both engage in cooperative activities through NSF's Long-Term Ecological Research (LTER) Program. The principal contact for this collaboration is: Douglas F. Ryan, USDA Forest Service, (202) 205-1524. The Forest Service also has numerous experimental forests with many long-term studies.

ONLINE Information: <http://www.fs.fed.us/>
ECOFIA site at: <http://www.msstate.edu/Dept/Forestry/ecofia.html>

Contact: Public Affairs Office
Forest Service, Department of Agriculture
P. O. Box 96090
Washington, D.C. 20090-6090

Phone: (202) 205-6282

**Agency: U. S. Department of Agriculture
Natural Resources Conservation Service (NRCS)
(formerly Soil Conservation Service)**

Mission and Description: To provide leadership and administer programs to help people conserve, improve, and sustain our natural resources and environment.

Ecological Activities: The NRCS administers several programs that collect and maintain long-term data on plants, insects and soil resources

Plant Data System. NRCS administers the PLANTS database, includes a checklist of the plants of the U.S. and its territories; distributional plant growth; crop data; growth habitat; and other plant parameters. PLANTS is maintained in cooperation with institutions and botanists nationally and internationally.

Contact: J. Scott Peterson; NRCS National Plant Data Center, P.O. Box 74490, Baton Rouge, LA. (504) 775-6280.

Soil Mapping. NRCS has soil survey information available for about 87 percent of the U.S. This includes soil maps and the associated chemical and physical data that allows for interpretation of soil information for various uses. This information is available primarily in published county soil survey reports at a scale of 1:12000 and 1:24000. There is complete coverage of the U.S. with digitized soil information on a scale of 1:250000 which is used in broad scale planning.

Contact: Tommy Calhoun, Soil Survey Division, NRCS P.O.Box 2890, Washington, D.C. 20014; (202)720-1821

National Resource Inventory (NRI). NRI is a multi-resource inventory of land cover and use, soil erosion, conservation treatments needed and in place, prime farmlands, wetlands, and other natural resource characteristics. NRI also provides a record of trends in natural resources for the Nation. The data provides site-specific geospatial data for three points in time (1982/1987/1992) for 800,000 scientifically selected sample sites nationwide.

Contact: J. Jeffery Goebel, USDA-NRCS, NRI Division, PO Box 2890, Washington, D.C. 20013; (202) 720-4530

Snow and Water Run-off Data. (Collaborative with NOAA) Five hundred seventy SNOTEL sites have been monitored with automated telemetry since 1977 to determine snowpack. In addition data come from about 900 manual snow courses and, through available partnering agreements, from 600 stream gauges, 300 reservoirs, 1200 precipitation station. Data are available for 12 western state through the NRCS Water and Climate Center, Portland, Oregon.

Contact: Jon Werner; (503) 414-3107.

On-line Information: <http://www.ncg.nrcs.usda.gov/>
PLANTS database: <http://trident.ftc.nrcs.usda.gov/npdc/>

Contact: Paul W. Johnson, Chief
Natural Resources Conservation Service
Department of Agriculture
P. O. Box 2890
Washington, D. C. 20013

Phone: (202) 720-4525

Agency: U. S. Department of Agriculture
Agricultural Research Service (ARS)

Mission and Description: To administer fundamental and applied research to solve problems in animal and plant protection and production; the conservation and improvement of soil, water, and air; the processing, storage, and distribution of farm products; and human nutrition.

ARS conducts mission-oriented research to insure adequate protection of food and agricultural products to meet nutritional and other needs of American consumers in the animal and plant sciences, including disease and pest controls, soil and water conservation, postharvest agricultural systems. In addition, ARS measures food consumption and dietary levels of the population and develops standard reference tables on the nutritive values of foods.

Ecological Activities: ARS also operates the U.S. National Arboretum in Washington, D.C. and has a poisonous plant lab in Utah.

On-line Information: <http://www.ars-grin.gov:80/ars/ars.html>

Contact: Essex E. Finney, Jr.
Administrator
Information Staff
Agricultural Research Service, D. O. A.
4th Floor, 6303 Ivy Lane
Greenbelt, MD 20770

Phone: (301) 344-2264

Agency: U. S. Department of Agriculture
Economic Research Service (ERS)

Mission and Description: To supply economic statistics, social science information and analysis for decisions on agriculture, food, natural resources, and rural America. ERS has five divisions: Natural Resources and Environment, Commercial Agriculture, Food and Consumer Economics, Information Services, and Rural Economy. ERS conducts research in domestic and foreign agricultural economics; analyzes factors affecting agriculture, farm productivity, financing, use of resources and potentials of rural areas; evaluates marketing potentials and development and marketing costs; studies U.S. trade in agricultural products and the role of agriculture in economic development of other nations; and reports situation and outlook, commodity projections, price spreads and analysis of U.S. farm commodity programs.

Ecological Activities: The Natural Resources and Environment Division (NRED) conducts economic research on a broad range of issues. It focuses on the environmental effects of commodity and trade policy. It estimates the costs and benefits of environmental and natural resource policies; the economics of global change; the economics of farm production strategies; and tracks the status, conditions, and trends in resource use and valuation. Examples of materials available: yearbooks on various crops, livestock, poultry, land use, land use change, water use, others. Information is available on CD ROM and in reports.

On-line Information: <http://www.econ.ag.gov/>

Contact: Bob Robinson, Director
Natural Resources and Environment Division
Phone: (202) 219-0455

ERS Information Center
Phone: (202) 219-0515

To order ERS reports and electronic data products, obtain free catalog:

ERS-NASS
341 Victory Drive
Herndon, VA 22070

Phone: (800) 999-6779

Agency: U. S. Department of Agriculture
National Agricultural Statistical Service (NASS)

Mission and Description: The NASS prepares official USDA data and estimates of production, supply, prices, and other information necessary to maintain orderly agricultural operations through monthly, annual, and other periodic reports to the public.

Ecological Activities: Crop yields, livestock production (450 reports per year), agrochemical use (1 report /yr; focuses on recommendations for application), available in Government Documents section of libraries.

On-line Information: NASS HomePage currently under construction, see USDA

Contact: William L. Pratt
Secretary, Agricultural Statistics Board
USDA
Rm5809-S
Washington, D. C. 20250

202-720-7017

To order NASS data products on CD-ROM, obtain catalog from:

ERS-NASS
341 Victory Drive
Herndon, VA 22070

Phone: (800) 999-6779

**Agency: U. S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
(CSREES)**

Mission and Description: To work with partners and customers to advance research, extension, and higher education in the food and agricultural sciences and related environmental and human sciences to benefit people, communities and the nation.

To accomplish its mission in the food and agricultural sciences and related environmental and human sciences, CSREES: establishes national priorities in research, extension, and higher education, secures and administers funds for research, education and extension; provides national leadership, analysis, and administrative and financial oversight; assures scientific and programmatic quality focuses; represents and brokers partners needs, interests, and capabilities to the Executive Branch, Congress, and other organizations. The CREES represents Federal interests, including policy and legislation, to the land-grant system and other cooperators; maintains and enhances national and international coordination and linkages for interagency and extramural initiatives.

Ecological Activities: CSREES administers federal funds appropriated for agricultural and forestry research at state agricultural experiment stations, Forestry Schools, nearly 2000 universities, and selected veterinary schools. It helps coordinate regional research and maintains the Current Research Information System (CRIS) of records for agricultural and forestry research and administers a nationwide extension program. It funds programs in Aquaculture, Sustainable Agriculture and Education, Rangeland Research, Natural Resources and Environmental Management, and Cooperative Forestry.

On-line Information: <http://www.esusda.gov>

Contact: William D. Carlson, Acting Administrator
CSREES
Whitten Federal Building, Room 305a
Washington, D.C. 20250-2210

Phone: (202) 720 4423

Agency: U. S. Department of Commerce
National Oceanic and Atmospheric Administration (NOAA)

Mission and Description: To explore, map, and chart the global ocean and its living resources and to manage, use, and conserve those resources; to describe, monitor, and predict conditions in the atmosphere, ocean, sun, and space environment to issue warnings against impending destructive natural events; to assess to consequences of inadvertent environmental modification over several scales of time; and to manage and disseminate long term environmental information.

Ecological Activities: NOAA Environmental Information services contains lists of data on chemical, physical, biological measurements of oceans, air, weather. NOAA operates NGDC (National Geophysical Data Center) which manages environmental data in the fields of solar-terrestrial physics, solid earth geophysics, marine geology and geophysics, paleoclimatology, and glaciology (snow and ice), most of which is online. NOAA also operates NCDC (National Climate Data Center) which is the worlds most active weather related data center and NODC (National Ocean Data Center) which houses global oceanographic data.

ONLINE Information: <http://www.noaa.gov/>

World Wide Web: <http://www.ngdc.noaa.gov>

Gopher: <gopher://esdim1.nodc.noaa.gov>

Contact: John Kinsfather
Chief, Information Services Division
National Geophysical Data Center
National Oceanic and Atmospheric Administration
325 Broadway, Room A123
Boulder, CO 80303

Phone: (303) 497-6404

For general information about NOAA NGDC:
info@ngdc.noaa.gov

Agency: National Aeronautics and Space Administration (NASA)

Mission and Description: NASA's mission is to: explore, use and enable the development of space for human enterprise; advance scientific knowledge and understanding of the Earth, the Solar System, and the Universe; use the environment of space for research, develop, verify, and transfer advanced aeronautics, space, and related technologies.

Ecological Activities: One of NASA's most important ecological enterprises is Mission to Planet Earth, a pioneer in the study of global change which is currently laying the foundation for long-term environment and climate monitoring and prediction. The purposes of Mission to Planet Earth are to: increase understanding of the Earth as an integrated system; observe and characterize the entire Earth system using satellites, aircraft, and associated research systems; characterize and understand natural and human-induced change on global and regional scales with an initial emphasis on climate change; help identify and predict the consequences of these changes for human health and welfare; and contribute to the creation of wise and timely environmental policy.

In addition, NASA supports ecological research and modeling through its basic competitive grants program and the EOS (Earth Observation System) satellite program. A major focus of activity is understanding the ecosystem processes that control fluxes of trace gases, water and energy balance; i.e. the interactions of terrestrial ecosystems with the atmosphere. NASA supports a variety of field studies and interdisciplinary campaigns around the world to investigate the use of remotely sensed data from aircraft and satellites, and to develop methods for integrating the use of *in situ* observations with remote sensing. For example, (NASA programs) have documented rates of deforestation in the humid tropics, and are investigating the ecosystem consequences of this rapid land-cover change. NASA is also a major sponsor of projects that seek to model ecosystem processes on regional, continental and global scales in collaboration with NSF-LTER program.

ONLINE Information: http://www.gsfc.nasa.gov/NASA_homepage.html

Mission to Planet Earth: <http://www.hq.nasa.gov/office/pao/nasa/mtpe.html>

Contact: Dr. Charles Kennel, Associate Administrator
Mission to Planet Earth
NASA HQ/Code Y
300 E St., SW
Washington, D.C. 20546

Phone: (202) 358-1700

Agency: Environmental Protection Agency (EPA)

Mission and Description: The EPA was created to permit coordinated and effective governmental action on behalf of the environment. It endeavors to abate and control pollution systematically, by proper integration of a variety of research, monitoring, standard setting, and enforcement activities. The EPA is designed to serve as the public's advocate for a livable environment. A major goal of the EPA is to provide decision makers with sound data on which to base environmental risk management decisions.

Ecological Activities: The EPA maintains or supports a number of monitoring programs which include:

ACCESS EPA is a directory of EPA and other public sector environmental information resources. It is a pathfinder to many major information resources, such as clearinghouses, hotlines, records, databases, models, and documents.

MASTER (Midwest Agrochemical Surface Transport and Effects Research) is a model watershed in an agricultural region (Iowa).

The Environmental Monitoring and Assessment Program (EMAP) is a research, monitoring, and assessment program. It is designed to estimate the geographic coverage and the current status of the Nation's ecological resources. In addition, it seeks associations between natural and anthropogenic stresses and the conditions of ecological resources. EMAP's ecological resource groups are:

Agroecosystems: Sampling in North Carolina and future sampling in Nebraska collected the following data: crop productivity, soil quality, agricultural chemical use and water quality.

Arid ecosystems: A joint pilot study with the EMAP Land Characterization in San Pedro watershed of Arizona used remote sensing techniques to determine and ecosystem condition. Also another study in southeastern Utah portion of the Colorado Plateau studied the global environmental issue of sustainability.

Estuaries: Along with NOAA, state and local programs in order to monitor the conditions of estuaries, EMAP will compile the data on the following variables: fish pathology, toxic sediments, dissolved oxygen, marine debris and benthic organisms.

Forests: In conjunction with the US Department of Agriculture's Forest Service and Soil Conservation Service and several State forestry agencies, EMAP is measuring visual symptoms of forest conditions, indicators of exposure and other indicators.

Great Lakes: In cooperation with the EPA Great Lakes National Program Office, the International Joint Commission and Environment Canada, water and sediment quality, fish and invertebrate abundance and community composition were determined at various locations.

locations.

Surface Waters: A study examined the trophic status of the lakes of the Northeast Lakes. Further studies in the mid-Atlantic streams are in the workings.

Wetlands: A pilot study is currently being undertaken to evaluate indicators in the coastal marshes of Louisiana as well as in the prairie pothole region of the Midwest.

On-line Information: <http://www.epa.gov/>

Contact: EMAP Director
USEPA
Office of Research and Development, RD-680
401 M Street SW
Washington DC, 20460

Phone: (202) 260-2090

Agency: United States Department of Defense (DoD)

Mission and Description: The DoD is the federal agency charged with the constitutional mandate to "provide for the common defense". It was established as an executive department of the government by the National Security Act Amendments of 1949 with the Secretary of Defense as its head. Since that time, through many legislative and administrative changes, the Department has evolved into the organizational structure under which it currently operates.

Ecological Activities: As the second largest federal land holder, the Department of Defense is the steward for 25 million acres of public land across the country. These lands represent all of the United States' major land types and contain fragile ecosystems and over 330 threatened and endangered species, irreplaceable historical and archaeological sites and many other important natural and cultural resources. The Department faces a challenging task: protecting and enhancing the quality of these resources, while supporting its military mission.

The DoD also maintains the Legacy Program, the purposes of which include: (1) managing significant biological, geophysical, cultural, and historical resources, (2) protecting significant biological systems and species, (3) establishing all significant biological, geophysical, cultural, and historical assets of the Department of Defense lands, and (4) restoring altered or degraded habitats. The Legacy Program funds research and other programs through competitive grants.

On-line Information:

http://www.yahoo.com/Government/Agencies/Department_of_Defence/

Contact: Office of the Secretary of Defense
Public Affairs
2E800 The Pentagon
Washington, D.C. 20301-1400

Phone: (703) 697-9312
FAX: (703) 697-5131

**Agency: U.S. Department of Defense
Department of Army Corps of Engineers (USACERL)**

Mission and Description: To manage and execute engineering, construction, and real estate programs for the US Army and Air Force, and for other federal agencies and foreign governments as assigned; to supervise research and development in support of these programs; to manage and execute Army installation support programs; to develop and maintain capability to mobilize in response to national security emergencies, domestic emergencies, and emergency water planning programs; and to support Army space initiatives.

The Army Corps of Engineers manages the U.S. Army Construction Engineering Research Laboratories (USACERL). USACERL is the lead laboratory in the Army for base support. USACERL's research is directed towards increasing the Army's ability to more efficiently construct, operate, and maintain its Army installations and ensure environmental quality and safety at a reduced life-cycle cost. Excellent facilities support the Army's training, readiness, mobilization, and sustainability missions. The three organizations within USACERL -- the Infrastructure Laboratory, the Environmental Sustainment Laboratory, and the Technical Assistance Center -- work to develop products and services and to help consumers to implement new technologies.

Ecological Activities: Support better environmental decision making by providing management tools and processes to maintain compliance and improve environmental stewardship for DoD customer community. Adapt technology for future environmental requirements. Technologies include distributed information system research and support, and environmental assessment tools.

On-line Information: <http://www.cecer.army.mil/welcome.html>

Contact: Jerry Benson, Chief
P.O Box 9005
Champaign, IL 61826-9005

Phone: (217) 373-7215

Agency: United States Department of Energy (DoE)

Mission and Description: The Department of Energy, in partnership with its customers, is entrusted to contribute to the welfare of the Nation by providing the technical information and scientific and educational foundation for technology, policy, and industrial leadership necessary to achieve efficiency in energy use, diversity in energy sources, a more productive and competitive economy, improved environmental quality, and a secure national defense. The DoE accepts a leadership role and responsibility to improve the quality of the environment. It recognizes the importance of the environmental impacts of its operations and develops processes and technologies to reduce or eliminate waste production and pollution in these operations.

Ecological Activities: DoE has several laboratories, which conduct ecological research and/or environmental monitoring. Each of these laboratories maintains their own data archives. These laboratories are: Los Alamos National Laboratory, Idaho National Engineering Laboratory, Pacific Northwest Laboratory, Savannah River Ecology Laboratory, Oak Ridge National Laboratory, Fermi National Laboratory, Argonne National Laboratory, Brookhaven National Laboratory, Lawrence Livermore National Laboratory, Lawrence Berkley National Laboratory, Renewable Energy Laboratory, Superconducting Super Collider.

Laboratory activities include long-term monitoring programs of forests and watersheds. The Oak Ridge National Laboratory (ORNL) was the US/IBP Eastern Deciduous Forest Biome Data Bank and contains many IBP reports in its library. For information about access to data from any laboratory including geospatial data, contact each DoE lab separately, they can be reached from a listing on the HomePage.

On-line Information: <http://www.doe.gov/>

Contact: Hazel O'Leary
Secretary of Energy
U.S. Department of Energy
Washington, D.C. 20585

Phone: (202) 586-6210
FAX: (202) 586-7644
email: Hazel.O'Leary@hq.doe.gov

Agency: The Nature Conservancy (TNC)

Mission and Description: The Nature Conservancy's mission is to preserve the plants, animals and ecological communities that represent the diversity of life on Earth by protecting the lands they need to survive. The Science Division of TNC provides the information, skills, conservation methods and interpretation necessary for science-driven decision making and effective conservation action. Over the last two decades, the conservation science division has been involved in the establishment and operation of Natural Heritage Programs and Conservation Data Centers throughout the United States and in Canada, Latin America, and the Pacific. These programs collect and manage data on biodiversity and conservation and function as a bridge between the scientific community and the resource management agencies.

Ecological Activities: The Nature Conservancy maintains three databases of interest to ecologists:

1. The Conservancy Central Conservation Database: Includes lists of species, communities, ranks of relative rarity, general distribution, and natural history information.

2. The Heritage Program Database: Maintained in collaboration with individual State Fish and Game Departments. It uses the same data structure and methods as TNC's central database. In addition, it includes more precise data on species occurrence and location. Its data is geo-referenced, but tends to record presence/absence rather than quantitative data on abundance.

3. The Vegetation Classification System: The Nature Conservancy, in conjunction with the Network of Natural Programs is compiling data on vegetation from around the country in order to devise a standard National Vegetation Classification System. The System is hierarchical and based on floristics at the lowest levels and vegetation structure at the highest levels. This system is currently being considered for adoption as a national standard by the FGDC. Currently the compilation of information is available in word processing format, but the design for the database is nearly complete and expected shortly. Information on the classification system itself is available from the TNC home office in Arlington, VA. More detailed information of specific vegetation types is available from the Regional Ecologist in TNC regional offices.

On-line Information: <http://www.abi.org>

Contact: Bruce Stein
Director of Science for External Affairs
International Headquarters
1815 North Lynn St.
Arlington, VA 22209

Agency: Pacific States Marine Fisheries Commission (PSMFC)

Mission and Description: Authorized by Congress in 1947, the Pacific States Marine Fisheries Commission is one of three interstate commissions dedicated to resolving fishery issues. Representing California, Oregon, Washington, Idaho, and Alaska, the PSMFC does not have regulatory or management authority; rather, it serves as a forum for discussion, works for coastwide consensus, and represents that consensus to state and federal authorities. PSMFC addresses issues that fall outside state or regional management council jurisdiction, issues that cannot be resolved within an individual state, and coastwide and national issues that affect the Pacific fisheries, including coastwide database management activities. The mission of the PSMFC is to To promote and support policies and actions directed at the conservation, development and management of fishery resources of mutual concern to member states through a coordinated regional approach to research, monitoring and utilization.

Ecological Activities: Recent ecological projects conducted by PSMFC include: reauthorization of the Marine Mammal Protection Act; listings of threatened/endangered species; thresher shark management planning for California, Oregon and Washington; marine habitat protection; and foreign high seas drift netting. In addition, the Commission has addressed marine insurance, federal fishing fees, safety at sea, Southeast Alaska rockfish management planning and federal budgets.

Working with a coordinated and cooperative fashion with the states, the PSMFC manages and maintains several large fisheries databases and the program activities related to them. Information programs include the Pacific Coast Fisheries Information Network (PacFin), Recreational Fishery Information Network (RecFin), Regional Mark Processing Center (RMPC Coded Wire Tag), Pit Tag Information System (PTAGIS), and the Columbia River Coordinated Information System (CIS). Much of this information is available by contacting PSMFC, or online.

On-line Information: <http://www.psmfc.gov>

Contact: Stan Allen
Chief Information Management Services
45 S.E. 82nd Dr. Suite 100
Gladstone, Oregon 97027-2522

Phone: (503)650-5400
FAX: (503) 650-5426

Agency: National Science Foundation (NSF)

Mission and Description: NSF's mission is to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense. NSF initiates and supports, through grants and contracts, scientific and engineering research and programs to strengthen scientific and engineering research potential, and education programs at all levels, and appraise the impact of research upon industrial development and the general welfare.

Ecological Activities: NSF has a Division of Environmental Biology (DEB), which reviews proposals and administers grants in ecology, ecosystem studies, population biology, systematic biology, long-term studies, biotic surveys and inventions, research collections in systematics and ecology, and conservation and restoration biology. Abstracts of currently or recently funded projects, including those receiving monies targeted for long-term research, can be found on the internet. These include the Long-Term Ecological Research (LTER), Long-Term Research in Environmental Biology (LTREB), and Land Margins Ecosystems Research (LMER).

On-line Information: <http://www.nsf.gov/>

Contact: National Science Foundation
Department of Environmental Biology
Room 635
4201 Wilson Blvd.
Arlington, VA 22230

Phone: (703) 306-1483 (Long-Term Studies)
(703) 306-1479 (Ecological Studies)

Directory 2

DIRECTORY OF INDIVIDUAL LONG-TERM ECOLOGICAL DATA SETS

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Introduction

This Directory of Long-term Data Sets organizes information on the contact and status of more than 150 long-term projects collected and/or maintained by individual researchers. Our purpose in compiling this Directory was to determine the scope and the nature of existing long-term ecological data sets, their custodial and curatorial status, and whether they are at serious risk of abandonment. In addition, we hope this Directory will facilitate communication among researchers with interest in areas where we have identified existing long-term data sets. We also hope that this attention will foster further efforts to investigate, restore, and preserve legacy data sets.

This Directory is divided into two parts: Contributions by Individuals (130+ data sets) and Contributions by Field Stations (34 data sets). Both parts of the Directory are arranged alphabetically by the name of the data caretaker or field

station. Individual contributors were frequently PI's on projects that initiated the long-term study. For each study, we asked the individual who currently maintains the data to fill out a Metadata Questionnaire (p. 2-6), generally on one or two data sets. In contrast, field station managers usually responded to an abbreviated questionnaire (p. 2-63) about several data sets archived at their station. Information provided to us by LTER data managers was generally included in Contributions by Individuals.

Individual contributors to this Directory were identified by a number of means. Members of the FLED committee contacted colleagues and alerted them to this effort. We also distributed queries in several professional journals, newsletters, and electronic sources requesting that people contact us and identify legacy data sets. In addition, the call for long-term data sets and the metadata form were posted on the ESA FLED HomePage.

It is our intention that the information in this Directory will eventually be available as a searchable database through the ESA HomePage. A call for more entries and the metadata questionnaire can be found on the ESA FLED home page at:

http://gn.sdsc.edu:70/0/SDSC/Research/Comp_Bio/ESA/FLED/FLED.html

In compiling this listing of data sets we attempted to avoid duplication of efforts of other compilations of such data sets. We discovered that several of these compilations already existed for specific taxa (e.g., the IES Permanent Plots for vegetation) or sub-disciplines in ecology (e.g., the North American Pollen Database and the International Tree Ring Database). We have provided descriptions of these existing directories and catalogs of long-term ecological data in Directory 3.

Part I: Contributions from Individuals

Summary Description

The data sets described in this section of Directory 2 represent contributions from 68 individuals who completed the Metadata form for more than 100 long-term studies they currently maintain. (Note: Only 79 entries are given in the Directory, but several of these describe more than one long-term study and/or data set.) Because of the time involved in completing and verifying the metadata for these studies, we were only able to include in this Directory contributions that were complete by November 1995. We have continued to accept contributions to this section, however. We intend to make these (and future contributions) available when an on-line version of this Directory is established.

The long-term studies described in this Directory span a breadth of life forms, from hydro-corals to blue footed boobies, from dinoflagellates to saguaro cacti (Fig. 1). Plants make up the largest portion of the data sets (34%), and most of these focus on trees, shrubs, or cacti. The remaining studies of plants focus on terrestrial herbs (8%) or marine and freshwater plants (3%). Studies of animals are also well-represented in the data sets we received, with vertebrates comprising 21% and invertebrates and plankton 17% of the total. In addition, biogeochemical, streamflow, and climate data relevant to ecologists comprise 27% of these long-term data sets.

The studies compiled here have been conducted in a diversity of habitats (Fig. 2). Studies in forest habitats are most common, with 26% from coniferous, 13% from deciduous, and 4% from tropical forests. Aquatic habitats are also well represented with 11% from marine and 25% from freshwater environments. Less well represented are studies from the desert, tundra, and grassland biomes, with 10, 5, and 3% respectively.

Most (42%) of the submitted studies were conducted for between 10 and 19 years (Fig. 3). Eighteen percent were conducted for less than 10 years; the remaining 40% are 20 years or longer in duration (with 8.4% more than 40 years long). The longest studies in this Directory were conducted for over 90 years.

In about 10% of the cases, no plan exists for continuation of data collection in the study. All of these represent historically valuable data sets, in that they at least provide a snapshot in time that could be compared to similar current or future studies. A large portion (23%) are at imminent risk of being abandoned due to lack of funds or interest in the project. We believe this to be the tip of the iceberg, however, because in searching for long-term data sets, one is far more likely to learn about well-funded projects than neglected ones. This is especially the case because our search strategy focused on contacting active researchers,

including individuals associated with the LTER and LTREB program of NSF.

The vast majority (88.6%) of these data sets are entered, or in the process of being entered, into an electronically archivable format. However, most (73.4 %) are merely being archived on personal computers, on a medium that has a relatively short (5-6 years) shelf life.

Almost all scientists who contributed to this Directory expressed a willingness to be contacted about their data. In the one exception, the respondent cited a history of having data used without permission or acknowledgment. Most of the other data sets described here are either freely available (11.4%) or available with permission from the primary investigator (84.1%). The remainder are unavailable because they are in active use or the data require significant restoration efforts before they could be of value to others (e.g., attachment of metadata).

Taxa

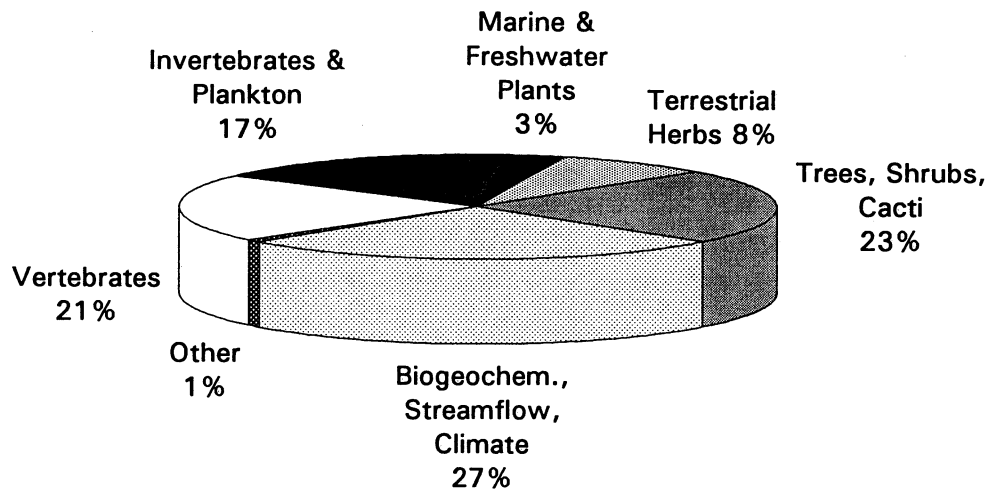


Figure 1. Taxonomic or focal interest of long-term data sets contributed by individuals to FLED Directory 2.

Habitat

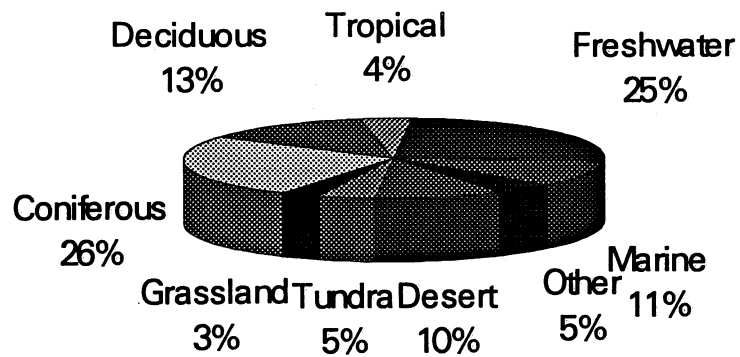


Figure 2. Habitat focuses of data sets contributed by individuals to FLED Directory 2.

Time Frame

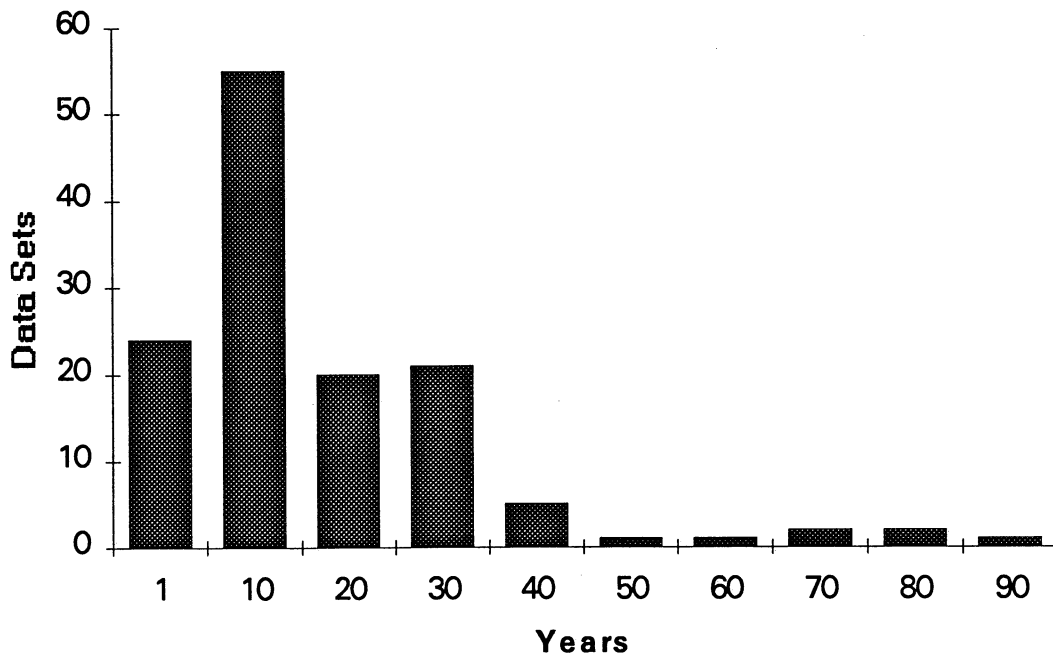


Figure 3. Frequency distribution of time frame (=length of time data collected) data sets contributed by individuals to FLED Directory 2.

Metadata Questionnaire for Individual Long-term Data Sets

Metadata Questionnaire

Recognizing the value of long-term data and the expense involved in acquiring and maintaining it, The Ecological Society of America (ESA) has established a committee (FLED) to develop recommendations for mechanisms of preserving and archiving long-term data sets. In order to highlight the diversity and scope of long-term ecological data sets collected by individuals, the ESA would like to gather information on specific data sets, their current form, and whether the data are being maintained or are at risk of being abandoned. In this questionnaire, we are interested in information that we could use in aggregate form to inform ourselves before making recommendations. Secondly, with permission, the information will be published in a Directory of classic long-term ecological data sets, to be presented to the ESA membership. This Directory is likely to be made available both in hard copy and electronically on the Internet.

Information you provide on this form will be summarized and returned to you so that you can verify that the information we have recorded is correct.

Please return the completed questionnaire to the address at the bottom of the form.

1. Project Title:

2. Name of caretaker/contact person. Is he/she data manager, PI, or what?

3. Current institutional address:

4. Phone: FAX:

- Email address:

5. Study site--location (county, state, latitude, longitude, etc.) and description:

6. Objectives for data collection. Include organisms, habitats, processes.

7. Methods.

7a. Note sampling methods, variables, types of data collected, and whether treatments were imposed:

7b. Do any of the following data accompany?

climate biogeochemistry
 soils other: _____

7c. Relocatability of individuals or plots:

exactly approximately no

8. Time Frame:

Start date:

End date:

Censused at what time interval(s)?

Still in progress?

Any gaps in continuity? _____

9. Data format?

A. Paper: field notes tables other _____

B. Electronic: database text other

C. Photographs or videotape

D. Maps (size, how many):

10. Curatorial status:

(A) Does a plan currently exist for continuation of data collection? _____

(B) Are these data (already collected) at risk of being abandoned? _____

Where are the data physically stored?

on a personal computer box under someone's desk

on-line data exchange network (which?): _____

11. Publications using this data? (Up to 3 key complete citations).

12. What funding sources have been used to support this data?

personal funds NSF USFS NPS USGS university _____

other: _____

13. Are you willing to be contacted by others interested in this data? _____.
These data would be available to other investigators:

with permission from primary investigators

without any formal restrictions

not yet

14. Would you like this information to be published in the directory of long-term data sets to be presented to the ESA membership?

THANK YOU!

Please return completed questionnaire to:

After 1 Jan., 1996 information or questions regarding this Directory should be directed to :
Chair, The Long-Term Studies Section (LTSS)
c/o The Ecological Society of America
2010 Massachusetts Avenue, NW
Suite 430
Washington, D.C. 20036 USA

Metadata For Data Sets Contributed By Individuals

1.

Title :: Vegetation changes in burned and unburned Florida scrub, scrubby flatwoods, sandhill, and flatwoods.

Caretaker :: Warren G. Abrahamson, PI.

Address :: Department of Biology, Bucknell University, Lewisburg, PA 17837 or Archbold Biological Station, 123 Main Drive, Venus, FL 33960

Phone :: (717)524-1155

Fax :: (717)524-3760

Electronic Mail :: abrahmsn@bucknell.edu

Location of Study :: USA, Florida, Highlands County, 27°11'N lat., 81°21'W long. Archbold Biological Station containing some of the most representative remaining examples of southern ridge sandhill, scrub, scrubby flatwoods, flatwoods, and bayhead

Objectives :: To document vegetation changes in the long-term absence of fire, the effects of fire on species and community processes, fire effects on the demography of plants.

Methods :: Treatments are imposed as prescribed burns or occur as a consequence of natural fires. Sampling includes 15 stands (see b below: southern ridge sandhill, scrubby flatwoods, flatwoods, seasonal ponds) with 200m each of permanent line transects, 4 stands (see a below: sandhill, scrub, scrubby flatwoods, and a flatwoods - bayhead combined stand) with 18 sets each of nested quadrats 10x10m, 2x2m, and 1x1m in size, and one stand (see c below: sand pine scrub) with 32 sets of nested quadrats 10x8m, 4x4m, 2x2m, and 1x1m in size. Plots are relocatable. Climate data for Archbold are nearly continuous from 1932. The soils of the Station were mapped in detail as a precursor to the soil mapping of Highlands County Florida. Hydrological data are actively gathered at selected sites.

Time Frame :: a: 20yr, b:18yr, c:10yr Start date: a: 1969, b:1977, c:1985 Last censused in: a: 1989, b: 1993, c: 1993. Census interval a: 10 yr, b: various, c: various. All are still in progress

Data Format :: Paper field notes, paper tables, Excel database files, photos, and videotape.

Status :: Not at risk of being abandoned, but no current plan for continued data collection. Data summaries are stored in the Archbold Biological Station Library (contact Fred Lohrer) and at Bucknell University (Warren Abrahamson's office). Raw data exist on original data sheets stored with Abrahamson at Bucknell University

Publications :: Abrahamson, W.G., A.F. Johnson, J.N. Layne, & P.A. Peroni. 1984. Vegetation of the Archbold Biological Station, Florida: An example of the southern Lake Wales Ridge. *FL Scientist* 47:209-250.

Givens, K.T., J.N. Layne, W.G. Abrahamson, & S.C. White-Schuler. 1984. Structural changes and successional relationships of five Florida Lake Wales Ridge plant communities. *Bulletin Torrey Botanical Club* 111:8-18.

Menges, E.S. W.G. Abrahamson, K.T. Givens, N.P. Gallo, & J.N. Layne. 1993. Twenty years of vegetation change in five long-unburned Florida plant communities. *Journal of Vegetation Science* 4:375-386.

Funding :: Archbold Biological Station, Bucknell University

Availability :: Willing to be contacted, but would place restrictions on making this data available to others.

Notes ::

Descriptors :: Not at risk, Florida, burned and unburned scrub, scrubby flatwoods, sandhill, and flatwoods.

2.

Title :: Tree Permanent Plots of the Pacific Northwest

Caretaker :: Steve Acker

Address :: Oregon State University, Dept of Forest Science, Forestry Science Laboratory 020,

Corvallis, OR 97331-7501

Phone :: 503-750-7325

Fax :: 503-737-1393

Electronic Mail :: ackers@fsl.orst.edu

Location of Study :: Approximately 140 sites in western Oregon and Washington. Also Sequoia National Park, Ca. Bridger-Teton National Forest, WY. , Fraser Experimental Forest, Co.

Objectives :: Began as: To determine growth and yield of even-aged Douglas-firs and some other commercial species (including W. hemlock, Pond pine, Sitka spruce. Now: To characterize ecosystem dynamics and population dynamics

Methods :: Collect DBH, record detailed observations of tree mortality. Plots and individual trees are relocatable.

Time Frame :: Started: 1910, censused every 5-6 years, still in progress

Data Format :: Paper field notes, Electronic database, Photographs, Maps

Status :: Not-at-risk, Stored in the OSU Forest Science data bank. Archival copies on a network server, Supported by Andrews LTER and other agency support (e.g. USDA). Paper and some notes in caretaker's office.

Publications :: Franklin, J.F. 1982. Ecosystem studies in the Hoh River Drainage, Olympic National Park. Pp. 1-8 in E.E. Starkey, J.F. Franklin, and J.W. Matthews, tech. coords. Ecological research in National Parks of the Pacific Northwest Forest Research Lab., Oregon State University, Corvallis.

Hawk, G.M., J.F. Franklin, W.A. McKee, and R.B. Brown. 1987. H.J. Andrews Experimental Forest reference stand system: establishment and use history. Coniferous Forest Biome Bull. No. 12. Univ. of Washington, Seattle.

Riegel, G.M., S.E. Greene, M.E. Harmon, and J.F. Franklin. 1988. Characteristics of mixed conifer forest reference stands at Sequoia National Park, California. Tech. Rep. No 32. Coop. National Park Resources Studies Unit, Univ. of California, Davis. 55p.

Funding :: Cooperative agreement with USDA, FS, Pacific Northwest Research Station headquartered in Portland, NSF

Availability :: contingent on permission from principle investigators. (Information on permanent plots accessible on Internet via World Wide Web, at www URL address:

<http://www.fsl.orst.edu/lterhome.html>

Notes :: Brief description in Michener et al. eds. 1990. Long-term ecological research network core data set catalog.

Descriptors :: forest dynamics, tree growth, tree mortality, ecosystem dynamics, forest succession

3.

Title :: Cost of Reproduction and Evolution of Seabird Reproductive Life Histories

Caretaker :: David J. Anderson

Address :: Department of Biology. Wake Forest University, Winston-Salem, NC 27109

Phone :: 910-759-5319

Fax :: 910-759-6008

Electronic Mail :: DJAnders@wfu.edu

Location of Study :: Espanola Island, in the Galapagos

Objectives :: To monitor the population biology and reproductive success of a colony of 10,000 masked boobies and 1000 blue footed boobies.

Methods :: Collected breeding and nesting growth data from masked and blue footed boobies. Data include number of eggs, number of chicks hatched, when breeding initiated, metric dimensions of nestings. Also demography of birds of all ages followed via bird-banding. Climate data available from Galapagos research station. Individuals are relocatable.

Time Frame :: 1984 to present. Less complete data available for 1988 and 1989. Censused annually.

Data Format :: Paper field notes, being entered electronically

Status :: Not-at-risk. Stored in lab, funded at least until 1998

Publications :: Anderson, DJ and Ricklefs, RE. 1992 Brood size and food provisioning in

masked and blue footed boobies. Ecology 73:1363-1374

Anderson DJ 1990 Evolution of obligate siblicide in boobies. I. A test of the insurance egg hypothesis. Am Nat 135:334-350

Anderson DJ 1990. Evolution of obligate siblicide in boobies. II. Food limitations and parent-offspring conflict. Evolution 44: 2069-2082

Funding :: NSF, National Geographic Society, Chapman Fund, UC Davis, University of Michigan, George D. Harris Fund, Sigma Xi, Wake Forest University.

Availability :: Willing to be contacted, not for sharing

Notes ::

Descriptors :: Not-at-risk

4.

Title :: Loch Vale Watershed Long-Term Research Project

Caretaker :: Jill Baron, PI; Brian Newkirk, Data manager

Address :: National Biological Service, Natural Resource Ecology Lab, Colorado State University, Ft. Collins, CO 80523

Phone :: (970) 491-1968

Fax :: (970) 491-1965

Electronic Mail :: jill@nrel.colostate.edu; brian@nrel.colostate.edu

Location of Study :: Loch Vale Watershed, Rocky Mountain National Park; 40.17,105.39,3149 lat, long, elev alpine and subalpine, 660 hectares

Objectives :: LVWS Research Objectives

1. To observe and differentiate natural biogeochemical and biological variability from human-caused disturbance in alpine and subalpine ecosystems through intensive long-term study.
2. To understand and better quantify the role of climatic variability, particularly changes in precipitation and temperature, on alpine and subalpine processes.
3. To apply new and better methods to the addressing of the role of climate on winter snow accumulation, redistribution, and melt processes.
4. Estimate potential ecosystem damage induced by changes in climate due to regional land use change and/or globally-increasing greenhouse gases.

LVWS Program Objectives

1. To share results and information on real and potential threats to natural alpine and subalpine resources with the public, scientific community, and air, water, and land managers.
2. To apply information gained in Rocky Mountain National Park to other NPS and federally-managed lands in Colorado, nationwide, and worldwide.
3. To offer a program of graduate education and research that develops future scientists and knowledgeable resource managers.
4. To continue the Loch Vale Watershed long-term ecological research project as a successful example of ecosystem study design, interdisciplinary collaboration, long-term continuity of quality-assured data collection, database management, and better applied natural resource management.

Methods :: Loch Vale Data Sets: Meteorology Discharge Water Chemistry Diatom-Count Data Soils Vegetation Litter GPS Spatial SnowBig Thompson Data Layers Beaver Meadows and Loch Vale NADP Deposition Data Aquatic Invertebrate Species List, climate, soil, biogeochemistry data

Time Frame :: Start date: 1982 Censused weekly water chemistry, hourly weather. Still in progress. Some gaps in continuity

Data Format :: Paper field notes, tables; Electronic database; Photographs.

Status :: Data not at risk, Most data stored in Ingres database files, ascii files, and grass gis files. Stored at Natural Resource Ecology Lab. CSU

Publications :: Baron, J.S., E.J. Allstott, and B.K. Newkirk. 1994. Analysis of long-term sulfate and nitrate budgets in a Rocky Mountain basin. Accepted for International Association of Hydrological Science book: Biogeochemistry of Seasonally Snow-Covered Catchments

Baron, J, ed. 1992 Biogeochemistry of a subalpine ecosystem: Loch Vale Watershed. Springer-Verlog, NY.

Baron, J., D.S. Ojima, E.A. Holland, and W.J. Parton. 1994. Analysis of nitrogen saturation potential in Rocky Mountain tundra and forest: Implications for aquatic systems.

Biogeochemistry 27: 61-82.

Funding :: NPS, NBS

Availability :: Willing to be contacted, Refer to standard NBS data liability disclaimer

Notes ::

Descriptors :: Not-at-risk, Ecosystem, biogeochemistry, alpine, subalpine, water chemistry, weather, deposition

5.

Title :: Historical Water Chemistry from the Wisconsin Northern Highland Lake District (Birge and Juday data)

Caretaker :: Barbara Benson, Data Manager

Address :: Center for Limnology, University of Wisconsin-Madison, 680 N. Park St., Madison, WI 53706

Phone :: (608) 262-2573

Fax :: (608) 265-2340

Electronic Mail :: bbenson@macwisc.edu

Location of Study :: northern Wisconsin (see map)

Objectives :: These data sets are part of a general chemical, physical, and biological survey of lakes in northern Wisconsin under the sponsorship of the Wisconsin Geological and Natural History Survey.

Methods :: The lake chemistry data contain surface water chemistry and depth profiles. The surface water data set contains 602 lakes; the depth profile data set contains a 70 lake subset of the surface water set. The parameters in the data sets are original lake identification number, observation number, location (township), location (range), location (section number), lake type, date, depth, temperature, Secchi disc depth, color, conductance, pH, dissolved oxygen, fixed CO₂, free CO₂, ammonia nitrogen, organic nitrogen, nitrate nitrogen, soluble phosphorus, organic phosphorus, total phosphorus, chloride, sulfate, silica, calcium, magnesium, iron, plankton (dry weight org. by ignition), residue. Climate and soil data do not accompany. Lakes are relocatable.

Time Frame :: 1925 - 1941, gaps exist and vary by lake.

Data Format :: field notes and tables (paper), electronic text

Status :: Data are not at risk of being abandoned. The surface water chemistry and profile data were converted into electronic form and documented by the Wisconsin Department of Natural Resources. No plan to continue data collection exists. Data are stored on a 9-track tape. A copy of the surface water chemistry data is stored on the file server at the center for Limnology.

Publications :: Frey, D.G. 1963. Wisconsin: The Birge-Juday era. In Frey, D.G. (ed.). Limnology in North America. University of Wisconsin Press. Madison, WI.

Juday, C. & A.D. Hasler. 1944. List of publications dealing with Wisconsin limnology.

Transactions of the Wisconsin Academy of Sciences, Arts, and Letters 36: 469-490.

Funding :: University of Wisconsin-Madison, Wisconsin Department of Natural Resources, US EPA

Availability :: Willing to be contacted by others interested in these data.

Notes ::

Descriptors :: Water chemistry, lakes, northern Wisconsin, water temperature, water clarity, nutrients, nitrogen, phosphorus, 1925-1941

6.

Title :: Long-term effects of burning on reestablished tallgrass prairie.

Caretaker :: Thomas B. Bragg, Professor, Dept. of Biology - PI and data manager.

Address :: Department of Biology, University of Nebraska at Omaha; Omaha, NE 68182-0040

Phone :: (402) 554-3378

Fax :: (402) 554-3532

Electronic Mail :: tbragg@unomaha.edu

Location of Study :: Allwine Prairie Preserve: a 65 ha, reestablished tallgrass prairie owned by the University of Nebraska and managed by the Department of Biology. Douglas County, Nebraska. Latitude 41 degrees 23'3", longitude 96 degrees 9'57"

Objectives :: Plant sampling to assess affect of frequency and season of burning on community

composition.

Methods :: a. 9 burn treatments (burned in spring, summer, or fall every year or every fourth year, unburned, some burned with variable frequency and season) replicated 3 times (27 treatment plots).

b. Sampling: 10, 30 by 50 cm permanent plots are evaluated in each of the treatment areas using canopy cover. On burn dates, fuel load and fuel moisture are measured by clipping 3, 30 by 50 plots in each burn area. This also provides limited information on biomass. Precipitation is recorded at the site using an automated data collection system. Plots are relocatable.

Time Frame :: Start date: Some Plots began in 1976; the entire array of treatment plots, in their current configuration (including pre-treatment data sampling), began in 1979. Limited plots monitored continuously since 1990. Since 1979, sampling was conducted approximately every fourth year. Still in progress

Data Format :: Paper field notes, some tables. Electronic database

Status :: Not-at-risk, plan for continuation. Data are presently stored both on disks with the PI and on the VAX Mainframe Campus Computer.

Publications :: none

Funding :: personal and university funds

Availability :: Willing to be contacted. Normal standards for citation and crediting appropriate individuals for their efforts.

Notes ::

Descriptors :: Not-at-risk, reestablished tallgrass prairie, burn season, eastern Nebraska, permanent plots, fire

7.

Title :: Monitoring Surface-active Arthropod Populations

Caretaker :: James Brunt - data manager for all Sevilleta LTER data sets, Bob Parmenter - PI, Sandra Brantley - data manager for arthropod data sets

Address :: Department of Biology, University of New Mexico, Albuquerque, NM 87131

Phone :: (505) 277-3411

Fax :: (505) 277-0304

Electronic Mail :: brunt@sevilleta.unm.edu, parmentr@sevilleta.unm.edu, sbrantle@sevilleta.unm.edu

Location of Study :: Sevilleta National Wildlife Refuge, Socorro County, New Mexico. Biome transition zone among Great Plains grassland, Chihuahuan desert and Colorado Plateau shrub-steppe.

Objectives :: Track changes in the populations of surface-active arthropods over time and in different habitats. We are especially interested in changes resulting from long-term climate change or in response to ENSO events.

Methods :: There are nine sites covering a range of habitat types: desert grassland, desert shrubland, pinyon-juniper woodland, riparian forest, high-elevation grassland, mixed conifer forest. (The last three sites are in Socorro County but not on the Sevilleta itself.) Each site contains 15 pitfall traps, which are open all year around. Propylene glycol is the preservative. The data are observational; we record species and abundance for each trap. Climate data are available from meteorological stations near the sites. Microhabitat features of vegetation and soils around the traps are in the process of being described. Plots are relocatable. Individuals are relocatable. The pitfall traps have GPS coordinates. Individual arthropod specimens are added to the reference collection or are maintained in alcohol storage. Trap catches are pooled for a given site and date.

Time Frame :: Start date: April 1989, ongoing. Sampled every 4-8 weeks. Still in progress.

Data Format :: Paper field notes. Electronic database, text.

Status :: Data not at risk. A plan currently exists for continuation of data collection. Data are on paper sheets and on computer (UNIX). Data stored in Biology Annex, University of New Mexico

Publications :: For my dissertation I will publish the first papers involving all nine sites.

Dempsey, C. 1995. Arthropod responses to flooding in a riparian forest habitat. In preparation. (This work involves one of our nine sites and six years of data.)

Funding :: NSF

Availability :: Willing to be contacted by others. The data are not yet archived nor is summary data available. Not all species have been identified/verified by taxonomic experts, especially among the

arachnids and the lygaeids (hemipterans).

Notes ::

Descriptors :: arthropod populations, arthropod communities, insects, arachnids

8.

Title :: Relationship of forest ecosystem response variables to animal and plant population changes.

Caretaker :: Charles Canham, Gary Levitt, Clyde Jones, Rick Ostfeldt.

Address :: Institute of Ecosystem Studies, P.O. Box AB, Millbrook, NY 12545

Phone :: (914) 677-5343

Fax :: (914) 677-5976

Electronic Mail :: 73611.747@compuserve.com

Location of Study :: IES Experimental Forest

Objectives :: To integrate forest ecosystem response variables with independent variables.

Methods :: Monitoring of seed dispersal and predation (seed traps), insect population dynamics (especially gypsy moths), deer populations (using exclosures), deer browsing, small mammals, vegetation, air quality and soil moisture. Also looking at ecosystem/nutrient cycling.

Time Frame :: early 80's - present

Data Format ::

Status :: Not at risk, plan for continuation of data collection while still funded.

Publications ::

Funding :: NSF, an insurance company that is involved in charitable giving

Availability :: must contact PI

Notes :: Would like this information to be published in the directory of long-term data sets.

Descriptors :: forest ecosystem, nutrient cycling, seed dispersal, seed predation, gypsy moth population dynamics, deer populations, browsing, small mammals, vegetation, air quality, soil moisture, not-at-risk.

9.

Title :: Long-term studies of herbivore and pathogen damage to tropical trees

Caretaker :: Phyllis Coley (Lissy) or Thomas Kursar (Tom)

Address :: Biology Department, University of Utah, Salt Lake City, UT 84112

Phone :: (801)581-7088 [coley] (801)581-8369 [kursar]

Fax :: (801)581-4668

Electronic Mail :: Coley@biology.utah.edu; Kursar@biology.utah.edu

Location of Study :: Barro Colorado Island, Smithsonian Tropical Research Institute, Panama (9°n)

Objectives :: To document leafing phenology and rates of herbivory and pathogen damage on saplings of 35 tree species (20 different families). Attempts will be made to identify the species of insects and pathogens.

Methods :: Sample individuals are scattered along trails, monthly censuses on above parameters. Individuals are relocatable.

Time Frame :: 4 years Start date: July 1995 (with slightly different data starting in 1993) End date: 1999. Censused monthly. No gaps.

Data Format :: Paper field notes, electronic database.

Status :: Data not at risk of being abandoned, plans to continue exist. Database archived on a PC, vouchers of reared insects and leaves with pathogen damage are in a box under our desk on BCI

Publications :: none so far

Funding :: personal funds, NSF, university of Utah

Availability :: Permission of investigators required to make data available.

Notes :: May publish in directory

Descriptors :: Not at risk, herbivory, pathogens, woody plants, Panama, leafing phenology, tropics.

10.

Title :: Forest Dynamics Plot, Panama

Caretaker :: Richard Condit, (contact); Stephen Hubbell; Robin Foster (co-PI's)

Address :: Smithsonian Tropical Research Institute, Unit 0948, APO AA 34002-0948 U.S.A.

Phone :: 507-227-6022

Fax :: 507-232-5978

Electronic Mail :: rick@ctfs.stri.si.edu

Location of Study :: Barro Colorado Island, Panama

Objectives :: To observe tree population changes and demography, test hypothesis about diversity.

Methods :: 1 plot 50 hectares, stems > or = 10 mm dbh measured, identified ancillary projects on reproduction [fruit production]. Seedling density and survival in subplots. Tree genetics, fungal ecology and pathology, insect censuses. Complete climate data, some soil information. Plots and individuals are relocatable.

Time Frame :: Start date: 1981 and ongoing. Censused every five years.

Data Format :: field notes and maps, electronic databases in Foxpro, and ascii, maps of species distribution and topography

Status :: not at risk, stored on computers in Panama City and Princeton, N.J.

Publications :: Hubbell, S.P. and R.B. Foster. 1986. Biology, chance, and history and the structure of tropical rainforest tree communities. pp. 314-329 in Community ecology, J. Diamond and T.J. Case eds. Harper and Row, New York.

Condit, R., S.P. Hubbell, and R.B. Foster. 1992. Stability and change of a neotropical moist forest over a decade. *Bioscience* 42: 822-828.

Condit, R., S.P. Hubbell, and R.B. Foster. 1995. Changes in a tropical forest with a shifting climate: results from a 50 ha permanent census plot in Panama. *Journal of Tropical Ecology*, in press.

Funding :: NSF, Earthwatch, MacArthur Foundation, Smithsonian Tropical Research Institute, etc.

Availability :: data are always available, with minor restrictions

Notes ::

Descriptors :: Not-at-risk, tropical trees, forest dynamics, demography, community ecology

11.

Title :: Life Histories of Long-lived Organisms (Snapping, Banding's, and Painted Turtles)

Caretaker :: Justin Congdon

Address :: Savannah River Ecology Lab, Aiken, SC 29802

Phone :: (803) 725-2472

Fax :: (803) 725-3309

Electronic Mail :: jconndon@srel.edu

Location of Study :: The University of Michigan Museum of Zoology Edwin S. George Reserve Forest/Old Field/Wetland

Objectives :: To obtain life history data on long-lived animals of equal quality to that available for short-lived animals.

Methods :: Mark and recapture of up to 3 generations of individuals used to obtain age specific survival rates, body measurements, sex, location, and injuries or abnormalities. Approximately 9100 individuals marked and 35,000 capture and recaptures. During the reproductive season, gravid females were palpated and x-rayed and CS determined and egg width measured. Detailed observations of females at first reproduction recorded. Nests and hatchlings marked and monitored. Air and soil temperatures, windspeed, relative humidity, and nest temperature data accompany. Data collected by Owen Sexton 5 years, Henry Wilbur 5 years, Don Tinkle and Justin Congdon 21 years.

Time Frame :: 30 years data from 1954 - present, continuing.

Data Format :: field notes (paper), electronic database, x-rays

Status :: Data are not at risk of being abandoned. Data currently reside at Savannah River Ecology Lab. Archived data will be going to the University of Michigan Museum of Zoology.

Publications ::

Funding :: NSF, personal funds

Availability :: Willing to be contacted by others interested in these data.

Notes ::

Descriptors :: Life history, long-lived organisms, chelonia, age at maturing, fecundity, survivorship

12.

Title :: Plant Reestablishment on the Debris Avalanche at Mount St. Helens.

Caretaker :: Virginia H. Dale (PI)

Address :: Oak Ridge National Laboratory, Post Office Box 2008, Oak Ridge, TN 37831-6035

Phone :: 615-574-7329

Fax :: 615-574-7287

Electronic Mail :: vhd@ornl.gov

Location of Study :: Mount St. Helens, Gifford Pinchot National Forest, Washington State

Objectives :: Reestablishment of vegetation

Methods :: Ninety-seven 250 square-meter permanent plots, paced at 50 meter intervals; sampled via line transects and a point drop method; data collected include percent cover, species diversity, height of tallest trees, diameter of tallest trees, density of coniferous trees. Regional climate; soils collected from each plot; micro topographic descriptions. Plots are relocatable.

Time Frame :: Start date: 1980. Censused every year 1980-1985; every 5 years. Still in progress.

Data Format :: Paper field notes and tables, Electronic database, Photographs

Status :: Not at risk. Plan for continuation.

Publications :: Adams, A.B., and V. H. Dale. 1987. Comparisons of Vegetative succession following glacial and volcanic disturbances. N D. E. Bilderback (ed.), Mount St. Helens 1980: Botanical Consequences of the Explosive Eruptions, University of California Press, Los Angeles. pp. 70-147.

Dale, V. H. 1989. Wind dispersed seeds and plant recovery on the Mount St. Helens debris avalanche. Canadian Journal of Botany 67:1434-1441.

Dale, V. H. 1991. The debris avalanche at Mount St. Helens: Vegetation establishment in the ten years since the eruption. National Geographic Research & Exploration 7(3):328-341.

Funding :: National Geographic Society

Availability :: Willing to be contacted

Notes ::

Descriptors :: Not-at-risk

13.

Title :: Primary Succession on Mt. St. Helens

Caretaker :: Roger Del Moral

Address :: Department of Botany KB-15, University of Washington, Seattle, WA 98195

Phone :: (206) 543-6341

Fax :: (206) 685-1728

Electronic Mail :: moral@u.washington.edu

Location of Study :: Mt. St. Helens, following the 1980 volcanic eruption.

Objectives :: To explore mechanisms that control primary succession.

Methods :: Species presence and frequency data were collected from 100 x 250 m² circular plots. Plant cover by species measured in 24 x 1/4 m² quadrats positioned within the circular plots. Density and cover data were recorded in semi-log scale for each species in 10 x 10 m² cells within 5 grids.

Time Frame :: 1980 - present, continuing. Grid portion of study began in 1986. Censused annually.

Data Format :: electronic database, photographs

Status :: Data are not at risk of being abandoned. 4 more years of funding are available for continuation of the data collection. Plan to archive on CD-Rom

Publications :: Wood & Del Morale. 1988.; Del Morale & Wood. 1993. AJB 80: 981-991.

Funding :: NSF, LTREB

Availability :: Willing to be contacted by others interested in this data.

Notes ::

Descriptors ::

14.

Title :: Populations in Fluctuating Environments: Population Ecology of Two Species of Arid Adapted Lizards

Caretaker :: Art Dunham

Address :: Department of Biology, University of Pennsylvania, Philadelphia, PA 19104-6018

Phone ::

Fax :: (215) 898-8780

Electronic Mail :: adunham@mail.sas.upenn.edu

Location of Study :: Three sites in Big Bend National Park in the Chihuahuan Desert. *Sceloporus merriami* and *Urosaurus ornatus* arrayed along a 4000 foot steep elevation gradient.

Objectives :: To develop predictive models of population dynamics under conditions of temporal and spatial environmental variation.

Methods :: Using mark/recapture methods, data were collected on morphology, reproductive condition, sexual identity, behavior, and related social status, and mating systems. Physiological and actuarial senescence data collected as well as data involving the biophysics of lizard eggs and individual performance. Microclimate data, food availability, rainfall, and solar radiation data accompany. Individuals are relocatable.

Time Frame :: 1973 - present, continuing. Censused at least annually (normally 3 censuses per year).

Data Format :: electronic database, photographs, maps

Status :: Data are at risk of being abandoned. A plan exists for continuation of data collection, but funding is not yet available.

Publications :: Dunham, A.E. 1995. Theoretical overview. *American Zoologist* 34: 382-396.

Dunham, A.E. 1993. Population responses to environmental change: operative environments, physiologically structured models, and population dynamics. Pages 95-119 in Kingsolver, Huey, & Kareiva. *Biotic Interactions and Global Change*. Sinauer, Sunderland, MA.

McNear J. and A.E. Dunham. Review of physiologically structured modeling of populations.

Funding :: NSF, NPS (Climate Change Programs), National Geographic Society, University of Pennsylvania Foundation

Availability :: Willing to be contacted by others interested in this data.

Notes :: Also has started long-term plots project on plants at Big Bend National Park.

Descriptors ::

15.

Title :: Changes in salinity of Lake Washington and population dynamics and predation of *Diaptomus*, *Chaetoceros elmorei*, *Daphnia*, and cutthroat trout.

Caretaker :: W.T. Edmondson

Address :: University of Washington, Department of Zoology, Box 351800, Seattle, WA 98195-1800

Phone :: (206) 543-1669

Fax :: (206) 543-3041

Electronic Mail :: edmondson@u.washington.edu

Location of Study :: Coulee Lakes

Objectives :: To study special features of two alkaline, saline lakes in the Lower Grand Coulee when diluted with fresh-water, including changes in benthos and plankton. The effect of fish predation was studied when lowered salinity permitted survival of stocked cut-throat trout. The protective effect of carotenoids against photo damage of red copepods was demonstrated experimentally and related to the adaptive value of carotenoids for planktonic existence

Methods :: Standard chemical and phytoplankton, Clarke-Bumpus for zooplankton.

Time Frame :: 1949 - 1986 for extensive sampling

Data Format :: field notes, laboratory notebooks, computer files, discs, hard copy graphs and tables.

Status :: All material is in Kincaid Hall, Dept. of Zoology, University of Washington. Study continues and is not at risk of abandonment.

Publications :: Edmondson, W.T. 1963. Pacific Coast and Great Basin, pp. 371-392. In D.G. Frey (ed.) *Limnology of North America*. University of Wisconsin Press, Madison, Wisconsin.

Hairston, N.G. Jr. 1979. The adaptive significance of color-polymorphism in two species of *Diaptomus* (Copepoda). *Limnol. Oceanogr.* 24:15-37.

Luecke, C. 1990. Changes in abundance and distribution of benthic macroinvertebrates after introduction of cutthroat trout into a previously fishless lake. *Trans. Amer. Fish. Soc.* 119:1010-1021.

Funding :: Department of Energy (starting as Atomic Energy Commission)

Availability :: Some may be available for special purposes that do not duplicate what we are doing or might plan to do. (with permission of PI)

Notes ::

Descriptors :: saline lakes, effects of dilution, protection against photo damage by carotenoids, whole-lake quasi-experiment, Cut-throat trout predation

16.

Title :: Eutrophication and recovery of Lake Washington: diversion of sewage, effects of land development, and changes in population dynamics, community structure, and pH. Species studied are *Diaptomus*, *Oscillatoria rubescens*, *Epischura-Bosmina*, *Bosmina*, *Daphnia*, *Neomysis*.

Caretaker :: W.T. Edmondson

Address :: University of Washington, Department of Zoology, Box 351800, Seattle, Washington, 98195-1800

Phone :: (206) 543-1669

Fax :: (206) 543-3041

Electronic Mail :: edmondson@u.washington.edu

Location of Study :: Lake Washington

Objectives :: To make a long-term study of Lake Washington as it responded to various changes: an increase in cyanobacteria with increasing input of sewage effluent, recovery after diversion of the effluent, major changes in community structure after modification of spawning conditions for planktivorous fish in the major inlet, and chemical changes in all the inlets following changes in land use. Detailed information was obtained on nearly 100 taxa of phytoplankton and about 25 species of zooplankton. Many cores were taken for paleolimnological analysis.

Methods :: Standard chemical and phytoplankton, Clarke-Bumpus for zooplankton. Piston cores for paleolimnology.

Time Frame :: 1949 - present

Data Format :: field notes, laboratory notebooks, computer files, discs, hard copy graphs and tables.

Status :: All material is in Kincaid Hall, Dept. of Zoology, University of Washington. Study continues and is not at risk of abandonment. Data records (notebooks, summary sheets, computer files, discs, graphs and tables) will be deposited in and available from the University of Washington Archives.

Publications :: Edmondson, W.T. 1991b. The uses of ecology: Lake Washington and beyond. Univ. of Washington Press, Seattle.

Edmondson, W.T. 1993. Experiments and quasi-experiments in Limnology. Bull. Mar. Sci. 53: 65-83.

Edmondson, W.T. 1994. Sixty years of Lake Washington: a curriculum vitae. Lake Reserve Manage. 10:75-84.

Funding :: NSF, Andrew W. Mellon Foundation, EPA, NIH

Availability :: Some may be available for special purposes that do not duplicate what we are doing or might plan to do. (with permission of PI)

Notes ::

Descriptors :: whole-lake quasi-experiment, ecosystem, plankton community structure, population dynamics, effects of land use, paleolimnology, *Daphnia* grazing, *Neomysis* predation, Longfin smelt predation

17.

Title :: Consequences of meromixis loss and re-establishment.

Caretaker :: W.T. Edmondson

Address :: University of Washington, Department of Zoology, Box 351800, Seattle, WA 98195-1800

Phone :: (206) 543-1669

Fax :: (206) 543-3041

Electronic Mail :: edmondson@u.washington.edu

Location of Study :: Hall Lake

Objectives :: To study special features of a soft-water meromictic lake, the consequences of loss of

meromixis, and of re-establishment of moromixis. Chemical effects of changes in the watershed were recognized.

Methods :: Standard chemical and phytoplankton, Clarke-Bumpus for zooplankton.

Time Frame :: 1949 -1981

Data Format :: field notes, laboratory notebooks, computer files, discs, hard copy graphs and tables.

Status :: All material is in Kincaid Hall, Dept. of Zoology, University of Washington. Study continues and is not at risk of abandonment.

Publications :: Edmondson, W.T. 1963. Pacific Coast and Great Basin, pp. 371-392. In D.G. Frey (ed.) Limnology of North America. University of Wisconsin Press, Madison, Wisconsin.

Culver, D.A. 1977. Biogenic meromixis and stability in a soft water lake. Limnology and Oceanography 22:667-686.

Culver, D.A., R.M. Vaga, C.S. Munch, and S.M. Harris. 1981. Paleoecology of Hall Lake, Washington: a history of meromixis and disturbance. Ecology 62:848-863.

Funding :: Department of Energy (starting as Atomic Energy Commission)

Availability :: Some may be available for special purposes that do not duplicate what we are doing or might plan to do. (with permission of PI)

Notes ::

Descriptors :: meromixis, effect of loss of meromixis, plankton abundance and community structure, whole-lake quasi-experiment

18.

Title :: Long-term monitoring of the northern Gulf of Eilat

Caretaker :: Dr. Amatzia Genin (PI and data manager)

Address :: The Hebrew University, H. Steinitz Marine Biology Laboratory, P.O.Box 469, Eilat 88103, Israel.

Phone :: 972-7-360111

Fax :: 972-7-374329

Electronic Mail :: amatzia@vms.huji.ac.il

Location of Study :: Shore station, off the H. Steinitz Laboratory, Eilat, Israel Lat: 29 deg 30' N Long: 34 deg 55'E Water-borne measurements are taken off a pier; meteorological measurements are made on the roof of the lab, about 60 m inshore.

Objectives :: Monitoring abiotic parameters (see below) and chlorophyll a concentrations. The habitat is coral reef.

Methods :: Daily measurements (working days only): sea-surface temperature, chlorophyll a concentration, cloud cover. Continuous measurements: Wind (speed and direction), air temperature, global and direct radiation, relative humidity, current (speed and direction). Occasional measurements: salinity, nutrient (TON and phosphate) concentrations, zooplankton abundance. All measurements are made at fixed stations

Time Frame :: Start date: 1 Jan. 1988. Still in progress.

Data Format :: all data is stored as computer files (ASCII and spreadsheet on a PC)

Status :: Not at risk, planned for continuation. Stored in PC environment at the PI's laboratory.

Publications :: Two submitted; titles will be provided upon acceptance for publication.

Funding :: Mostly the PI's grants and seed money as well as some institutional (The Interuniversity Institute of Eilat) funds and lately a grant from the Israel Ministry for the Environment.

Availability :: Willing to be contacted. At this stage I tend to use these data myself until about two more publications are written up. Thus, I see the data given to others about 2-3 years from now.

Notes ::

Descriptors :: Not-at-risk

19.

Title :: Lake Tahoe Basin Environmental Research Project

Caretaker :: Dr. Charles R. Goldman (PI)

Address :: Division of Environmental Studies, University of California, Davis, California 95616

Phone :: (916)752-1557

Fax :: (916)752-3350

Electronic Mail :: crgoldman@ucdavis.edu

Location of Study :: Lake Tahoe is a deep (501 m max. depth; 313 m avg. depth), ultraoligotrophic, montane (1892 m elevation) lake in the northern Sierra Nevada on the California-Nevada border (Lat. 39 deg. 10'N, Long. 120 deg. 08'W) straddling five different counties. Located in a graben basin modified by volcanic activity and glacial action, the 34.7 km long, 19.2 km wide lake receives in flowing waters from a 800 km² watershed which is dwarfed by the lake's immense volume (156 km³) and surface area (499 km²).

Objectives :: Long-term and seasonal trends/changes in, a) algal productivity and biomass, b) biota (species abundance, biomass, distribution, interactions), c) nutrients (concentrations, budget), d) the extent and timing of deep mixing of the lake, e) light transmission (water clarity), temperature, and dissolved oxygen, f) the amount, timing, and form of annual hydraulic load, g) atmospheric, groundwater, and stream inputs of new nutrients. Data are provided to regulatory agencies to assist in Tahoe basin management decisions.

Methods :: The following are routinely monitored at Lake Tahoe: 1) water column primary productivity (C-14 method), nutrient concentrations, dissolved inorganic carbon, dissolved oxygen, temperature, light transmission, Secchi depth, chlorophyll, phytoplankton and zooplankton abundance and biomass between 0 and 400 meters depth (~13 to 20+ individual depths per variable), 2) analysis of Tahoe fisheries (natural history; habitat), pier influences; dredging impacts, 3) daily solar radiation, 4) precipitation amount, form, and chemical analysis. Lake sediment analysis (textural and x-ray diffraction analysis, organic carbon content, pollen and diatom frustule content, sediment core dating, sedimentation rate determination, pore water chemistry). Plots are relocatable.

Time Frame :: Start date: May 1959. Censused at 10-day intervals at the Index station year-round, 30-day intervals at the Mid-lake station during summer→winter, 15-day intervals at the Mid-lake station during spring. Still in progress. Gaps in continuity between October 1962 to 1967

Data Format :: Paper field notes, tables. Electronic: database. Photographs and videotapes. Maps of various sizes

Status :: Data not at risk. A plan currently exists for continuation of data collection. Archived in the Limnology Research Group Data Center, University of California, Davis (primarily field notes, raw data sheets, charts, tables and other paper format). Archived on disk (large portions of data described above).

Publications :: Goldman, C.R. 1981. Lake Tahoe: two decades of change in a nitrogen deficient oligotrophic lake. Plenary Lecture. Verh. Internat. Verein. Limnol. 21:45-70.

Goldman, C.R. and E. de Amezaga. 1984. Primary productivity and precipitation at Castle Lake and Lake Tahoe during twenty-four years, 1959-1982. Verh. Internat. Verein. Limnol. 22:591-599.

Goldman, C.R. 1990. The importance of long-term limnological research with emphasis on Lake Tahoe and Castle Lake, p.221-231. In R. de Bernardi et al. (eds.), Scientific Perspectives in Theoretical and Applied Limnology. C.N.R., Istituto Italia di Idrobiologia, Pallanza, Italy.

Funding :: NSF, USFS, USGS, University of California, Davis (UCD), State Water Resources Control Board (SWRCB), Tahoe Regional Planning Agency (TRPA), Lahontan Regional Water Quality Control Board (LRWQCB), California Fish and Game (CFG), Nevada Department of Wildlife, El Dorado County

Availability :: Willing to be contacted by others. Generally speaking, this project prefers to provide published data or have applicants describe in writing how they intend to use the data. This is essential to protect students' work in progress, the project's publication plans. In any event, any requests for use of the data should be in writing.

Notes ::

Descriptors :: untraoligotrophic, productivity, nutrients

Title :: LTREB - Interannual Variability, Food-Web Interactions, and Climatic Forcing: A Program for Continued Long-Term Research at Castle Lake

Caretaker :: Dr. Charles R. Goldman (PI)

Address :: Division of Environmental Studies, University of California, Davis, California 95616

Phone :: (916)752-1557

Fax :: (916)752-3350

Electronic Mail :: crgoldman@ucdavis.edu

Location of Study :: Castle Lake is a moderately productive, subalpine lake located in Siskiyou County, California (Lat. 41 deg. 13'N, Long. 122 deg. 22'W). It is a typical glacial cirque lake with a surface area of 20.1 ha and a maximum depth of approximately 40 meters.

Objectives :: To enhance understanding of long-term and seasonal trends/changes and relate these to climatic variation and food web structure. Parameters monitored included: a) algal productivity and biomass. b) biota (species abundance, biomass, distribution, interactions) with specific emphasis on: 1) the whole-lake food web. 2) microbial (bacteria, picoplankton, mixotrophic phytoplankton, heterotrophic flagellates, ciliates) dynamics. 3) manipulation of trout planktivory pressure through high and low fish, stocking

c) nutrients (concentrations, nutrient limitation, nutrient cycling and loading), d) light transmission (water clarity), temperature, and dissolved oxygen

Methods :: Historically the rainbow trout population (the top predator) in Castle Lake was maintained through annual stocking of 10,000 fish. During the last 6 years we have requested that the California Department of Fish and Game vary trout stocking rates from zero fish/year for 3 years to 30,000 fish/year for another 3 years. This cycle will be repeated for an additional 6 years. We also conduct concurrent meso- and microcosm experiments. The following are routinely monitored at Castle Lake: 1) water column primary productivity (C-14 method), nutrient concentrations, dissolved inorganic carbon, dissolved oxygen, temperature, pH, conductivity, light transmission, Secchi depth, chlorophyll, phytoplankton and zooplankton abundance and biomass between 0 and 30+ meters depth (~13 to 30+ individual depths per variable), 2) total daily solar radiation, 3) Monitoring of fish populations by acoustics and video observations, 4) assessment of zooplankton abundances, growth, diet, recruitment, and degree of planktivory using techniques of zooplankton population biology (e.g. egg ratios, estimates of birth and death rates, physiological measures of food status such as lipid content, grazing rates on major algal taxa), and 5) evaluation of phytoplankton-resource relations by monitoring algal nutritional conditions and using dilution bioassays to determine species-specific growth kinetics for major limiting nutrients; evaluation of the roles of externally vs. internally supplied N in supporting algal productivity using N-15 isotope techniques. Lake sediment analyses have been performed (pore water chemistry; denitrification). Plots are relocatable.

Time Frame :: Start date: March 1959. Censused approx. monthly during late fall-->spring; At 5 to 7-day intervals during summer-->early fall. Still in progress.

Data Format :: Paper field notes tables. Electronic database. Maps: 8.5" x 11"; <5 maps

Status :: Data not-at-risk. A plan currently exists for continuation of data collection. Archived in the Limnology Research Group Data Center, University of California, Davis (primarily field notes, raw data sheets, charts, tables and other paper format). Archived on disk (large portions of data described above).

Publications :: Goldman, C.R., A.D. Jassby, and T.M. Powell. 1989. Interannual fluctuations in primary production: Meteorological forcing at two subalpine lakes. *Limnol. Oceanogr.* 34:310-323.

Jassby, A.D., T.M. Powell and C.R. Goldman. 1990. Interannual fluctuations in primary production: Direct physical effects and the trophic cascade at Castle Lake, California. *Limnol. Oceanogr.* 35(5):1021-1038.

Elsner, J.J., C.J. Luecke, M.T. Brett, and C.R. Goldman. 1995. Effects of food-web compensation after manipulation of rainbow trout in an oligotrophic lake. *Ecology* 76:52-69.

Funding :: NSF funds

Availability :: Willing to be contacted by others. Generally speaking, we like to provide published data or have applicants describe in writing how they intend to use the data. This is essential to protect students' work in progress, and the project's plans. In any event, any requests for use of the data should be in writing.

Notes ::

Descriptors :: food web, productivity, planktivory

21.

Title :: Behavioral Ecology of Harvester Ants

Caretaker :: Deborah M Gordon PI

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Phone :: 415 725 6364

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Electronic Mail :: gordon@ants.stanford.edu

Location of Study :: Near Rodeo, NM at 4500'

Objectives :: A series of experiments since 1981 have examined foraging ecology, interspecific interactions, intraspecific competition for space, territorial behavior and colony development in a population of colonies of the seed-eating ant *Pogonomyrmex barbatus*. Population size averages about 250 colonies. Study site is 400 by 500 m.

Methods :: Census includes all colonies of *P. barbatus* on the site; all are individually labeled so ages can be determined. Also data on nest relocations. Neither plots nor individuals are relocatable.

Time Frame :: Start date summer 1985, study continues Censused yearly Still in progress

Data Format :: Paper field notes, tables. Electronic database, text other. Photographs and videotape. Maps

Status :: Data not at risk of abandonment. Plan for continuation of data collection. Data are archived in macintosh at Stanford.

Publications :: 1995. Gordon, D. M. The development of an ant colony's foraging range. *Animal Behaviour* 49: 649-659.

1993. Gordon, D. M. The spatial scale of seed collection by harvester ants. *Oecologia* 95: 479-487.

1991. Gordon, D. M. Behavioral flexibility and the foraging ecology of seed-eating ants. *American Naturalist* 138:379-411.

Funding :: NSF, university, National Geographic Society, Centre for Population Biology, Silwood Park, Imperial College UK, British Ecological Society

Availability :: Data could be made available. Permission from PI

Notes ::

Descriptors :: seed-eating ants, *Pogonomyrmex barbatus*, spatial distribution, life history, colony growth, foraging ecology

22.

Title :: Successional Dynamics Following Logging and Burning in the HJ Andrews, Watersheds 1 and 3

Caretaker :: PI - Charlie Halpern or Gody Spycher - data manager

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Electronic Mail :: chalpern@lternet.edu

Location of Study :: H.J. Andrews Experimental Forest, 65km ENE of Eugene Oregon, Watersheds 1 and 3

Objectives :: Characterize patterns of early secondary succession among a range of forest understory communities following logging and burning. Data will be used to analyze changes in community composition, structure, and biomass with time and to examine the roles of initial species composition and disturbance intensity on long-patterns of community development

Methods :: A series of parallel transects perpendicular to slope contours with plots spaced 30 m apart. Circular plots (250 m sq) with all trees > 1.4 m tall tagged and measured for diameter and vigor; 2 x 2 m vegetation plots in which species cover and biomass measurements (diameters, heights, densities) are taken. 131 plots on Watershed 1, 61 plots on watershed 3

Time Frame :: 1962 to present. Sampling frequency: annually for the period 1962-1973; every 3-4

year thereafter.

Data Format :: Electronic database

Status :: Data continues to be collected and is housed on a pc server

Publications :: Halpern, C. B., and T. A. Spies. 1995. Plant species diversity in natural and managed forests of the Pacific Northwest. *Ecological Applications* (In press).

Busing, R. T., C. B. Halpern, and T. A. Spies. 1995. Ecology of Pacific yew (*Taxus brevifolia*) in western Oregon and Washington: the role of old-growth forests. *Conservation Biology* (In press).

Halpern, C. B., J. A. Antos, K. Cromack, Jr., and A. M. Olson. 1992. Species' interactions and plant diversity during secondary succession. *The Northwest Environmental Journal* 8:203-205.

Halpern, C. B., J. F. Franklin, and A. McKee. 1992. Changes in plant species diversity after harvest of Douglas-fir forests. *The Northwest Environmental Journal* 8:205-207.

Funding :: USFS, Oregon State University, NSF LTER

Availability :: Welcome contact from others, PI permission required to release data

Notes ::

Descriptors :: succession, species diversity, clear-cut, logging, slash and burn, disturbance, Cascade Range, Douglas-fir, forest dynamics, species life histories, biomass, forest understory

23.

Title :: U.S. Forest Service Growth and Yield Studies

Caretaker :: Mark Harmon

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Phone :: 541-750-7333

Fax :: 541- 737-1393

Electronic Mail :: harmonm@ccmail.orst.edu

Location of Study :: Western Oregon and California

Objectives :: To predict growth and yield of widely distributed forest stands

Methods :: Observational design to create a chronosequence. Set up about 2000 1 to 4 acre plots in different aged (50 to 1000 yrs) stands. Data collected on height, volume, dbh. Disturbed areas avoided. Many stands no longer exist. McArdle and Meyer were 2 key foresters involved in project. Plots are not relocatable, although some maps of general locations may be available.

Time Frame :: Start date: 20's End date: 30's Although some nearby plots are monitored in a separate USFS project.

Data Format :: Data in paper field notes and tables.

Status :: Data at risk of abandonment. Data stored in a federal archive, no one knows where for sure..

Publications :: USDA Technical Bulletins 1937 #544

Funding ::USFS

Availability :: Willing to be contacted

Notes ::May be included in directory

Descriptors :: At-risk, forest growth, production, carbon accumulation, succession

24.

Title :: Benthic Community Structure in the Isles of Shoals

Caretaker :: Larry Harris

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Phone :: (603) 862-2100

Fax :: (603) 862-3784

Electronic Mail :: lharris@christa.unh.edu

Location of Study :: Granitic slope

Objectives :: To monitor general community and population structure of kelps, sea urchins, and predator species.

Methods :: Observations on .10 m² granite blocks. Organisms censused include sea urchins, kelps, and predator species. Data collected on relative abundances of conspicuous organisms over depth (sites at 25, 60, and 100 ft) and effect of water flow on settlement and recruitment. Some experimental

manipulations of sea urchin settlement.

Time Frame :: 1976 - present, for earliest site. 1982 - present, sea urchin settlement project. Censused roughly annually.

Data Format :: field notes (paper), electronic database, photographs, videotape

Status :: Data are not currently at risk of being abandoned. Stored on photographs and paper files.

Publications :: Witman, J.D. 1985. Refuges, biological disturbance, and rocky subtidal community structure in New England. *Ecological Monographs*. 55:421-445.

Martin, P.D. S.P. Truchon, and L.G. Harris. 1988. *Strongylocentrotus droebachiensis* populations and community dynamics at two depth-related zones over an eleven year period. Pages 475-482 in Burch, editor. *Proceedings of the International Echinoderm Conference*. AA Balkesma, Boston

Harris, L.G., B. Rice, and E.C. Nestler. 1994. Settlement, early survival and growth in a southern Gulf of Maine population of *Strongylocentrotus droebachiensis* (Muller). Pages 701-706 in David, B., editor. *Proceedings of the 8th International Echinoderm Conference*. AA Balkesma, Boston

Funding :: NSF, Sea Grant

Availability :: With permission from PI.

Notes :: Would like this information to be published in the directory of long-term data sets.

Descriptors :: Alternate community states, subtidal zonation, urchin population fluctuations, impact of grazers

25.

Title :: Fouling Panel Study

Caretaker :: Larry Harris

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Location of Study :: Portsmouth Harbor, New Castle Coast Guard Station, NH.

Objectives :: To determine how community structure varies with substrate angle.

Methods :: 96 0.10 m² relocatable surfaces suspended at vertical, and upper and lower horizontal angles. Some surfaces suspended adjacent to and others suspended away from pier pilings. Species presence/absence data collected. Temperature data are also available.

Time Frame :: 1979 - present, censused monthly to quarterly to yearly.

Data Format :: field notes and tables (paper), photographs (6 years)

Status :: Data are not at risk of being abandoned. Stored as photographic and paper data sets in dedicated file system

Publications :: Harris, L.G. and K.P. Irons. 1982. Substrate angle and predation as determinants in fouling community succession. Pages 131-174 in Cairnes, J., editor. *Artificial substrates*. Ann Arbor Science Publishers, Inc., Ann Arbor

Berman, J., L.G. Harris, W. Lambert, M. Buttrick, and M. Dufresne. 1991. Recent invasions of the Gulf of Maine: three case histories. *Conservation Biology* 6:435-441.

Funding :: Sea Grant, ONR (Office of Naval Research)

Availability :: Available with permission from PI.

Notes :: Would like this information to be published in the directory of long-term data sets.

Descriptors :: Substrate angle, predator access, succession, competition

26.

Title :: Kelp Bed Study

Caretaker :: Larry Harris

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Electronic Mail :: lharris@christa.unh.edu

Location of Study :: Cape Neddick, Maine

Objectives :: To determine the impact of urchin removal on community succession. Other monitored species include mussels, fish, and algae.

Methods :: Species density and substrate distribution data collected for sessile plants and animals along transects. Plots not relocatable. Most monitoring conducted on a series of permanent rock surfaces.

Time Frame :: 1979 - present, censused quarterly to yearly.

Data Format :: tables (paper), electronic database, photographs

Status :: Data are not at risk of being abandoned. Data are retained in files, tables and figures in paper form.

Publications :: Manuscript in preparation for Ecological Monographs.

Funding :: NSF, Sea Grant, ONR

Availability :: Data are available.

Notes :: Would like this information to be published in the directory of long-term data sets.

Descriptors :: species density, substrate distribution, mussels, fish, algae, urchin removal, community succession, not at risk, secondary succession, substrate distribution, linkage between grazers, predation, recruitment

27.

Title :: Long-term organic matter dynamics and nutrient cycling in agroecosystems of the Southern Piedmont, Georgia

Caretaker :: Paul F. Hendrix, David C. Coleman, D.A. Crossley, Jr., co-PI's

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Location of Study :: Clarke City., Georgia; 330 54' N, 830 24' W. The site is situated on a bottomland terrace on a river flood plain with <2% slope. Soil is well drained sandy clay loam (clayey, kaolinitic, thermic Rhodic Kahapludult, Hiwassee taxajunct) with 64% sand, 12% silt and 22% clay, derived from alluvium under mixed hardwood/pine forest (predominantly Quercus spp., Carya spp., and Pinus spp.). Prior to establishment of the experiment in 1978, the site had been under old field vegetation for 12 years. Before 1966, the area was under forage and pasture management for an unknown period.

Objectives :: Long-term monitoring of and experiments testing ideas about biotic controls on plant production and soil organic matter dynamics in agroecosystem

Methods :: 8 study plots, each 0.1 ha. Tillage treatments are laid out as main plots in a completely randomized design with four replications. Winter cover crops are split plots on each main tillage plot. Summer crop have consisted of grain sorghum, soybeans or corn, and winter cover crops of crimson clover or winter rye. Aboveground net production of crop and weeds, and soil organic C and N measured in fall and spring, Soil microbial, faunal; and other chemical data collected in conjunction with field experiments. Plots are relocatable.

Time Frame :: Start date: spring 1978 and is ongoing Censused monthly within seasons. Some gaps in continuity.

Data Format :: Paper (field notes and tables). Electronic database and text, photographs and videotape and maps.

Status :: The already collected data are not at risk of being abandoned, Plans to continue data collection exist. Data are archived in data files at the Institute

Publications :: Groffman, P., G. House, P. Hendrix, D. Scott, and D.A. Crossley, Jr. 1986. Nitrogen cycling as affected by interactions of components in a Georgia piedmont agroecosystem. Ecology 67:80-87

Beare, M.H., R.W. Parmelee, P.F. Hendrix, W Cheng, D.C. Coleman, and D.A Crossley Jr. 1992. Microbial and faunal interactions and effects on litter nitrogen and decomposition in agroecosystems. Ecological Monographs 62:569-591.

Hendrix, P.F. 1995. Long-term patterns of plant production and soil carbon dynamics in a Georgia Piedmont agroecosystem. In: E.A. Paul, K. Paustian, E.T. Elliott, and C.V. Cole, eds. Soil organic matter in temperate agroecosystems: Long-term experiments in North America. Lewis

Publishers, Ann Arbor, MI. (In press).

Funding :: NSF, USDA, EPA, University of Georgia

Availability :: May contact. The data sets would have to be cleared for use with PI's responsible.

Notes ::

Descriptors :: Georgia, conventional tillage and no tillage plots, organic matter dynamics, plants, microbes, fauna, not-at-risk, litter nitrogen and decomposition.

28.

Title :: HJ Andrews Network of Meteorologic Stations

Caretaker :: Don Henshaw - data manager

Address :: US Forest Service, Forestry Sciences Lab, 3200 SW Jefferson Way, Corvallis OR 97331

Phone :: (503) 750-7335

Fax :: (503) 750-7329

Electronic Mail :: Email: henshawd@fsl.orst.edu

Location of Study :: H.J. Andrews Experimental Forest, 65km ENE of Eugene Oregon

Objectives :: Provide long-term meteorologic record.

Methods :: Meteorological Stations are located within the Andrews to capture meteorological variations and gradients by elevation and aspect. Variables measured include air, soil and stream temperature, relative humidity, precipitation, wind speed and direction, soil moisture potential, dewpoint, vapor pressure deficit, and snowmelt. A three-tier hydro-meteorological network for data monitoring is established. The networks at each tier or level will be nested to form a coordinated program of data measurement. The first level in this top-down approach consists of Benchmark Meteorological Stations (BMS) and Benchmark Stream Stations (BSS). The BMS are designed to represent the environment across the Andrews. These stations are intended to provide complete, long-term, high temporal resolution hydrometeorological and micro-meteorological data. The second level stations (SLS) will be located along various toposequences, and primarily designed to represent spatial variability of precipitation, air, soil, and stream temperature in rugged mountain topography. The third and lowest level of network would consist of stations at selected sites for collecting data for specific objective oriented, micro-level investigations.

Time Frame :: 1970 to present, Sampling frequency: continuous

Data Format :: Electronic database

Status :: Data continues to be collected and is housed on a pc server. All data stored in the Oregon State University Forestry Sciences Data bank (FSDB). Publicly accessible data can be found at the following world wide web server; <http://www.fsl.orst.edu/lterhome.html>

Publications :: Bierlmaier, Frederick A.; McKee, Arthur. Climatic summaries and documentation for the primary meteorological station, H.J. Andrews Experimental Forest, 1972 to 1984. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. Gen. Tech. Rep. PNW-242; 1989 (56).

Greenland, David. The climate of the H.J. Andrews Experimental Forest, Oregon, and its regional synthesis. : USDA Forest Service, Pacific Northwest Research Station; 1993. 39 p.

Waring, R. H.; Holbo, H. R.; Bueb, R. P.; Fredriksen, R. L. Documentation of meteorological data from the Coniferous Forest Biome primary station in Oregon. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. Gen. Tech. Rep. PNW-73; 1978 (23).

Funding :: USFS, Oregon State University, NSF LTER

Availability :: Willing to be contacted, PI permission required to release data

Notes ::

Descriptors :: HJ Andrews Experimental Forest, LTER, meteorology, climatology, precipitation, temperature, solar, wind, snow, relative humidity, soil moisture

29.

Title :: HJ Andrews Watershed Streamflow Summaries

Caretaker :: Don Henshaw - data manager

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Location of Study :: H.J. Andrews Experimental Forest, 65km ENE of Eugene Oregon

Objectives :: Streamflow from selected small watersheds has been continuously monitored at the Andrews since 1953. The objective of these studies have been several fold: to evaluate long-term changes in hydrology associated with various management treatments, notably clearcut logging; to provide baseline data for affiliated nutrient, water chemistry, and sediment transport studies; and to characterize the hydrologic regime of old-growth forests at different elevations.

Methods :: The H.J. Andrews Experimental Forest comprises the Lookout Creek Basin (6500 ha). Lookout Creek as well as nine smaller watersheds within the basin have gaging stations. The nine sites consist of three sets of paired watershed experiments (WS 1, 2, 3; 6, 7, 8; and 9, 10) and Mack Creek, a larger (6.0 km²), old-growth watershed. Drainage areas for the paired watersheds range from 9 to 100 ha and elevations range from 460 to 960 m. Watersheds 2, 8, and 9 are forested controls.

Treatments include 100% clearcut (WS 1,6, and 10), patch cut with roads (WS 3) and shelterwood cut (WS 7). Watersheds 2,8, and 9 are forested controls. Streamflow is measured continuously with Leopold-Stevens A-35 chart recorders and Campbell Scientific CR-10 data loggers. Lookout Creek gaging station is maintained by the U.S. Geological Survey. Records are maintained by the U.S.G.S., but also stored in the Andrews LTER databank (FSDB).

Time Frame :: 1953 to present (WS 1,2,3), 1964 to present (WS 6,7,8),

1969 to present (WS 9,10), 1980 to present (Mack Creek),

1950 to present (Lookout Creek) Sampling frequency: continuous (15 minute), except Lookout Creek (daily)

Data Format :: Electronic database

Status :: Data continues to be collected and is housed on a pc server. All data stored in the Oregon State University Forestry Sciences Data bank (FSDB). Publicly accessible data can be found at the following world wide web server; <http://www.fsl.orst.edu/lterhome-html>

Publications :: Harr, R. Dennis. Effects of clear cutting on rain-on-snow runoff in western Oregon: a new look at old studies. Water Resources Research. 1986; 22(7): 1095-1100.

Harr, R. Dennis. Hydrology of small forest streams in western Oregon. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. Gen. Tech. Rep. PNW-55; 1976 (15).

Harr, R. Dennis; Levno, Al; Mersereau, Roswell. Streamflow changes after logging 130-year-old Douglas-fir in two small watersheds. Water Resources Research. 1982; 18(3): 637-644.

Funding ::USFS, Oregon State University, LTER NSF

Availability :: Willing to be contacted PI permission required to release data

Notes ::

Descriptors :: streamflow, hydrology, runoff, logging, forestry methods, water supply, runoff

30.

Title ::HJ Andrews Proportional Samples: Long Term Stream Chemistry Patterns

Caretaker :: Don Henshaw - data manager

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Location of Study :: H.J. Andrews Experimental Forest, 65km ENE of Eugene Oregon

Objectives :: The objective is to evaluate the significance of nutrient losses from a forest soil-plant system after timber harvest, and to examine the nutrient budget for a small watershed.

Methods :: Use WS 9 as a control for WS 10 to examine change in nutrient loss before and after logging WS 10. Use rain collector to monitor inputs in precipitation. Nutrient concentration of elements can be compared and total yields are determined based on streamflow totals and precipitation totals. Similarly, WS 6 (clearcut), WS 7 (shelterwood cut), and WS 8 (control) were established to examine

changes in nutrient loss. Study began in 1969. WS 2 (old-growth control) and Mack Creek (3rd order old growth - 15% cut) have also been monitored for stream water quality since 1980. Stream water is sampled from each stream at a rate proportional to the streamflow rate. Composite samples, taken over periods ranging from 1 to 3 weeks, contain representative sampling of the sediment and dissolved constituents carried by the stream over the collection period. Samples are collected in 5 gal. polyethylene carboys. Streamflow is measured continuously with Leopold-Stevens A-35 recorders. Official compilation of water analyses begins with the WY 1969 (10/1/68). The first year, water was stored at 0° until operation of the PNW-1653 lab in spring, 1969. Originally, samples are analyzed for suspended sediment, alkalinity, pH, ammonia nitrogen, nitrate, nitrite, dissolved organic nitrogen, ortho and total phosphorus, sodium, potassium, calcium, magnesium, and silica. Sulfate was determined for WY 1972 and sulfate and chloride in WY 1979. Aluminum, iron, manganese, and nitrite were below levels of detection and were subsequently dropped from analysis. Analysis of sp conductivity was added in 12/74 and total P on an unfiltered sample in 10/74. Analysis of total N on an unfiltered sample was started in 6/78. In general, duplicates were run on all analyses until 10/83. Currently, all samples are filtered upon arrival at the Corvallis lab and pH, alkalinity, conductivity, and autoanalyzer runs (NO₃-N, NH₄-N, Si) are made immediately. All analyses are completed within 6 weeks. In the past, samples were stored at 0 degrees if not analyzed immediately. Sediment filtered from water samples was saved for N and P analysis.

Time Frame :: 1968 to present Sampling frequency: 1-3 weeks

Data Format :: Electronic database

Status :: Data continues to be collected and is housed on a pc server. All data stored in the Oregon State University Forestry Sciences Data bank (FSDB). Publicly accessible data can be found at the following world wide web server; <http://www.fsl.orst.edu/iterhome.html>

Publications :: Martin, C. Wayne; Harr, R. Dennis. Logging of mature Douglas-fir in western Oregon has little effect on nutrient output budgets. Canadian Journal of Forest Research. 1989; 19: 35-43.

Martin, C. Wayne; Harr, R. Dennis. Precipitation and streamwater chemistry from undisturbed watersheds in the Cascade Mountains of Oregon. Water, Air, and Soil Pollution. 1988; 42: 203-219.

Fredriksen, R. L. Erosion and sedimentation following road construction and timber harvest on unstable soils in three small western Oregon watersheds. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. Res. Pap. PNW-104; 1970 (15).

Funding :: USFS, Oregon State University, NSF LTER

Availability :: Willing to be contacted PI permission required to release data

Notes ::

Descriptors :: streamflow, water, nutrients, logging, dissolved load, discharge

31.

Title :: HJ Andrews Suspended Sediment Grab Samples

Caretaker :: Don Henshaw - data manager

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Location of Study :: H.J. Andrews Experimental Forest, 65km ENE of Eugene Oregon, Watersheds 1, 2, and 3

Objectives :: The objective of this study was to quantify the long-term effects of two intensities of timber harvest on sediment delivery at seasonal and yearly time scales. A paired watershed approach was used to compare differences in total sediment flux over a 30-year period. Effects of road construction and debris burning on sedimentation rate are also examined.

Methods :: Sampling of suspended and bedload sediment was initiated in Dec 1955, (pre-treatment) and continued through WY 1988 on all three watersheds. Three different treatments were compared: a 100% clearcut watershed without roads completed in 1966 (WS 1), a 25% harvested patch-cut watershed with 6% of area in roads completed in 1963 (WS 3), and a forested control (WS 2). WS 1

was 100% clearcut with a skyline logging method without forest roads. Harvesting began in the fall, 1962, and was completed summer, 1966. Debris burning was October, 1966. Cull logs were piled 1/4 mile upstream from gaging station. Reseeded in spring, 1967, with Douglas-fir (2-0 nursery stock), also seed dispersed by helicopter earlier in the spring. Fill-in planting in 1968. WS 2 was left undisturbed. WS 3 was harvested "patch-cut" using high-lead cables and a system of parallel roads. Three levels of roads covering 1.65 mi and 6% of the drainage were completed in 1959. Effects of road construction were examined until logging in 1962. High-lead logging was completed in winter, February, 1963. Three clearcuts of 13, 20, and 28 acres account for 25% of the watershed. Logging debris burned in September, 1963. Reseeded in spring, 1964, Psme seedlings planted.

Time Frame :: 1956 to 1988 Sampling frequency: 3 weeks and storms

Data Format :: Electronic database

Status :: Data is only collected during large storm events. All data stored in the Oregon State University Forestry Sciences Data bank (FSDB). Publicly accessible data can be found at the following world wide web server; <http://www.fsl.orst.edu/lterhome.html>

Publications :: Grant, G. E.; Wolff, A. L. Long-term patterns of sediment transport after timber harvest, western Cascade Mountains, Oregon, USA. In: Peters, N. E.; Walling, D. E., eds. Sediment and stream water quality in a changing environment: trends and explanation, Proceedings of the Vienna IAHS symposium,; 1991 Aug 12; Vienna, Austria. Oxfordshire, U.K.: International Association of Hydrological Sciences; 1991; IAHS Publication No. 203: 31-40.

E. Long-term patterns of sediment transport following timber harvest, western Cascade Mountains, Oregon. The Northwest Environmental Journal. 1990; 6: 413-414.

Grant, Gordon. Sediment movement at the Oregon LTER site (H.J. Andrews Site).

In: Adams, J. Rodger. Sediment movement at LTER sites: mechanics, measurement, and integration with hydrology. Champaign, IL: State Water Survey Division Surface Water Section, University Illinois; 1986; SWS Contract Report 387: 4-9. 3.

Funding :: USFS, Oregon State University, LTER NSF

Availability :: Willing to be contacted PI permission required to release data

Notes ::

Descriptors :: sediment, water quality, logging, sediment transport

32.

Title :: Monitoring Population of European Rabbit at San Juan Island National Historical Park

Caretaker :: Current Resource Management Specialist, (Shirley Hoh)

Address :: San Juan Island National Historical Park, 125 Spring Street, Friday Harbor, WA. 98250

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Fax :: 360 378-2615

Electronic Mail ::

Location of Study :: San Juan Island National Historical Park, Washington

Objectives :: To determine changes in rabbit population. To determine migrating (expanding or moving) its range. Patterns in relation to soils, vegetation, slope, and exposures

Methods :: Plots active rabbit warrens by fresh tracks, digging, and droppings. Park station has climate (only during summer) and county soils survey data. Plots are approximately relocatable.

Time Frame :: Start date, 1985. Still in progress. Censused yearly

Data Format :: Paper field notes, slides, maps. Microfiching in process.

Status :: A plan currently exists for continuation of data collection. Data not-at-risk. Data physically stored at the park.

Publications :: none yet

Funding :: National Park Service

Availability :: Willing to be contacted by others interested in data. Data available with permission from PI

Notes ::

Descriptors :: Mammals, population trends, exotic species

33.

Title :: Tropical Tree Growth of Planted Trees

Caretaker :: Michael A. Huston

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Location of Study :: La Selva, Costa Rica

Objectives :: To determine growth rates and competitive interactions of different rainforest tree species under different environmental conditions over time.

Methods :: Trees planted originally under different levels of shade and nutrients. Height, diameter, and number of branches were measured on thousands of individuals. Trees now growing in full sun. Invasion and establishment of additional species also measured. Soil nutrient and PH data accompany. Plots are relocatable.

Time Frame :: 1979/80 - 1992, censused 3 times per year for first 3 years then in 5 year intervals.

Data Format :: field notes (paper), electronic database.

Status :: Data sheets in possession of P. I. Computer tapes probably no longer readable. No plans for continued data collection.

Publications :: M. Huston. 1982. The effect of soil nutrients and light on tree growth and interactions during tropical forest succession: Experiments in Costa Rica. University of Michigan Dissertation.

Funding :: NSF, Lindbergh Foundation, OAS, OTS

Availability :: Willing to be contacted by others interested in these data, but does not have resources or time to do the data restoration.

Notes :: Would like this information to be published in the directory of long-term data sets.

Descriptors :: Tree growth, competition, rainforest, tropical, succession, soil nutrients, light

34.

Title :: Demography of *Frasera speciosa* (Gentianaceae)

Caretaker :: David Inouye, PI

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Phone :: 301-405-6946

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Electronic Mail :: di5@umail.umd.edu

Location of Study :: Gunnison, Colorado, Cumberland Pass, 38 degrees, 41'39" N; 106 degrees, 28' W

Objectives :: Determine longevity, growth rates, survivorship, size at flowering, number of flowers produced by *Frasera speciosa* (Gentianaceae).

Methods :: An annual census of individually tagged plants (759 of them in 1994), during which the number of leaves in basal rosettes are counted (sometimes measured too) and the number of flowers on flowering plants of this monocarpic species are counted. Plots and individuals are relocatable.

Time Frame :: Start date: 1973. End date: 1995 and ongoing. Censused annually, no gaps

Data Format :: Electronic: text file

Status :: Not at risk. Archived in a file on my hard disk, backed up in at least one other place, and printed out each year for use as a data sheet. Physically stored at University of Maryland and Rocky Mountain Biological Laboratory

Publications :: Inouye, D. W. and O. R. Taylor. 1980. Variation in generation time in *Frasera speciosa* (Gentianaceae), a long-lived perennial monocarp. *Oecologia* 47:171-174.

Taylor, O. R. and D. W. Inouye. 1985. Synchrony and periodicity of flowering in *Frasera speciosa* (Gentianaceae). *Ecology* 66:521-527.

Inouye, D. W. 1986. Long-term preformation of leaves and inflorescence by a long-lived perennial monocarp, *Frasera speciosa*, Gentianaceae. *American Journal of Botany* 73:1535-1540.

Funding :: personal funds, NSF, Earthwatch

Availability :: May be contacted by others interested in the data. Requests for data require permission

Notes ::

Descriptors :: Not-at-risk, *Frasera*, plant demography, population biology, alpine, Rocky Mountain Biological Laboratory, flowering, Gentianaceae

35.

Title :: Flowering phenology of Rocky Mountain wildflowers

Caretaker :: David Inouye, PI

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Phone :: 301-405-6946

Fax :: 301-314-9358

Electronic Mail :: di5@umail.umd.edu

Location of Study :: Rocky Mountain Biological Laboratory, Gunnison County, Colorado.

39 degrees, 57'30" N, 106 degrees 59'30" W.

Objectives :: Determine the variation among years in first date of flowering, maximum number of flowers produced, and length of flowering period. Habitats include wet meadow, dry rocky meadow, aspen forest, willow-meadow interface.

Methods :: Permanent plots (2x2 m) are censused during the growing season. All flowers in the plots are recorded, for most in the form of a frequency distribution of number of flowers (or capitulae) per inflorescence. Climate data from NOAA weather station 12 km away and snowpack data from near the plots are available.

Time Frame :: Start date: 1973 and still in progress. Censused every 2-3 days from late May to late August. Most of 3 years missing

Data Format :: Electronic SuperCalc spreadsheets and paper printouts of spreadsheets.

Status :: Not at risk. Archived on my hard drive and backed up in at least one other place.

Printouts are located in my lab at RMBL and in my office in Maryland.

Publications :: Inouye, D. W., and G. H. Pyke. 1988. Pollination biology in the Snowy Mts. of Australia, with comparisons with montane Colorado, U.S.A. *Australian Journal of Ecology* 13:191-210.

Inouye, D. W., W. A. Calder and N. M. Waser. 1991. The effect of floral abundance on feeder censuses of hummingbird populations. *Condor* 93:279-285.

Inouye, D. W. and A. D. McGuire. 1991. Effects of snowpack on the timing and abundance of flowering in *Delphinium nelsonii*: implications for climate change. *American Journal of Botany* 78(7):997-1001.

Funding :: personal funds, NSF, Earthwatch

Availability :: Can be contacted regarding data. Availability requires permission.

Notes ::

Descriptors :: Not-at-risk, Rocky Mountain Biological Laboratory, flowering, phenology, variation, snowpack, climate change, Colorado, montane, wildflower

36.

Title :: Ecology of Tropical Forest Birds

Caretaker :: James R. Karr

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Electronic Mail :: jrkarr@u.washington.edu

Location of Study :: A. Central Panama, Soberania National Park - 1968-1990; B. Barro Colorado Island, Panama - 1980-1990

Objectives :: Population and community dynamics of forest undergrowth birds; habitat selection, demography - tropical moist forest

Methods :: Captures of birds in standardized mist-net sampling. Age, sex, etc. recorded for all birds;

birds banded, microhabitat and microclimate data recorded in some years. Considerable forest undergrowth microclimate data collected at about 50 sites. Plots and individuals (if not dead) are relocatable.

Time Frame :: Started in 1968, ended in 1990. Censused twice a year to occasionally, depending on plots and years. Some gaps in continuity.

Data Format :: Paper field notes and tables, Electronic database, some maps.

Status :: There currently exists a plan for some continuation of data collection. Data are housed at University of Washington. In PI's office.

Publications :: Karr, J.R. 1994. Landscapes and management for ecological integrity. Pp. 229-251 in K.C. Kim and R.D. Weaver (eds.). *Biodiversity and landscapes: a paradox of humanity*. Cambridge University Press, New York.

Karr, J.R. 1994. Extinction of birds on Barro Colorado Island. Essay 5A (page 118) in G.K. Meffe and C.R. Carroll. *Principles of Conservation Ecology*. Sinauer Associates, Sunderland, MA.

Brawn, J.D., J.R. Karr, and J.D. Nichols. 1995. Demography of birds in a neotropical forest: effects of allometry, taxonomy and ecology. *Ecology*. 76:41-51.

Funding :: Smithsonian, Personal Funds, NSF, University, National Geographic Society.

Availability :: Willing to be contacted. Data available with permission only

Notes ::

Descriptors :: habitat selection, biodiversity, extinction, biological monitoring, birds, tropical forest

37.

Title :: Ecology of Fishes in Small Agricultural Streams

Caretaker :: James R. Karr

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Location of Study :: Allen County, Indiana

Objectives :: Document effects of agriculture and other activities on the ecology of stream fish.

Methods :: Species composition abundances for samples at standardized locations. Plots are relocatable.

Time Frame :: 1973-1982. Censused monthly in some years, once a year in others. Some gaps in continuity.

Data Format :: Paper field notes and tables, photographs and maps.

Status :: Data not at risk of being abandoned, no plan currently exists for continuation. Stored in Seattle WA. In my office.

Publications :: Karr, J.R., P.R. Yant, K.D. Fausch, and I.J. Schlosser. 1987. Spatial and temporal variability of the index of biotic integrity in three midwestern streams. *Transactions American Fisheries Society*. 116:1-11.

Karr, J.R., K.D. Fausch, P.L. Angermeier, P.R. Yant and I.J. Schlosser. 1986. Assessment of Biological Integrity in Running Water: A Method and its Rationale. Illinois Natural Survey Special Publication No. 5. Champaign, IL. 28 pp.

Angermeier, P.L. and J.R. Karr. 1986. Application of an index of biotic integrity based on stream fish communities: sampling and structural issues. *North American Journal Fisheries Management*. 6:418-429.

Funding :: Personal Funds, EPA, university

Availability :: Willing to be contacted, data available with permission.

Notes ::

Descriptors :: fish, streams, biological monitoring, biodiversity, agriculture, non point-source pollution

38.

Title :: Predator-Prey Relationships in forested communities

Caretaker :: Patricia Kennedy, PI

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Location of Study :: Sandoval, Rio Arriba and Los Alamos Counties in New Mexico. Lat-long varies; It's a big study area and the center is at 354-1063. The study area (645,265 ha) is in the Jemez Mountains and adjacent Pajarito Plateau in north-central New Mexico. The Jemez Mountains were formed by erosion of volcanic tuff. The Pajarito Plateau is an eastern table-like extension of the Jemez Mountains. Elevations range from 1645 m - 3200m. Mean annual precipitation is 45 cm; 75% of which occurs from May through October. Ponderosa pine, Douglas fir and white fir are the most prevalent forest types found over the study area. Subalpine grassland, Engelmann spruce-subalpine fir, pinyon-juniper woodland, juniper-grassland and riparian habitats are also present. USDA Forest Service, Santa Fe National Forest, USDI, Bandelier National Monument and Los Alamos National Laboratory manage most of the land in the area.

Objectives :: We have been asking a variety of questions all of them centered around the nest sites of four avian predators: Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk and Zone-tailed Hawk. Questions include: How does prey availability affect reproductive success and migration/dispersal strategies of these predators? What criteria do they use to select nesting habitat? Is the northern goshawk population declining (it is a Category 2 species under the Endangered Species Act)? How does forest management affect nest site selection and thus, reproduction and survival?

Methods :: We have used a combination of experimental and field sampling approaches to address a variety of questions. We currently have located 37 goshawk, 50+ Cooper's Hawk, 12 sharp-shinned hawk and 8 ZTHA territories each with 1-5 nest sites. Habitats are described above. Plots are relocatable and individuals are color banded.

Time Frame :: Start date: May 1 1984, Project is ongoing. Nest sites are censused for reproduction 3-6 times every summer. All of my work has been conducted from April-November. No winter work yet. Some gaps for some data.

Data Format :: All data are in EXCEL, ACCESS or PARADOX. I am in the process of converting the PARADOX files to ACCESS. We have maps from a GIS model we built that is based on a LANDSAT classification of the area. I have the LANDSAT image. Also, paper field notes.

Status :: Data files not at risk of abandonment. A plan for continuation of data collection exists. Data are in my lab on a pc; the GIS and LANDSAT data are on tapes.

Publications ::

Funding :: personal funds NM Dept. of Game and Fish, USDA, Associated Western Universities, university funds.

Availability :: It would have to be a collaboration as I am still actively publishing from these data It would have to overlap my research interests to justify the time it would take to organize and provide data.

Notes ::

Descriptors :: Not at risk

39.

Title :: Hydrological Biogeochemical Interactions

Caretaker :: James W. LaBaugh

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Electronic Mail :: jlabaugh@usgs.gov

Location of Study :: a. Crescent Lake National Wildlife Refuge, Nebraska. U.S. Geological Survey Topographic maps - Mumper, Nebraska, and Crescent Lake, Nebraska, 15 Minute Quadrangles.

b. Cottonwood Lake area wetlands, Stutsman County, North Dakota. U.S. Geological Survey Topographic maps - Goldwin, S.W., North Dakota, and Goldwin, S.E., North Dakota, 7.5 Minute Quadrangles.

c. Shingobee River watershed, Hubbard County, Minnesota. U.S. Geological Survey Topographic

maps - Crystal Lake, Minnesota, and Akeley, Minnesota 7.5 Minute Quadrangles.

Objectives :: Main objective is to determine how hydrological processes affect chemical and biological processes in lakes and wetlands, particularly those lacking channelized surface water inflow and outflow. Research at each field site includes study of a set of adjacent lakes or wetlands within a common ground-water flow system. Investigation of all hydrological and chemical fluxes to and from the lakes and wetlands, local ground-water flow system, watersheds and airsheds are an integral part of this research. The sites are being studied using common methods and study approach thereby enabling inter and intra-site comparisons of processes at these sites in relation to seasonal and annual climatic variability across a spatial climate gradient in different geological terrains. Selected segments of the biological communities in these systems have been identified as part of these studies.

Methods :: Because biota are of most interest to ESA and to save space, design information below pertain only to samples collected for open water communities. Biological samples were collected for identification and enumeration of algae and microinvertebrate species. Biovolume also was determined for algae. Sample collection in wetlands was done at a point along three transects established for vegetation surveys. Sample collection in lakes was done at single point mid-lake. Each site is instrumented for hydrologic process research on the complete hydrologic cycle, including rainfall, energy budget evaporation, change in wetland/lake volume, ground water in seepage and out seepage. The climate data are available in U.S. Geological Survey Open-File Reports, such as Parkhurst, R.S., D.A. Merk, D.O. Rosenberry, and T.C. Winter, 1993. Climatic data for Shingobee Lake and Williams Lake, Hubbard County, Minnesota 1989-1991. U.S. Geological Survey Open-File Report 93-127, 34p. Primary climate data contained in these reports are available in electronic form. Contact Renee Parkhurst, U.S. Geological Survey, Mail Stop 413, Denver Federal Center, Lakewood, CO, 80225, phone (303)-236-4988, FAX (303)-236-5034. Water samples are collected at each site for pH, specific conductance, major cations and anions, silica, nitrogen and phosphorus. Some of these data have been published in interpretive reports, such as LaBaugh, J.W., 1988. Relation of hydrogeologic setting to chemical characteristics of selected lakes and wetlands within a climate gradient in the north-central United States, *Verhandlungen International Vereinigung Limnologie*, Volume 23, p. 131-137. These data will be made available in the form of Open-File Reports. Plots are relocatable

Time Frame :: Start date: 1978. End date: 1994 (for some biological samples). Censused monthly under ice-cover, biweekly when lakes and wetlands had no ice cover. Still in progress. A few gaps in continuity. At some sites biological samples were collected and preserved but not analyzed due to availability of resources.

Data Format :: Paper field notes and tables. Electronic. Photographs or maps.

Status :: Not-at-risk. Hydrological and chemical information is still being obtained from the sites. Some chemical information at the North Dakota and Minnesota site biological information also is being obtained, mainly by co-investigators. Paper copies of original data are in files, and loose-leaf notebooks. Published data are in U.S. Geological Survey Series Reports.

Publications :: LaBaugh, J.W. and G.A. Swanson, 1988, Algae and invertebrates in the water column of selected prairie wetlands in the Cottonwood Lake area, Stutsman County, North Dakota, 1984. U.S. Geological Survey Open-File Report 88-451, 96.p.

LaBaugh, J.W., 1995, Relation of algal biovolume to chlorophyll a in selected lakes and wetlands in the north-central United States. *Canadian Journal of Fisheries and Aquatic Sciences*, Volume 52, Number 2, 416-424.

McConnaughey, T.A., J.W. LaBaugh, D.O. Rosenberry, R.G. Striegl, M.M. Reddy, P.F. Schuster, and V. Carter, 1994, Carbon budget for a groundwater-fed lake: Calcification supports summer photosynthesis. *Limnology and Oceanography*, Volume 39, Number 6, P. 1319-1332.

Funding :: U.S. Geological Survey, U.S. Fish and Wildlife Service, Bureau of Reclamation.

Availability :: Willing to be contacted by others. Data were collected by a few individuals for a small research project and are not part of the National Data Acquisition Program of the U.S. Geological Survey. Data will be made available as they are published in U.S. Geological Survey Open File Reports. For more details, contact LaBaugh.

Notes ::

Descriptors :: Climate Gradient, Biogeochemistry, Hydrology, Wetlands, Lakes, Nebraska, North

Dakota, Minnesota, Prairie, Algae, Microinvertebrates, inter and intrasite comparisons

40.

Title :: Net Plankton of Lake Mendota

Caretaker :: Richard Lathrop

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Location of Study :: Lake Mendota, Wisconsin

Objectives :: To document seasonal changes in plankton and how their depth distribution relates to environmental variables such as temperature and dissolved oxygen.

Methods :: Most samples pumped from discrete depths and filtered through a zooplankton net. Net plankton samples were identified to either genus or species and enumerated.

Time Frame :: 1905 - 1917 (1911 - 1917 sampling were more frequent). Censused several times from April to November each year.

Data Format :: Handwritten notes on cards in 13 boxes, computer entry in process.

Status :: Data are currently in the University of Wisconsin library archives. After the data are electronically entered and the database is created, Northern Temperate Lakes (LTER) will archive the data. Zooplankton data have been regularly collected on Lake Mendota since 1976, these data will also be available soon.

Publications :: Data summarized in early publication by Birge & Juday.

Birge, E.A. and C. Juday. 1922. The inland Lakes of Wisconsin, the plankton: I. Its Quantity and Chemical Composition. Wis. Geol. Nat. Hist. Surv. Bull. No. 64

Daphnia percent species composition presented in:

Lathrop, R.C. and S.R. Carpenter. 1992. Zooplankton and their relationship to phytoplankton. Pages 127-150 in J.F. Kitchell, editor. Food-web management: a case study of Lake Mendota. Springer-Verlag, New York.

Funding :: Currently, Wisconsin DNR, Sport Fish Restoration, and EPA Grant

Availability :: Data will be available in a few years.

Notes :: It's not a data set yet, they won't be available until they have been computerized and analyzed.

Descriptors :: Birge and Juday, Net Plankton

41.

Title :: Small Mammal populations in major habitats in the southern Lake Wales Ridge region of Florida

Caretaker :: James N. Layne

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Phone :: 941 465 - 2571

Fax :: 941 699-1927

Electronic Mail :: NA

Location of Study :: Highlands County, south central FL. Archbold Biological Station - 12 km S of Lake Placid 27° 10'N lat, 81° 20'E.

Objectives :: Monitor and interpret annual and multi annual trends in abundance and other parameters (e.g. movements, reproduction, parasites) of small mammals in five major habitats (sandhill, sand pine scrub, scrubby flatwoods, bayhead, flatwoods) of the southern Lake Wales Ridge.

Methods :: Mammals and other vertebrates sampled on 5 2.8 ha grids (12x12) with stations 15m meters apart. Habitat distribution of grids: 1 grid representing bayhead and flatwoods, 1 grid each in sand pine scrub and scrubby flatwoods, 2 grids in sand hill. Grids live trapped at monthly, quarterly, twice yearly intervals. Small mammals marked and released. Nest boxes in trees checked for flying and gray squirrels. Vegetation surveyed (nested quadrats) at 10 yr intervals. Mast (hickory, oak, palmetto) production monitored annually. Microclimate data (air and soil temp and wind) recorded from 1975-1987. General weather data available for entire period from main weather station on site.

Soils and topographic data available. Plots are marked with aluminum stakes, relocatable. Individuals marked with ear tags and locations of captures and other data recorded, relocatable. ca. 27,000 mark-recapture records for 4 days

Time Frame :: July, 1968. Still in progress. Small mammals sampled for 4 days monthly, 68-74, 4 days quarterly 74-91, 4 days twice a year 91-

Data Format :: Paper field notes, tables, spreadsheets, graphs, electronic database, photographs and ~5000 maps of captures of individual mammals.

Status :: Data not at risk of being abandoned, plan exists for continuation of data collection. Stored in PI's Lab.

Publications :: Layne, J.N. in press. Reproduction of the gray squirrel in south-central Florida. In International Colloquium on Ecology of Tree Squirrels, Carnegie Museum of Natural History.

Layne, J.N. and M. A.V. Raymond. 1994. Communal nesting of southern Flying Squirrels in Florida. *Journal of Mammalogy*, 75: 110-120.

Menges, E.S., W.A. Abrahamson, K.T. Givens, N. Gallo, and J.N. Layne. 1993. Twenty years of vegetation change in five long-unburned Florida plant communities. *Journal of Vegetation Science*, 4:375-386.

Funding :: Archbold Biological Station

Availability :: Willing to be contacted, available with permission of PI

Notes ::

Descriptors :: small mammal population, nest boxes, vegetation change, southcentral Florida, sandhill, sand pine scrub, scrubby flatwoods, flatwoods, bayhead, microclimate, live-trapping, arid

42.

Title :: Population Dynamics of Black Bears of the Smoky Mountains

Caretaker :: Michael R. Pelton; Peter McLean

Address :: Department of Forestry, Wildlife and Fisheries, University of Tenn., Knoxville, TN 37901; St. Andrew's School, Middletown, DE 19709

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Fax :: 302 378-7120

Electronic Mail ::

Location of Study :: East Tennessee, West North Carolina. Great Smoky Mountains National Park, Cherokee and Pisgah National Forests

Objectives ::

Methods ::

Time Frame :: Start date: summer 1967. Still in progress. Summer trapping, winter den visits.

Data Format :: Paper field notes, tables, other. Electronic database.

Status :: Data not at risk, Plan for continuation. Stored in Department of Wildlife and Fisheries, University of Tennessee, Knoxville.

Publications :: 50+

Funding :: NSF, USFS, NPS, University of Tennessee

Availability :: Willing to be contacted, with permission only

Notes ::

Descriptors ::

43.

Title :: Interactions between Perennial Bunch Grasses in a Semi-arid Savanna

Caretaker :: Guy McPherson

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Electronic Mail :: grm@ag.arizona.edu

Location of Study :: Ft. Huachuca Military Reservation, Southeastern Az., 32° 29' N, 110° 20' W. Grassland phase of a *Quercus emoryi* savanna, 1600m elevation, 3% slope, NE aspect, cobble loam

soil.

Objectives :: Asses and describe interactions between 3 spp. of perennial C₄ caespitose grass (*Andropogon cirratus*, *Bouteloua curtipendula*, *Trachypogon montufari*)

Methods :: All possible single and pairwise combinations of 3 spp. isolated from all other individual plants in 3 m² circular plots. Basal cover and biomass of 3 spp. determined annually. Total of 108 plots; total of 9 treatments (Anci alone, Bocu alone, Trmo alone, Anci w/ Anci, Trmo w/Trmo, Anci w/ Bocu, Anci w/ Trmo, Bocu w/ Trmo). Onsite recording rain gauge, nearby weather station, Plots and individuals are relocatalbe

Time Frame :: Start; Oct. 89 End Oct. 94, censused annually, no longer in progress

Data Format :: Paper field notes, electronic database

Status :: Not-at-risk

Publications :: being prepared

Funding ::personal funds

Availability :: Willing to be contacted

Notes ::

Descriptors :: competition, grasses, savanna

44.

Title :: Fish Abundances and Growth Rates From a Series of Michigan Lakes

Caretaker :: Gary Mittelbach

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Location of Study :: Lakes in southwest Michigan

Objectives :: Data collected for a number of different projects by different people with different objectives. Predominantly sunfish data (bluegill, largemouth bass, and pumpkinseed).

Methods :: Design is observational. Catch/unit effort data collected using seines. Visual counts made and growth rates determined by scales. Also, abundance by species data collected. Some temperature and nutrient data accompanies.

Time Frame :: 1976 - present, continuing. Gaps exist in the data

Data Format :: field notes (paper), electronic (need assistance to access)

Status :: Data are not currently at risk of being abandoned. Data are actively used.

Publications :: Mittelbach, G.G. 1984. Predation and resource partitioning in two sunfishes (Cintrarchidae). *Ecology* 65:499-513.

Osenberg, C.W., E.E. Werner, G.G. Mittelbach and D.J. Hall. Growth patterns in bluegill and pumpkinseed sunfish: environmental variation and the importance or ontogenetic niche shifts. *Can. J. Fish. Aquat. Sci.* 45:17-26.

Mittlebach, G.G. and C.W. Osenberg. 1993. Stage-structured interactions in bluegill: consequences of adult resource variation. *Ecology* 74:2381-2394.

Funding :: NSF, Michigan State University

Availability :: Data not yet available.

Notes ::

Descriptors :: Diets, growth rates, species abundances, fishes, Michigan

45.

Title :: Herbivory and plant community structure in two contrasting subarctic plant communities.

Caretaker :: Dr. Jon Moen. Researcher

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Location of Study :: Finnmarksvidda, northern Norway (69o46'N, 23o58'E). Two sites: one is a tall

herb meadow dominated by *Geranium sylvaticum*, *Trollius europaeus* and other broad-leaved forbs. The meadow is situated in the mountain birch forest zone at an altitude of 440 m a.s.l.. The other is an early-moderate snow-bed dominated by graminoids (mostly *Carex bigelowii* and *Festuca rubra*), and *Salix herbacea*. The snow-bed is above the treeline at an altitude of about 550 m a.s.l. and about 500 m from the meadow.

Objectives :: The objectives were to study and compare the effects of microtine rodents (mostly *Microtus agrestis* and *Clethrionomys rufocanus*) on plant community structure in the two sites. The results will be analyzed in relation to the exploitation ecosystems hypothesis of Oksanen (Oksanen et al. 1981. *Am. Nat.* 118:240-261), and it is predicted that there will be stronger effects by the herbivores on the less productive snowbed than on the meadow.

Methods :: Three rodent exclosures and three open plots (each circular, c. 64 m²) were placed in each site. In each plot, 250 points were randomly selected along a 20 m line (divided into four sublimes). At each point a stick (diam. 3 mm) was lowered according to gravity and each species (only vascular plants) in contact with the stick was recorded along with the height of the contact. The recordings was done once a year in early August at peak biomass. Data thus consists of abundances and heights for each species. Plots are relocatable

Time Frame :: Start date: 1987 Censused yearly Still in progress

Data Format :: Paper tables, electronic database

Status :: Not at risk, partial plan for data collection. Original field data in a file in my office. Database files (dBase) on disks in my office.

Publications :: Manuscript currently being written.

Funding :: Mainly NFR (Swedish Natural Research Council) and smaller funds.

Availability :: willing to be contacted. By permission

Notes ::

Descriptors:: Exclosures, herbivory, plant community structure, vascular plants, arctic/alpine vegetation, microtine rodents

46.

Title :: Long-Term Studies of Salt Marsh Primary Production

Caretaker :: James T. Morris (PI)

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Electronic Mail :: morris@biol.sc.edu

Location of Study :: Georgetown, SC. 33d15m N 79d14mW. Study sites are 2 intertidal salt marsh areas in the North Inlet estuary. Both sites are dominated by the marsh grass *Spartina alterniflora*. In both sites we have long-term plots in high and low intertidal areas.

Objectives :: Monitor primary production to determine the degree of interannual variation and causes. Data collections include monthly measurements of stem heights on permanent plots, pore water chemical measurements, below ground growth, and below ground reserves. In addition to production measurements we maintain a time series of demographic data on individual stems (month of emergence, death, longevity, stem density, flowering history, etc).

Methods :: Aboveground primary production is measured by a nondestructive census technique . All stems on permanent plots are tagged with number coded bands and their individual life-histories and growth rates measured on a monthly basis. Allometric regressions are used to convert stem heights into biomass. Plot sizes ranges from 10x10 cm to 25x25 cm depending on the stem density of the site. There are 6 replicate plots at each of four locations. b. Below ground growth is measured monthly using regrowth cores (sand-filled holes are subsequently recorded at different intervals to measure growth). c. Pore water is monitored monthly at all sites using diffusion samplers placed at intervals to 1 m depth. We measure ammonium, phosphate, sulfide, and all major sea water anions (chloride, sulfate) and cations (Ca, K, Na, Mg). d. Below ground reserves are measured by taking sediment cores and measuring the regrowth of aboveground vegetation that occurs in darkness over a period of several months. These cores are taken in late autumn. In addition, North Inlet is instrumented with a climate station, tide gauge, hydrolabs, and surface water samplers for water chemistry.

Time Frame :: Start date: 1984. End date: 1999. Censused monthly.

Data Format :: Data are maintained in ascii format (designed as SAS readable data) . Pore water chemistry and production data are updated monthly. Data are also on paper.

Status :: Not at risk. Currently supported through 1999. Plan to write an NSF renewal proposal. The data are stored on a hard disk (SUN) in my office, on numerous IBM floppy disks, and in field notebooks

Publications :: Morris, J.T. and B. Haskin. 1990. A 5-yr record of aerial primary production and stand characteristics of *Spartina alterniflora* Ecology 71:2209-2217.

Morris, J.T., B. Kjerfve, J.M. Dean. 1990. Dependence of estuarine productivity on anomalies in mean sea level. Limnol. Oceanogr. 35: 926-930.

Morris, J.T. 1995. The salt and water balance of intertidal sediments: results from North Inlet. Estuaries, in press.

Funding :: NSF

Availability :: May contact regarding data. Data available with permission.

Notes ::

Descriptors :: Not-at-risk

47.

Title :: Small Mammal Population data on 3 Watersheds at Coweeta Hydrology Lab (USFS) Otto, N.C.

Caretaker :: J. Vincent Nabholz

Address :: US EPA 7403, 401 M Street, SW, Washington, D.C. 20460-0001

Phone :: 202- 260-1271

Fax :: 202- 260 1236 or 1283

Electronic Mail ::

Location of Study :: Coweeta Hydrology Lab (USFS, Franklin, NC)(E. Deciduous Forest) (LTER, former IBP)

Objectives :: To determine role of small mammals in nutrient cycling. Showed that small mammals were responsible for a negligible flow of the nutrients that went through the ecosystem.

Methods :: Animals both snap-trapped and live-trapped to determine population density, nutrient content. Traplines were run along a trapping grid in four watersheds (clear-cut secondary succession, white pine, and two deciduous forests). Climate, soils, and biogeochemistry data accompany because other investigators associated with IBP worked on same watersheds. Trapping grid on watershed 14 is relocatable(marked with aluminum stakes).

Time Frame :: Start date 1970, ended in 1972. Censused roughly four times a year.

Data Format :: Stored on paper computer cards, on electronic database at Coweeta LTER. Maps

Status :: Spreadsheet with raw data. Legend and duplicate computer cards all sent to IBP E. Deciduous Forest Biome data consolidation effort in 1979 (Should be in ORNL Data bank). Nabholz also has original data in his possession. Data are at risk of being abandoned with no current plan for continuation of the data.

Publications :: Nabholz, V. 1973. Small Mammals and Mineral Cycling on 3 Coweeta Watersheds. Masters Thesis, University of Michigan, Ann Arbor MI (Microfilm)

Funding :: IBP

Availability :: Willing to be contacted. Data to be made public access.

Notes :: Would like this information to be published in ESA directory.

Descriptors :: live trapping grid, small mammals, population density, snap-trap lines

48.

Title :: "Long-term Inventory and Monitoring of Water Quality and Watershed Processes at the Great Smoky Mountains National Park"

Caretaker :: Dr. Stephen C. Nodvin, National Biological Service & The University

of Tennessee Other investigators: Dr. Steven E. Lindberg, Oak Ridge National Lab and UT; Dr. Helga Van Miegroet, Utah State University; Dr. Niki S. Nicholas, Tennessee Valley Authority and UT; Dr. Dale Johnson, Desert Research Institute, Univ. Nevada, Reno

Address :: Graduate Faculty in Ecology and Evolutionary Biology 569 Dabney Hall The University of

Tennessee Knoxville, TN 37996-1610

Phone :: 615-974-2721

Fax :: 615-531-0117

Electronic Mail :: nodvin@utk.edu

Location of Study :: Great Smoky Mountains National Park Tennessee and North Carolina Noland Divide Watershed(NDW) : 17.4 ha watershed on the border of TN & NC over 350 stream monitoring locations within the 250,000 ha park Former location of the Smokies Tower (ST) site of the Integrated Forest Study (IFS) (35°34'N, 83°28'W)

Objectives :: Long-term monitoring of water quality, acidic deposition, ecosystem processes 15 minute discharge data, weekly data on through fall, deposition, and stream chemistry, within the 17.4 ha watershed we have a network of 50 20x20m plots with data on standing live and dead, cores woody debris, we are working on nutrient contents of these materials also

Methods :: Ninety-seven 250 square-meter permanent plots, paced at 50 meter intervals; sampled via line transects and a point drop method; data collected include percent cover, species diversity, height of tallest trees, diameter of tallest trees, density of coniferous trees. Plots are relocatable

Time Frame :: IFS NDW Great Smokies Stream Survey Start date: 1985 Jul 1991 Oct. 1993. End date: 1989 continuing. Censused stream pH, conductance, discharge every 15 minutes, NDW streams and deposition sampled weekly streams in the stream survey are sampled at least twice yearly, some monthly. Still in progress

Data Format :: Paper field notes tables . Electronic database. Photographs, high resolution topographic & soil maps of the NDW and vegetation plot maps

Status :: A plan currently exists for continuation of data collection. Paper copies and computer disk media. Some of the metadata available via the World Wide Web check my home page: <http://funnelweb.utcc.utk.edu/~nodvin/>

Publications :: Nodvin, S.C., Van Miegroet, H., Lindberg, S.E., Nicholas, N.S., and Johnson, D.W. 1995., "Acidic Deposition, Ecosystem Processes, and Nitrogen Saturation in a High Elevation Southern Appalachian Watershed", submitted to Water, Air and Soil Pollution.

Shubzda, J., Lindberg, S.E., Garten, C.T., and Nodvin, S.C.: 1995, "Elevational trends in the fluxes of sulfur and nitrogen in through fall in the southern Appalachian mountains: some surprising results", submitted to Water Air and Soil Pollution

Flum, T. and S.C. Nodvin. Factors affecting Stream water chemistries in the Great Smoky Mountains, USA submitted to Water Air and Soil Pollution Pauley, E.F., Nodvin, S.C., Nicholas, N.S., Rose, A.K., and Coffey, T.B.: 1995 (submitted), "Vegetation, biomass, and nitrogen pools in a spruce-fir forest of the Great Smoky Mountains National Park, USA", submitted to Journal of Vegetation Science.

Funding :: NPS NBS USDA-CSRS NOAA

Availability :: Willing to be contacted by others interested in this data. Proper acknowledgment and use; possible collaboration

Notes ::

Descriptors ::

49.

Title :: Geoecology: A County-Level Environmental Database for the Coterminous United States

Caretaker :: Dick (R.J.) Olson

Address :: ORNL/Environmental Sciences Division, P.O. Box 2008, Bldg 1507, Rm 208, MS 6407, Oak Ridge, TN 37831-6407

Phone :: (615) 574-7819

Fax :: (615) 574-4665

Electronic Mail :: rjo@ornl.gov

Location of Study :: Lower 48 states

Objectives :: To provide environmental assessment and planning for energy development; To observe regional impacts of energy related activities.

Methods :: Results from the USFS Forest Inventory, USFWS Breeding Bird Survey, and SCS Natural Resource Inventory (NRI) were collected by county. There were 1000-1200 variables for every county. Examples include: crop yields, forest yields, presence/absence of endangered species, and vegetation

and wildlife species compositions. Also, land form data, monthly climatic variables, and more have been collected.

Time Frame :: Late 1970's to early 1980's through 1989. Some biological data is recorded as early as 1950.

Data Format :: electronic database, an old version of SAS used for data management and analysis

Status :: The effort to bring these data sets together is at risk. No plan exists for the continuation of data collection. The data reside at the National Technical Information Service and on archive tapes at Oak Ridge National Laboratory

Publications :: Olson, R.J., C. J. Emerson, and M. K. Nungesser, 1980. *Geoecology: A County - level environmental database for the conterminous United States*. 350p. ORNL/TM - 7351. Oak Ridge National Laboratory, Oak Ridge, TN.

Olson, R.J., K.D.Kumar and R.L. Burgess. 1982. Analysis of ecoregions utilizing the geoecology database. In: *In-Place Resource Inventories: Principle and Practices*. Society of American Foresters. pp 149-156.

Klopatek, J.M., R.J. Olson, C.J. Emerson, and J.L. Jones. 1979. Land use conflicts with natural vegetation in the United States. *Environmental Conservation* 6(3): 191-199

Funding :: DOE, EPA, USFS, USFWS

Availability :: Data are available (Public Access Data)

Notes ::

Descriptors :: conterminous 48 states,

50.

Title :: Demography and Behavioral Ecology of Red-winged Blackbirds

Caretaker :: Gordon Orians, PI

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Phone :: (206) 543-1658

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Electronic Mail :: Orians@zoology.washington.edu

Location of Study :: Columbia River National Wildlife Refuge in east central Washington State.

Objectives :: To determine the information used by Red-winged Blackbirds to make major decisions during the breeding season including selection of habitat, mates, nest sites, foraging areas, and prey, investment in offspring, site fidelity, and nest defense, and to measure the fitness consequences of these decisions.

Methods :: Individual life histories were followed. Territorial males were removed from territories in the satellite area to determine if they would regain their territory. Hormone levels were manipulated to see if increased testosterone increases possession of territories. To look at food selection, there were vegetative manipulations and the emergence rates of aquatic insects was measured. Clutch size was manipulated to determine if size changed parental investment.

Time Frame :: 1962-1994, habitat and food selection studies. 1978-1994, demographic studies. Frequency of census varies with component. Continuous breeding season study every year.

Data Format :: electronic database, photographs, maps

Status :: Data are not at risk of being abandoned. There is no plan to continue the data collection since most of the posed questions have been answered. Hard data and electronic data stored at Department of Zoology, University of Washington, Seattle, WA.

Publications :: Orians, G.H. 1980. Some Adaptations of Marsh-Nesting Blackbirds. Princeton University Press.; Beletsky, L.D. and G.H. Orians 1987.

Beletsky, L.D. and G.H. Orians. Testing hypotheses of territorial dominance. Behavioral Ecology and Sociobiology 24: 333-339.;

Orians G.H. & L.D. Beletsky. 1989. Red-winged Blackbirds. In Ian Newton (Ed.): Lifetime Reproduction in Birds. 183-197.;

Funding :: NSF, National Institute of Mental Health

Availability :: Willing to be contacted by others interested in these data.

Notes ::

Descriptors :: avian demography, habitat selection, mate choice, territoriality, lifetime reproductive

success

51.

Title :: Annual Saguaro Census and Mortality Survey

Caretaker :: Tom Orum - co PI along with Jeanne Mihail and Stan Alcorn

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Phone :: (520)-621-1161

Fax :: (520)-621-9290

Electronic Mail :: Email address: torum@ag.arizona.edu

Location of Study :: Saguaro National Park, Rincon Mountain Division, Pima County, Tucson, AZ

Objectives :: To understand the demographics of saguaros in the flat land portion of the Saguaro National Park known as the cactus forest.

Methods :: The study began in 1941 when all saguaros in a full square mile were surveyed and their condition monitored for five years. In 1946, 6 ten acres plots were selected for further observation. The six ten acre plots contained about 1480 saguaros and were paired with two of the plots being low density, two medium density and two high density. Each year since 1941 (except 1955) to the present (ongoing) every plant in the six plots has been surveyed, condition and/or mortality noted. Any new saguaros found are mapped. All saguaros under 6 feet tall have been measured annually since 1978. Nurse tree associations of all young saguaros are noted. Between 1950 and 1983, 10% of the original saguaro population was measure for height annually. Do any climate, soils, or biogeochemistry data accompany? Some climate data are available from Saguaro National Park headquarters a couple of miles from the plots. Plots and individuals are relocatable

Time Frame :: Start date: 1941 ongoing Censused March every year. Still in progress 1955 census not done

Data Format :: Paper field notes and tables. Electronic database. Photographs. All saguaros mapped and digitized in ARC/INFO format

Status :: not at risk no plan currently exist beyond the interest of current investigators. Hard copy in field notebooks in a file cabinet. Database looked on two computers and backed up on tape.

Publications :: Alcorn, S. A. and C. May. 1962. Attrition of a saguaro forest. Plant Disease Reporter 46:156-158.

Mihail, J. D., T. V. Orum, and S. M. Alcorn. Manuscript in preparation.

Funding :: personal funds, university

Availability :: Willing to be contacted, want to talk over terms of sharing

Notes ::

Descriptors ::

52.

Title :: Studies on the Structures & Organization of a Rocky Intertidal Community

Caretaker :: Bob Paine

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Phone :: (206) 543-1649

Fax :: (206) 543-3041

Electronic Mail :: painert@zoology.washington.edu

Location of Study :: Tatoosh Island, Olympic Peninsula, western Washington

Objectives :: To monitor structure and experimentally probe organization of a rocky intertidal community.

Methods :: 1) Since early 1970's, 26 sites have been monitored for regimes of wave disturbance (percent damage) to mussels. 2) Species composition quantitatively sampled since 1968. 3) Since 1978, measured the catch per unit effort for 4 species of seabirds. (4) Since 1970, has conducted removal/control experiment on *Pisaster*. Transects are relocatable. (5) Other long-term data sets since 1968, on algae % cover. (6) Site specific photographs since 1960's.

Time Frame :: 1968 - present, continuing. Efforts increased in 1973. Censused twice per month from April to October and once per month in winter. Data from Makkaw Bay dating to 1963.

Data Format :: plastic field sheets, xeroxes of sheets, photographs, will be archived using Silicon

Graphics CD-ROM technology.

Status :: Data are not at risk of being abandoned. A plan exists to continue the data collection and funds are available through an Experimental Transition Grant from the Mellon Foundation for the next 3 ½ years.

Publications :: 20-30 theses including Paul Dayton, Tim Wootten, C. Pfister, Ken Sebens, Tom Suchanej, Ladd Johnson, Steve Palumbi, Bruce Menge, and Megan Dethier.; Levin & Paine. Patch dynamics.; many others.

Funding :: NSF, small grants through Biological Oceanography

Availability :: Data available with permission.

Notes ::

Descriptors ::

53.

Title :: Forest Succession in the Duke Forest

Caretaker :: Robert Peet

Address :: Department of Biology - CB #3280, University of North Carolina, Chapel Hill, NC 27599-3280

Phone :: (919) 962-6942

Fax :: (919) 962-1625

Electronic Mail :: robert_peet@unc.edu

Location of Study :: Duke Forest

Objectives :: Until the 1950's: silvicultural demonstration and method development. Late 70's to present: to examine tree population dynamics and mechanisms of forest succession.

Methods :: Project #1: 50 permanent plots, often with treatments, including different types of thinning (usually not replicated). Tree diameter and height measured at 5 year intervals. Project #2: A smaller number of ½ to 3 hectare plots mapped. Tree diameters, tree heights, and XY coordinates measured at 3 to 5 year intervals. Project #3: Seedlings monitored for height, size, and survival along 50 transects each year (20,000 seedlings/year total). Project #4: 200 .10 hectare plots monitored for tree sizes and species composition of trees and herbs.

Time Frame :: Project #1: 1930's to present, ongoing. Project #2: 1970's to present, ongoing. Project #3: 1977-1994, completed. Project #4: 1977 to present, ongoing.

Data Format :: Electronic. All files available by FTP with password. Most data has gone through rigorous quality control. Good users guide not yet available.

Knox, R. G., R. Peet, and N. Christianson. 1989. Population dynamics in loblolly pine stands: changes in skewness and ad she inequality. Ecology 70: 1153 -1166

Christianson, N. and R. Peet. 1984. Consequences during secondary forest succession J of Ecology 72: 25 - 36

Funding :: 1977-1995, NSF; Prior funding through the Duke Forestry School.

Availability :: Willing to be contacted by others interested in these data.

Notes ::

Descriptors :: Forest succession, tree demography, southeastern US

54.

Title :: North Carolina Vegetation Survey

Caretaker :: Robert Peet in collaboration with Peter White (NC Botanical Gardens), Tom Wentworth (North Carolina State University), Mike Schafale (NC Heritage Program), Alan Weakley (TNC SE Regional Office), and Cecil Frost (NC Department of Agriculture)

Address :: Department of Biology - CB # 3280, University of North Carolina, Chapel Hill, NC 27599-3280

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Fax :: (919) 962-1625

Electronic Mail :: robert_peet@unc.edu

Location of Study :: The State of North Carolina

Objectives :: To develop a standard protocol for sampling vegetation in a collaborative project across institutions. To develop original data for estimating the density and distribution of taxa in a state. To describe the vegetative composition throughout the state and how it changes along environmental gradients.

Methods :: 1300 to 1500 permanent, relocatable plots established. Detailed compositional information of herbs and trees available. New plots added each year.

Time Frame :: 1988 - present. Resampling has not yet occurred, but designed to be resampled.

Data Format :: electronic database (kept up to date with SAS data management)

Status :: Data are not at risk of being abandoned. Stored on local PC

Publications :: None yet.

Funding :: USFS

Availability :: Willing to be contacted by others interested in these data.

Notes ::

Descriptors :: Vegetation of North Carolina, Vegetation of fire-maintained, vegetation of southeastern coastal plain.

55.

Title :: William Proctor Mount Desert Island Biological Survey

Caretaker :: Mike Peters, Head

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Phone :: 413-545-1047

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Electronic Mail :: peters@ent.umass.edu

Location of Study :: Acadia National Park, ME. Includes Bald Mountains with some of the Southernmost Arctic Tundra ever reported. The single most intensive survey of a comparable geographical area ever done

Objectives :: Survey every kind of animal, concentrating on insects. Some subsequent data have been done e.g. U of Delaware Dragonfly. List expanded.

Methods :: Collections are accompanied by: Location, date, species name, anecdotal information (e.g. weather, habitat description, water changes due to polluted rivers). Fire studies, smog pollution studies other historical data in the area available from various sources.

Time Frame :: Start pre 1920 (latest published list 1946) sporadic additions. Ongoing by collectors. No systematic continuation of the survey.

Data Format :: Curated specimens and labels, and a publication

Status :: Have funds to curate the specimens, but the insect museum in general is at risk. Peters will retire in 1997. May try to get it to Smithsonian, which has some interest. No one is currently planning to re-survey. Specimens are located at U. Mass, Amherst, curated by Mike Peters.

Publications :: Procter, W. 1946 Biological Survey of the Mt Desert Region 7. The Insect Fauna 566 pgs. Wistar Institute press. Philadelphia

Funding :: Procter's endowment (\$200-300 annually)

Availability :: Willing to be contacted, but there are a limited number of volumes of Procter 1946

Notes ::

Descriptors :: Data at-risk, Insect fauna, marine invertebrates (littoral)

56.

Title :: Demography Trends of Saguaro (*Carnegiea gigantea*) Populations in the Sonoran Desert.

Caretaker :: Elizabeth Pierson, PI

Address :: Tumamoc Hill Desert Laboratory, US Geological Survey, 1675 W. Anklam Rd., Tucson, AZ 85745

Phone :: (520) 670-6821

Fax :: (520) 670-6806

Electronic Mail :: pierson@aruba.ccit.arizona.edu

Location of Study :: Ten sites across the northern portion of the saguaro's distributional range in Arizona, U.S.A. and Sonora, Mexico

Objectives :: To document spatial and temporal trends in the demography of saguaro populations and relate them to regional climate, land use, and intrinsic population cycles.

Methods :: There are 9 remote plots ranging in size from 1/4 hectare to 5 hectare. Each plot contains at least 125 saguaros. Tumamoc Hill, the tenth site, has 4 plots each about 10 hectares in size, together containing about 3500 individuals. The Tumamoc Hill saguaro population has been studied since 1908, and is among a group of permanent plots that are the oldest continuously censused vegetation plots in the world. Plant height, general health, reproductive status, and location data have been collected. Plots and individuals are relocatable. Climate data are available from the Tumamoc Hill Desert Lab.

Time Frame :: Remote Plots: 1950's - present at irregular intervals. Tumamoc Hill Plots: 1908 - present at irregular intervals. Study is still in progress.

Data Format :: field notes (paper), electronic database, maps, repeat photos

Status :: Data are at risk of being abandoned due to funding issues. Notes, photos, database are stored/accessible at the Desert Lab.

Publications :: Turner, R.M. 1990. Long-term vegetation change at a fully protected Sonoran Desert site. *Ecology* 71(2):464-477

Turner, R.M. 1992. Long-term saguaro population studies at Saguaro National Monument. In C.P. Stone and E.S. Bellatoni, eds. Proceedings of the Symposium on Research in Saguaro National Monument, January 23-24 1991, pp 3-5. Southwest Parks and Monuments Association, Globe, Arizona, USA.

Turner, R.M. and J.E. Bowers. 1988. Long-term changes in populations of *Carnegiea gigantea*, exotic plant species and *Cercidium floridum* at the Desert Laboratory, Tumamoc Hill, Tucson, AZ. In E.E. Whitehead, C.F. Hutchinson, B.N. Timmerman and R.G. Varady, eds. Arid Land Today and Tomorrow, Proceedings of an International Research and Development Conference, pp.445-455. Office of Arid Land Studies, University of Arizona, Tucson, Arizona, USA

Funding :: USGS, Personal funds, University of Arizona

Availability :: Would be interested in have data made available to others after publication.

Notes ::

Descriptors :: Demography, Saguaro, *Carnegiea gigantea*, Sonoran Desert

57.

Title :: Population Data on Stem Galling Sawflies in Flagstaff, Arizona

Caretaker :: Peter W. Price

Address :: Department of Biological Sciences, Northern Arizona University, Box 5640, Flagstaff, AZ 86011-5640, U. S. A.

Phone :: 520-523-7224

Fax :: 520-523-7290

Electronic Mail :: None

Location of Study :: Flagstaff, AZ, Museum of Northern Arizona Property

Objectives :: To understand population dynamics of rare latent species (whose populations are not subject to outbreaks): *Salix lasiolepis* (host plant), *Euura lasiolepis* (Hymenoptera: Tenthredinidae) galling herbivore. Riparian habitats on Colorado Plateau.

Methods :: Each year did one of two types of data collection (a or b) from 15 clones of willows. (a) rearing data: collected galls and reared them to get sex ratio, weights, and survival to adult stage. (b) survival data: collected a cohort of about 100 galls and dissected them to obtain survival of larvae. Local weather data accompany. Individual shrubs are relocatable, but are not marked at present.

Time Frame :: Started 1980, good data begins 1982, ongoing. Censused yearly.

Data Format :: Data on paper, in personal study (3003 Cooper Drive, Flagstaff, AZ 86001). Data collection on annual basis will continue for 5-10 years.

Status :: Not at risk

Publications :: Price P. 1994. Phylogenetic constraints, adaptive syndromes, and emergent properties: From individuals to population dynamics. *Researches in Population Ecology* (36:)3-14.

Price, P. W., T. P. Craig, H. Roininen. 1995. Working toward theory on galling sawfly population dynamics. 1995. In Cappuccino, N. and P. W. Price [Eds.]. *Population Dynamics: New*

approaches and synthesis. Academic Press, San Diego.

Funding :: NSF (since 1978)

Availability :: willing to be contacted. Can be used with permission only and coauthorship status. Funding is needed to prepare data for general release.

Notes :: willing to be published in directory

Descriptors :: Not-at-risk, Insect herbivore, population dynamics, rare species resource limitation, plant vigor, phylogenetic constraints, *Euura lasiolepis* (Hymenoptera: Tenthredinidae), *Salix lasiolepis* (Salicaceae).

58.

Title :: National Park Service Fire Monitoring Program

Caretaker :: Paul Reeberg

Address :: National Park Service, Pacific Great Basin SSO, 600 Harrison Street, Suite 600, San Francisco, CA 94107-1372

Phone :: (415) 744-3921

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Electronic Mail :: paul_reeberg@nps.gov

Location of Study :: Over 50 national and state parks, refuges, and reservations throughout the United States. Program began in fifteen national park areas in Nevada, California, and Arizona. This program is about to be accepted service-wide, which will dramatically increase the number of areas that are using this system

Objectives :: Document basic post management-ignited prescribed burn information, detect trends, standardize data collection and analysis techniques, and ensure that fire and resource management objectives are met. Additionally, more specific objectives are identified for each area.

Methods :: All plots or transects are burned with management-ignited prescribed fire, although there are some non-treatment plots (10-15%). Presence/Absence, Cover/Leaf Area, Diameter, Height, Biomass (occasionally). Shrub density, burn severity, char height, scorch height, fuel load, photopoints, and fire behavior/weather. 50 x 20 m plots and 30m transects. At this time there are at least 470 transects and 340 plots established using this methodology. Plots are exactly relocatable

Time Frame :: Start date 1989 In progress Censused 1,2,5,10, and 20 years following fire

Data Format :: A. Paper, electronic database, photographs, videotape, maps.

Status :: A plan currently exists for continuation of data collection. Data not at risk of being abandoned In file cabinet's in each area, on a personal computer, and copies at the above address.

Publications :: National Park Service Western Region Fire Monitoring Handbook, USDI National Park Service, Western Region, 1990, 1991, 1992

National Park Service Western Region Fire Monitoring Handbook, FMH Software Manual, USDI National Park Service, Western Region, 1991

(Free copies of the above publications and the FMH custom software are available at the above address.)

Funding :: NPS - FIREPRO

Availability :: These data would be available to other investigators. Yes with permission from primary investigators. Yes without any formal restrictions

Notes ::

Descriptors :: Monitoring, fire effects, fire behavior, fire weather, prescribed fire, prescribed burn, National Park Service

59.

Title :: The Applied Limnology of Clear Lake, California

Caretaker :: Peter J. Richerson and Thomas H. Suchanek, Pis

Address :: Division of Environmental Studies, UC Davis, Davis, CA 95616

Phone :: (916) 752-2781

Fax :: (916) 752-3350

Electronic Mail :: pjricherson@ucdavis.edu

Location of Study :: 179 km² shallow eutrophic lake. 400m asl. Lake County, CA,

Objectives :: Various. Records have been collected on benthic insects routinely for 30 years by Mosquito Abatement District as part of their control program. The Department of Water Resources has collected basic water quality data since 1969. USGS has analyzed cores that data back to 450,000 BP. Weather data reaches back into the 19th Century. Water quantity data exists back into the 19th Century, though stream gauging records are mostly scattered and shorter. UCD projects data back to the 1950s, and we have been assisting the County with routine sampling of water quality parameters since 1991. New series started include stream nutrient sampling and lake sediment phosphorus sampling. UCD also has considerable data on mercury distribution in the lake (an abandoned mercury mine on the lake shore is a superfund site). We are in the process of retrieving short cores (2-3m) to document the history of anthropogenic disturbance of the lake basin.

Methods :: Again, various. The DWR water quality data series is collected monthly from 3 stations, one in each sub-basin. Data include major ions, nitrogen and phosphorus species, dissolved oxygen, transparency, turbidity, and phytoplankton enumerations. MAD data are weekly, and include limited water quality data in addition to benthic invertebrate enumerations. MAD zooplankton enumerations are continuous from the 1960s. Water quantity data are continuous for some series like lake level and discharge at the outlet. Relocatable plots.

Time Frame :: see above

Data Format :: Various, but most of the water quality data are now in electronic format.

Status :: Potentially at risk. The data are mostly collected by government agencies. Budget cutting has hampered expansion, coordination, and routine reporting of data, and could easily result in any one of the series being abandoned at any time. Each agency archives its own records, and UC has acquired electronic copies of most data.

Publications :: Much of this data are summarized in:

P.J. Richerson, et al., 1994. The Causes and Control of Algal Blooms in Clear Lake. Clean Lakes Diagnostic/feasibility Study. Prepared by University of California Davis for County of Lake, Flood Control and Water Conservation District and US EPA.

The USGS core work is described in:

J.D. Sims (ed.). 1988. Late Quaternary Climate, Tectonism, and Sedimentation in Clear Lake. USGS Special Paper 214: 81-96.

Funding :: UCDavis and UC Hopland Research and Extension Center, USGS EPA via Clean Lakes Grant, Superfund Ecological Assessment Contract Center for Ecological Health Research grants to UC Davis. State and local government agencies mentioned above.

Availability :: In theory, data are available. In practice, government agencies have not had sufficient funds and staff to clean up data and make it available. The important DWR data series resulted in no reports after 1975, and the agency had great difficulty in fulfilling promises to make the 1974-1992 records available for the Clean Lakes project. As far as records in the possession of UCD researchers, we will comply with any reasonable requests for data.

Notes ::

Descriptors :: Potentially at risk

60.

Title :: Hudson Bay Goose Grazing Project

Caretaker :: Robert F. Rockwell

Address :: Ornithology Department, American Museum of Natural History, Central Park West at 79th, New York, NY 10024

Phone :: (212) 769-5793

Fax :: (212) 769-5759

Electronic Mail :: rfrcc@cunyvm.cuny.edu

Location of Study :: La Perouse Bay (30 miles E. of Churchill, Manitoba) and points north of Churchill.

Objectives :: To monitor the impact of increasing Lesser Snow Goose populations, due to increased wintering ground in the midwest, USA, on vegetation and avifauna. To document a trophic cascade

caused by runaway consumption. The overgrazing of coastal marshland has resulted in increased evaporation, hypersalinity, tree die off, endangered nesting sites, lower invertebrate populations, and therefore, diminished supply of shorebird prey.

Methods :: Plant cover and species composition (presence/absence) data collected along permanent transects. Above and below ground plant biomass measured in 25 exclosures. Permanent scat monitoring plots exist for estimation of goose density. Data collected on the end of season young/adult ratio. 45,000 nests followed and 115,000 individuals marked. Plots and individuals are relocatable. Saline concentrations in soil and water also measured.

Time Frame :: 1968 - present, continuing. Censused every summer.

Data Format :: electronic database until 1993.

Status :: Actively looking for funding. Data are at risk of being abandoned. There is a plan for continuation of data collection, but funds are needed to continue. Data are stored on several computer systems and tapes.

Publications :: Over 200 publications. Cooch, EG, DB Lank, RF Rockwell and F Cooke. 1989. Long-term decline in fecundity in a snow goose population: evidence for density dependence? Journal of Animal Ecology 58: 711-726.; Cooch, EG, DB Lank, F Cooke and RF Rockwell. 1991a. Long-term decline in body size in a snow goose population: Evidence of environmental degradation? Journal of Animal Ecology 60: 483-496.; Cooke, F, RF Rockwell and DB Lank. 1994. The Snow Geese of La Perouse Bay: Natural Selection in the Wild. Oxford University Press, Oxford. 289pp.; Rockwell, RF, EG Cooch, CB Thompson and F Cooke. 1993. Age and reproductive success in lesser snow geese: experience, senescence and the cost of philopatry. Journal of Animal Ecology 62: 323-333.

Funding :: Central Flyway Council, Mississippi Flyway Council, Ducks Unlimited, City University of New York, National Rifle Association, Arctic Goose Joint Venture, National Research Council of Canada, NSERC, many small sportsman groups, currently applying to NSF.

Availability :: Willing to be contacted by those interested in these data.

Notes ::

Descriptors :: Snow geese, tropic cascade, herbivory

61.

Title :: Eastern North American Phenology Network

Caretaker :: Prof. Mark D. Schwartz (sole contact)

Address :: Department of Geography, University of Wisconsin-Milwaukee, 3210 N. Maryland/Bolton 474, Milwaukee, WI 53211

Phone :: (414) 229-3740 or 4866

Fax :: (414) 229-3981

Electronic Mail :: mds@csd.uwm.edu

Location of Study :: North Central and Northeastern United States, Eastern Canada, Alberta

Objectives :: Spring phenological observations of indicator plants for use in plant-climate interaction studies and global change monitoring

Methods :: Phenological events noted are date of first leaf emergence, 95% leaf, first flower, full bloom, and end bloom for clones of three indicator species. Species are, *Syringa chinensis*, 'Red Rothomagensis' (lilac), *Lonicera tatarica* 'Arnold Red' (honeysuckle), *Lonicera korolkowii* 'Zabeli' (honeysuckle). Approximately 60 stations are actively collecting data across the area in 1995. At the historical height of the network in 1973 there were over 300 stations. Distribution is no longer even across the area. New stations can be established. There is a source for new Arnold Red Honeysuckle clones, and will soon be one for Lilac clones. Climate data are available from many sites, but must be purchased from National Climatic Data center.

Time Frame :: Start date: 1961. End date: hopefully never. Censused yearly. Individual stations have come and gone.

Data Format :: Paper field notes, electronic database (Excel) and text.

Status :: Already collected data not-at-risk. Continuation of data collection will be supported for the next three years as part of an NSF grant. Data are archived in a PC located in the UWN Geography Department.

Publications :: Schwartz, M.D. 1994: Monitoring Global Change with Phenology: The Case of Spring

Green Wave. International Journal of Biometeorology 38(1): 18-22.

Schwartz, M.D. 1993: Assessing the Onset of Spring: A Climatological Perspective. Physical Geography 14(6): 536-550.

Schwartz, M.D. 1992: Phenology and Springtime Surface Layer Change. Monthly Weather Review 120(11): 2570-2578.

Funding :: Originally the network was supported through the Agricultural Experiment Stations. This funding was withdrawn in 1986. I have operated the network in "caretaker" mode since 1988 using personal funds and monies for the yearly mailing provided by my university department. I have received an NSF grant that will run 1995-1998 that will provide some support for data collection.

Availability :: Data are available. I would request acknowledgment of source and copies of any publications produced using the data.

Notes ::

Descriptors :: Not at risk, Phenology, Eastern North America, Lilacs

62.

Title :: Wisconsin Phenological Society

Caretaker :: Prof. Mark D. Schwartz, Vice-President

Address :: Department of Geography, 3210 N. Maryland/Bolton 474, University of Wisconsin-Milwaukee, Milwaukee, WI 53211

Phone :: (414) 229-3740 or 4866

Fax :: (414) 229-3981

Electronic Mail :: mds@csd.uwm.edu

Location of Study :: State of Wisconsin

Objectives :: Flowering data on native and introduced species of trees, flowers and shrubs (a set list sent out on data form, but not all observers take observations on all species). Special observations including leafing of *Syringa vulgaris* (lilac).

Methods :: Yearly data forms collected and mailed to coordinator. Observations taken at members homes. Plots and individuals are not relocatable.

Time Frame :: Start date: approximately 1960. Continuing. Censused yearly. Still in progress, reports and stations vary over period of record

Data Format :: Paper field notes and tables. Data are currently being put into the Paradox database.

Status :: Not at risk, No firm plan, volunteer observers with little funding. Currently most of the paper records are at UW-Steven's Point with the President of the Society (Prof. Frank Bowers). Eventually all records and the electronic copies of the data will reside with Prof. Schwartz at UW-Milwaukee

Publications :: Several papers by Heinz and Katharine Lettau

Funding :: Dues/contributions from WPS members

Availability :: Willing to be contacted, note source of data in all publications

Notes ::

Descriptors :: Not-at-risk, Phenology, Wisconsin, Native species

63.

Title :: Tree Population Dynamics in Seven South Carolina Mixed Species Forests

Caretaker :: Rebecca Sharitz, data manager

Address :: Savannah River Ecology Lab, University of Georgia, Drawer E, Aiken, SC 29802

Phone :: (803) 725-5679

Fax :: (803) 725-3307

Electronic Mail :: sharitz@srel.edu

Location of Study :: Upper Three Runs Creek (a tributary of the Savannah River) and the Savannah River Flood Plain. These locations are on the DOE Savannah River Site which encompasses 300 msq of the upper coastal plain of South Carolina. This site has been protected from development since 1950, but has had DOE industrial activities and USFS management activities.

Objectives :: To examine forest dynamics in second growth bottomwood and swamp forest across a hydrologic gradient over a period of time.

Methods :: All woody stems greater than 4.5 cm dbh were identified, tagged, mapped, and measured

on 7 x 1 hectare plots. Canopy position and condition (diseased, branch loss, dominant, codominant, suppressed) were also recorded. Plots and individuals are relocatable. Soil, slope, and aspect data accompany.

Time Frame :: Censused in 1979, 1989, and 1995; plan to census at 5 year intervals from now on.

Data Format :: electronic database, GIS. Stored in SREL data archives.

Status :: Data are not at risk of being abandoned. Plans for continued data collection exist.

Publications :: Good, B. J. 1981. The spatial patterns of dominant tree species in deciduous forests located along a topographic gradient in south Carolina. M. S. thesis, Louisiana State University. 80 p.

Good, B. J. And S. A. Whipple. 1982. Tree spatial patterns: South Carolina bottomland and swamp forests. Bull. of Torrey Botanical Club 109:529-536.

Jones, R. H., R. R. Sharitz, S. M. James, and P. M. Dixon. 1994. Tree population dynamics in seven South Carolina mixed-species forests. Bull. of Torrey Botanical Club 121: 360-368.

Funding :: DOE contract to the University of Georgia for operation of SREL. National Environmental Research Park

Availability :: Willing to be contacted by people interested in these data.

Notes ::

Descriptors :: forest succession, ingrowth, mortality, shade tolerance, population flux, wetland forests.

64.

Title :: Spatial and Temporal Pattern in Butterfly Faunas: Long-Term Studies on a California Transect

Caretaker :: Arthur M. Shapiro; PI

Address :: Center for Population Biology, University of California, Davis CA 95616

Phone :: 916-752-2176

Fax :: 916-752-1449

Electronic Mail :: Not available

Location of Study :: 10 sites from sea level at the Suisun Marsh, Solano Co. CA across the North Coast Range, Central Valley, and Sierra Nevada east to Sierra Co. CA. Other sites are in Yolo, Sacramento, and Nevada Counties. Sites are on a transect parallel to Interstate Highway 80, elevation range 5-2750 m

Objectives :: Climatic inputs on phenology and faunistics of entire butterfly faunas; habitats very diverse, including tidal and freshwater marsh, foothill woodland, valley riparian forest, mixed conifer, subalpine forest, alpine fell-field, and Great Basin shrub steppe. Over 135 species included, with a maximum of 115 recorded at one site (24 yr.)

Methods :: No treatments. Predominate route walked at roughly 14 day intervals throughout butterfly season. Presence/absence notes for entire butterfly fauna. (Faunas are too large and numbers of individuals normally too great for even Pollard style counts to be done) Natural history observations, e.g. outbreaks, unusual events, disturbance...recorded. Climatological data are from NOAA stations and observers, closely spatially matched to sites. Transects are relocatable

Time Frame :: Started 1972, ongoing. Censused biweekly; more often under unusual circumstances, e.g. unusual weather events. Few gaps in continuity for some stations

Data Format :: Paper tables and field notes, soon to be electronically entered, photographs (snowpack, snowmelt phenology, and vegetation

Status :: presently, not at risk. Data stored in bank vault. Data collection continues.

Publications :: Incidental references in many of my publications. The entire project was described in a chapter of Cody and Diamond, Ecology and Evolution Communities (1975) when it was just getting off of the ground

Funding :: Personal, NSF, University

Availability :: Not available yet

Notes ::

Descriptors :: Butterflies, Sierra Nevada, California, transect, phenology, faunistics, Mediterranean climate, voltinism, colonization, extinction, presence-absence data, Lepidoptera.

65.

Title :: Willow-herbivore-predator interactions in Eastern Sierra Nevada Mountains, California
Caretaker :: John Smiley (PI) or Nathan Rank
Address :: Big Creek Reserve, Big Sur, CA. 93920 or Department of Biology, Sonoma State University, Rohnert Park, CA.
Phone :: 408 667-2543
Fax :: Must prearrange by phone.
Electronic Mail :: jsmiley@cats.ucsc.edu
Location of Study :: North Fork Big Pine Creek, Inyo Co., California (37° 7' N/ 118° 29' W)
Objectives :: Distribution and abundance of *Chrysomela aeneicollis* (Coleoptera: Chrysomelidae) on 8-10 species of *Salix* (Salicaceae) including *S. orestera*. Ecology and prey relationships of 2 specialist predators, *Symmorphus cristatus* (Hymenoptera: Eumenidae) and *Parasyrphus melanderi* (Diptera: syrphidae).
Methods :: Presence/absence in different parts of drainage, leaf samples, chemical analysis of salicylates, genetic analysis of *C. aeneicollis* population structure using allozyme data. Plots and *Salix* are relocatable.
Time Frame :: Started : August 1981, still in progress. Some gaps in continuity.
Data Format :: Paper field notes, electronic texts. Approx. 35 maps.
Status :: Data are not at risk of being abandoned, tentative plans for continuation of data. Data stored at Big Sur/ SSU
Publications :: Smiley, J. T. , N. E. Rank, and J. M Horn. 1985. Ecological effects of salicin at three trophic levels: new problems from old adaptations. *Science* 201: 649-651.
Rank, N. E and J. T. Smiley. Host plant effects on *Parasyrphus melanderi* (Diptera: syrphidae) feeding on a willow leaf beetle *Chrysomela aeneicollis* (Coleoptera: Chrysomelidae). *Ecol. Entomol.* 19: 31-38.
Rank, N. E., A. Koepf, and J. T. Smiley. In press. Natural enemies and host plant relationships for chrysomeline leaf beetles feeding on salicaceae. In Jolivet, P., M. L. Cox, and T. H. Hsiao (eds.): *Biology of Chrysomelidae*, Vol. IV, Trophic selections; biocontrol; ecology; natural enemies; defense mechanisms.
Funding :: Personal funds, UC White Mountain Research Station
Availability :: Willing to be contacted, there would have to be an effort but forth by the researcher to retrieve the actual data
Notes ::
Descriptors :: *Chrysomela aeneicollis* (Coleoptera: Chrysomelidae), *Salix orestera* (Salicaceae), *Symmorphus cristatus* (Hymenoptera: Eumenidae), *Parasyrphus melanderi* (Diptera: syrphidae), plant-herbivore-predator interactions, chemical ecology, genetic population structure, elevation gradient, phenolic glycosides, chemical polymorphism.

66.

Title :: Region 6 Ecology Database USDA Forest Service, Region 6 (OR&WA)
Caretaker :: Bradley G. Smith, co PI and Data Manager
Address :: Silviculture Lab, 1027 NW Trenton Ave, Bend OR. 97701
Phone :: 503- 383-5434
Fax :: 503- 383-5733
Electronic Mail ::
Location of Study :: National Forests in OR & WA, 42-46°N Lat.
Objectives :: Potential Vegetation Classification; Succession modeling
Methods :: approx. 14,000 plots, using standard methods for vegetation characterization. Cover by all vascular plants, ht/dbh/growth increment on subset of plots and trees species. Prism tallies or stem tallies. Usually circular plots one tenth acre or one twentieth ha. Some soils data. Some plots relocatable, few individuals relocatable.
Time Frame :: Start date: 1958. Still in progress. Censused at various intervals.
Data Format :: Electronic database and text files, GIS. Photographs
Status :: Data not-at-risk. Plans for continuation. Stored at Bend, OR and area ecology offices in WA and OR

Publications :: Many potential vegetation guides in OR and WA
Funding :: NSF
Availability :: Willing to be contacted. Public access data, interest in cooperation with other authors
Notes ::
Descriptors ::

67.

Title :: Spatial Distribution of *Astrocaryum macrocalyx* in a long-term plot, Manu National Park, Peru
Caretaker :: Una Smith (or via John Terborgh, Duke University)
Address :: Department of Biology, Yale University, New Haven, CT 06520-8104
Phone ::
Fax ::
Electronic Mail :: una.smith@yale.edu
Location of Study :: Cocha Cashu Biological Station, Manu National Park, Madre de Dios, Peru
Objectives :: Ecology and population structure of *Astrocaryum macrocalyx*, a major forest palm in Amazonia
Methods :: All individuals having one leaf (in addition to the cotyledon leaf) were mapped and tagged in a small portion of one of John Terborgh's long term canopy photos and some morphological data were also taken. Plots and individuals are exactly relocatable
Time Frame :: Started in 1991, ended in 1991, some additional measurements were taken in 1992.
Data Format :: Paper field notes, electronic database, photographs, and maps.
Status :: A plan is being formulated for future data collection, Data is not at risk of abandonment. Stored on PC and in a box under someone's desk.
Publications :: Duke University Masters Thesis, Una R. Smith.
Funding :: Personal funds
Availability :: May be contacted, data available with permission from primary investigators.
Notes ::
Descriptors ::

68.

Title :: Colorado Rockies Global Change Research Program
Caretaker :: Program Coordinator: Thomas J. Stohlgren; Lead PI's = Roger Pielke and Timothy Kittel for climate aspects; Jill Baron for hydrology aspects; and Tom Stohlgren, Dan Binkley, Tom Veblen, and Bill Baker for vegetation aspects.
Address :: National Biological Service, Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO 80523
Phone :: (970) 491-1980
Fax :: (970) 491-1965
Electronic Mail :: toms@NREL.ColoState.edu
Location of Study :: Rocky Mountain National Park, Colorado and vicinity, U.S.A.
Objectives :: a) meso-scale climate modeling; b) long-term hydrology and biogeochemistry field measurements and modeling; and c) long-term forest vegetation change at ecotones and throughout the landscape.
Methods :: a) Climate models involve the Regional Atmospheric Modeling System and GCM's. b) Hydrology field measurements include long-term monitoring of the Loch Vale Watershed, RHESSys model, GIS models, and snow melt process work. c) Vegetation field measurements include randomly selected long-term vegetation transects (20 m x 200+m) at forest ecotones (diameter, basal area, density, mapped tree locations, reproduction, soil characteristics, PAR, soil moisture, etc.), and systematic plots (20 m x 20 m) throughout the landscape. Plots and individuals are relocatable. Long-term lake and stream chemistry from Loch Vale (J. Baron), climate data (T. Kittel), and soils data (T. Stohlgren) accompany.
Time Frame :: Start date: a) climate work 1993; hydrology work 1982; vegetation work 1993. End date: 1997 or beyond. Census interval varies with study and parameter from weekly precipitation sampling to annual/decade tree mortality

Data Format :: Data are in the form of paper (field notes), electronic database, GIS maps, and many mapped model outputs.

Status :: Potentially at risk depending upon program renewal/budget concerns. Hope to continue data collection. Data archived as follows: a) climate data and some model runs at CSU and UCAR (T. Kittel, R. Pielke); b) Hydrology and vegetation data at CSU - some data sets archived with individual PI's at other institutions.

Publications :: Baron, J. L. Band, S.W. Running, R.A. Pielke, and T.G.F. Kittel. Dynamic land surface/atmospheric parameterization at different spatial scales in the Colorado Rocky Mountains. in Proceedings of the Use of Hydrologic Models for Evaluating Climate Change Effects in Snowmelt Water Supply Basins. April 1993, Santa Fe, N.M. Workshop sponsored by the Agricultural Research Service and the Pacific Institute for Studies in Development, Environment, and Security. (In press).

Pielke, R.A., J. Baron, T.Chase, J. Copeland, T.G.F. Kittel, T.J. Lee, R. Walko, X. Zeng, 1993: Use of mesoscale models for simulation of seasonal weather and climate change for the Rocky Mountain States. Proceedings, Second International Conference/Workshop on Integrating GIS and environmental Modeling. Breckenridge, Colorado, Sept 26-29, 1993.

Stohlgren, T.J., J. Baron, and T. Kittel. 1993. Understanding coupled climatic, hydrological, and ecosystem responses to global climate change in the Colorado Rockies Biogeographical Area. Proceedings from at the George Wright Society Conference on Science and Resource Management in National Parks, Jacksonville, Florida, November 13-17, 1992.

Funding :: National Biological Service, some NSF and others

Availability :: Data must be released by one of the 10 PI's on the project. Much of the data is still being analyzed prior to publication and is not yet available, but there may be opportunities to collaborate.

Notes ::

Descriptors :: Potentially at risk

69.

Title :: Vegetation Recovery After Volcanic Eruptions

Caretaker :: Shiro Tsuyuzaki, PI

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Phone :: +81-25-262-7381

Fax :: +81-25-262-1175

Electronic Mail :: tsuyu@cc.niigata-u.ac.jp

Location of Study :: Mount Usu, northern Japan, 42o32*N, 140o50*E, 727 m in altitude. Mt. Usu erupted in 1977 and 1988. Thereafter, the vegetation gradually recovered by four mechanisms: vegetative reproduction, seed immigration, buried seeds, and artificial introduction.

Objectives :: To understand the mechanisms of vegetation development on volcanic ejecta. To obtain relationships between plant community patterns and environmental factors. To analyze community replacement patterns.

Methods :: There are 14 permanent, relocatable 2m x 5m plots. Cover data on each species collected. Density, height, survival and reproduction are measured irregularly. Many temporal plots are also available. Individuals relocatable until 1988. Climate, soil, and biogeochemistry data are available.

Time Frame :: 1983 - present, continuing. Censused at roughly annual intervals.

Data Format :: Photographs, Maps,

Status :: Data files on disk (bxcell, Ascii, etc.) Personal possession. Not-at-risk of abandonment

Publications :: Amer. H. Bot., Vegetatio, Jo Veg.Sci., etc.

Funding :: University, Ministry of Education, Science and Culture of Japan.

Availability :: Willing to be contacted by others interested in these data.

Notes ::

Descriptors :: Mt. Usu, volcano, succession, vegetation

70.

Title :: Herbaceous Productivity in Northern California Annual Grasslands

Caretaker :: Charles Vaughn co-PI

Address :: University of California, Hopland Research and Extension Center

Phone :: 707 744-1424

Fax :: 707 744-1040

Electronic Mail :: cevaughn@ucdavis.edu

Location of Study :: University of California Hopland Research and Extension Center. Mendocino County, CA. Latitude 39° 00' N and longitude 123° 4' W. Study sites are located in six, unimproved, annual grassland pastures.

Objectives :: Study objectives have been to provide long-term database on annual grassland productivity in Northern California.

Methods :: Six 2-m² exclosures are located in each of six, unimproved, grazed, annual grassland pastures. Pasture herbage productivity is measured in these exclosures annually at or near peak standing crop by clipping the herbage at ground level from three .27-m² quadrats in each exclosure. Herbage is dried to a constant weight at 60° and weighed. Exclosures are moved annually within small, botanically similar areas. Climate, soils, and biogeochemistry data available. Plots and individuals are relocatable.

Time Frame :: Start date: 1954. Still in progress.

Data Format :: Paper tables.

Status :: Data are not-at-risk. Plan for continuation. Stored at UC Hopland.

Publications :: Murphy, A. H. 1970. Predicted forage yield based on fall precipitation in California annual grasslands. *J. Range Management* 23: 363-365.

George, M. R., W. A. Williams, N. C. McDongald, W. J. Clawson, and A. H. Murphy. 1989. Predicting peak standing crop on annual range using weather variable. *J. Range Management* 42: 508-513.

Schall, J. J. And A. B. Marghoob. 1995. Prevalence of malarial parasite over time and space: *Plasmodium mexicanum* in its vertebrate host, the western fence lizard *Scleropus occidentalis*. *J. Anim. Ecol.* 64:177-185.

Funding :: University of California

Availability :: Willing to be contacted. Permission of PI

Notes :: Willing to be published in directory

Descriptors :: California annual grassland, peak standing crop, herbage production.

71.

Title :: Demography of Sonoran Desert Winter Annual Plants

Caretaker :: D. Lawrence Venable,

Address :: Ecology and Evolutionary Biology, BioSciences West 310, University of Arizona, Tucson, AZ 85721

Phone :: (520) 621-5956

Fax :: (520) 621-9190

Electronic Mail :: dlv@ccit.arizona.edu

Location of Study :: University of Arizona Desert Laboratory at Tumamoc Hill, Tucson, AZ

Objectives :: To monitor population and community dynamics of a guild of desert annual plants and its relationship to weather patterns

Methods :: No treatments. Established 14 (later 12) permanent plots in 1982/83. Initially plots were 50cm x 10cm, increased to 50cm x 20cm in 1989. Plots monitored during growing season monthly and after each flush of germination. Seedlings mapped for identity, survival, and reproduction. Some seed bank data collected from 1982-1986 (more systematically beginning in 1990). Removal experiments (reproductive inhibition) and seed additions initiated in separate plots in 1991. Precipitation and temperature data available from Tumamoc Hill. Plots relocatable.

Time Frame :: 1982/1983 - present, censused roughly monthly during winter growing season.

Data Format :: field notes (paper), electronic database, digitized maps. Archived on pc in quattr

dbaseIV and ASCII files.

Status :: Data are not at risk of being abandoned. Plan exists for continuation of data collection.

Publications :: Venable, D.L., C.E. Pake, A. Caprio. 1993. Diversity and coexistence of Sonoran Desert annual plants. *Plant Species Biology* 8: 207-216.

Pake, C.E. and D.L. Venable. 1995. Is coexistence in Sonoran Desert annual plants mediated by temporal variation in reproductive success? *Ecology* 76(1): 246-261

Pake, C.E. and D.L. Venable. Seed banks in desert annuals: implications for persistence and coexistence in variable environments. In press in *Ecology*.

Funding :: University of Arizona, National Geographic, NSF LTREB

Availability :: Willing to be contacted. Collaboration only.

Notes ::

Descriptors :: desert annual plants; monitoring population dynamics, Sonoran Desert, temporal variation, reproductive success, seed banks.

72.

Title :: Janice Beatley's Ecological Monitoring of the Nevada Test Site 1963-1974

Caretaker :: Robert H. Webb

Address :: US Geological Survey Desert Laboratory, 1675 W. Anklam, Tucson, AZ 85745

Phone :: (520) 670-6821

Fax :: (520) 670-6806

Electronic Mail :: rhwebb@sun1paztcn.wr.usgs.gov

Location of Study :: Nevada Test Site

Objectives :: To monitor perennial and herbaceous plants and rodent populations in conjunction with radiation levels.

Methods :: In 1963, established 68 100 x 100 ft permanent plots. Density and cover data of perennial vegetation collected in 1963 and 1967. Cover and height data by species of annual plants collected along 100 foot transect using 2 x 2 ft plot frames. Radiation levels, precipitation, max-min temperatures (air and soil), and soil moisture data available. Many plots are relocatable.

Time Frame :: 1963 - 1974, censused annually for annual and perennial plants.

Data Format :: field notes and computer printouts (paper) ,1970's computer tape recovered to electronic database (some files lost), photographs, maps

Status :: Data are at risk of being abandoned and no plans currently exist for continuation of data collection. Data currently stored at the Desert Laboratory, on computers, in boxes.

Publications :: Beatley, J.C. 1976. Rainfall and fluctuating plant populations in relation to distributions and numbers of desert rodents in Southern Nevada. *Oecologia* 24: 21-42

Beatley, J.C. 1975. Climates and vegetation pattern across the Mojave/Great Basin Desert transition of Southern Nevada. 1975, *The American Midland Naturalist* 93(1): 53-70

Beatley, J.C. 1974. Effects of annual rainfall and temperature on the distribution and behavior of *Larrea tridentata* (creosote bush) in the Mojave Desert of Nevada. *Ecology* 55(2): 245-261

Beatley, J.C. 1969. Biomass of desert winter annual plant populations in southern Nevada. *Oikos* 20: 261-273

Funding :: Department of Defense

Availability :: With permission.

Notes :: May be published in the directory of long-term data sets.

Descriptors :: Mojave Desert, Great Basin Desert, Nevada Test Site, desert annual and perennial plants, desert rodents, post-bomb radiation levels, population monitoring.

73.

Title :: Long Term Monitoring Program for the Southeast Utah Group, National Park Service

Caretaker :: Tara Williams

Address :: Canyonlands National Park, 2282 S. West Resource Blvd, Moab, UT 84532

Phone :: 801 259-3911 x2135

Fax :: 801 259-8628

Electronic Mail :: tara_williams@nps.gov

Location of Study :: Approx. 40 transects sites, representing approx. 20 habitat types located in Arches and Canyonlands National Parks and Natural Bridges National Monument, Grand and San Juan and Wayne Counties, Utah.

Objectives :: Monitoring natural fluctuations, watch for drastic changes. Comparison of disturbed and undisturbed sites focus is on vegetation, (both vascular and non vascular) small mammal and bird data have been collected at some sites. H₂O quality is tested at other sited (springs and Green and Col.Rivers) under same program

Methods :: Use nested .25m² quadrats to estimate frequency, percent cover, and species richness. Permanent plots established at most sites. Most sites in undisturbed sites, may establish new sites in disturbed areas. Climate, soil, data accompany. Plots and individuals are relocatable. No treatments imposed.

Time Frame :: Start data: 1987, still in progress, censused annually

Data Format :: Paper field notes, electronic database, Photographs

Status :: A plan currently exists for continuation of data, data not currently at risk. Stored on a PC and in file cabinets. Stored in Southeast Utah Group Headquarters office, Moab, Ut (same address as above)

Publications ::

Funding :: National Park Service

Availability :: Data available without formal restrictions

Notes ::

Descriptors :: Desert Vegetation, Mixed shrubland vegetation, baseline, water quality, plants

74.

Title :: Rocky Subtidal Communities in the Gulf of Maine

Caretaker :: Jon Witman

Address :: Department of Ecology and Evolutionary Biology, Brown University, Box G-W, Providence, RI 02912

Phone :: (401) 863-3936

Fax :: (401) 863-2166

Electronic Mail :: Jon_Witman@Brown.edu

Location of Study :: Gulf of Maine, 7 primary sites.

Objectives :: To study spatial competition, patch dynamics, and succession, episodic predation, and benthic pelagic coupling (how food and larvae are delivered) in communities of sponges, sea anemones, bryozoans, mussels, braciopods, and soft corals.

Methods :: Monitored rock wall communities on large spatial scales. There are 4 coastal sites and 2 offshore sites mostly at 30 meters depth. Also there are separate 1/4 m² quadrats and large strip transects (10 meter bands) made up of 2 offshore and 3 coastal sites. Temperature data have been collected daily. Flow speed, optical fluorescence, water column structure, vertical temperature profiles, and species diversity, density, survival, growth, and recruitment data are also available. Plots and individuals are relocatable.

Time Frame :: Mostly 1986 - present, mussel beds at two sites monitored as early as 1979.

Data Format :: tables (paper), electronic database (EXCEL), picture computer files, photographs (35 mm slide images), setting up electronic digitizing and videotape for band transects.

Status :: Data not at risk of being abandoned, but threatened by lack of funds. Data collection requires ship time and funding is an annual challenge.

Publications :: Witman, J. D. 1985. Refuges, biological disturbance, and rocky subtidal community structure in New England. *Ecological Monographs* 55: 421-445.

Witman, J. D. 1987. Subtidal coexistence: storms, grazing, mutualism, and the zonation of kelps and mussels. *Ecological Monographs* 57: 167-187

Witman, J. D. and K. P. Sebens. 1992. Regional variation in fish predation intensity: a historical perspective in the Gulf of Maine. *Oecologia* 90: 305 - 315.

Funding :: NSF (Biological Oceanography), NOAA/NURP (National Undersea Research Program).

Availability :: Data are not yet available to others outside my lab

Notes ::

Descriptors :: landscape ecology, diversity, rocky subtidal, patch dynamics, episodic predation

75.

Title :: Long-Term Patch Dynamics of Coral Reefs in St. John, U.S. Virgin Islands

Caretaker :: Jon Witman

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Phone :: (401) 863-3936

Fax :: (401) 863-2166

Electronic Mail :: Jon_Witman@Brown.edu

Location of Study :: Virgin Islands, primary site is located on the south coast of St. John.

Objectives :: To determine how reef communities respond to hurricane and coral bleaching disturbance. Species studied include hydro-corals, epifaunal invertebrates, sponges, stoney corals, and macroalgae.

Methods :: Patch dynamics data collected on separate, relocatable, 1/4 m² photo quadrats following 3 major hurricanes. Variables include species diversity, percent cover, abundance, frequency of spatial competition, and current velocity.

Time Frame :: 1985 - present, censused 3 times per year for 7 years. Gap in data exists for 1992-94.

Data Format :: tables (paper), electronic database (EXCEL), digitized, photographs

Status :: Data is at risk of being abandoned due to lack of current funding.

Publications :: Witman, J.D. 1992 Physical disturbance and community structure of exposed and protected reefs: a case study from St. John, US Virgin Islands. *American Zoologist* 32: 641-654.

Edmunds, P.J and J.D. Witman. 1991. Effect of Hurricane Hugo on the primary framework of a reef along the south shore of St. John, US Virgin Islands. *Mar. Ecol. Prog. Ser.* 78: 201-204.

Funding :: NPS, personal funds

Availability :: Data are not yet available. Would like collaborators.

Notes :: Would like this information to be published in the directory of long-term data sets.

Descriptors :: patch dynamics, species diversity, frequency of spatial competition, current velocity, coral reef communities, U.S. Virgin Islands, at risk.

76.

Title :: Long Term Resource Monitoring Program for the Upper Mississippi River System

Caretaker :: Joe Wlosinski, Linda Leake - data manager

Address :: Environmental Management Technical Center, National Biological Service, 575 Lester Ave., Onalaska, WI 54650

Phone :: (608)783-7550 x 56 Wlosinski x 13 Leake

Fax :: (608)783-8058

Electronic Mail :: Joe_Wlosinski@nbs.gov, Linda_Leake@nbs.gov

Location of Study :: Upper Mississippi River, Twin Cities south to mouth of Ohio River, all of the Illinois River, and navigable (by barge) portions of the Minnesota, St. Croix, Black, and Kaskaskia Rivers

Objectives :: water quality, vegetation, fish, invertebrates, physical factors at numerous river habitats

Methods :: Various - Procedures manual available. Water quality, discharge and water level elevations. Plots and individuals are relocatable.

Time Frame :: Program started collecting data in 1988. Some historical data obtained as far back as 1800's. End date: 2002. Censused at various intervals. Still in progress. Some gaps in continuity

Data Format :: Paper field notes tables and other. Electronic database text and other. Photographs, maps (size - various, how many - lots):

Status :: Not at risk. A plan currently exist for continuation of data collection. Most data are online on a Sun server using an Oracle t system. All data are routinely archived on 8 mm tapes, both on- and off-site.

Publications :: numerous publications - list available from Wlosinski

Funding :: Program is a line item in the federal budget (through U.S. Army Corps of Engineers, Environmental Management Program)

Availability :: Willing to be contacted by others interested in this data. NO restrictions.

Notes ::

Descriptors :: upper Mississippi river, long-term resource monitoring program, water quality, vegetation, fish, invertebrates, discharge, water levels

77.

Title :: Oak Mast as a Keystone Resource in Forest Community Dynamics

Caretaker :: Jerry O Wolff, P.I. and data manager

Address :: Department of Fisheries and Wildlife, Oregon State University Corvallis OR. 97331-5503

Phone :: 503 754-4377

Fax :: 503 754-4338

Electronic Mail :: jerryw@mail.cor.epa.gov

Location of Study :: Mountain Lake Biological Station in the southern Appalachian Mountains (37° 10'N; 80° 30'W), Giles County, Virginia

Objectives :: To monitor acorn production, mast consumption rates, and densities of mast-consuming rodents. To determine the role of mast production in regulating population densities of three seed-eating rodent species, white-footed mice, deer mice, and chipmunks. Experiments have been conducted on infanticide, dispersal, population regulation, and territoriality.

Methods :: Acorn production monitored by mast surveys. Densities of white-footed mice, deer mice, and chipmunks determined by live-trapping, mark/recapture. Demographic data are available for all captured animals. Climate data are available from Henry Wilbur of the University of Virginia (hmw3@faraday.clas.virginia.edu) plots are relocateable

Time Frame :: Start date: April 1980. End date: June 1994. Censused approximately 2-week intervals from April-November 1980-1994. Yearly data are continuous, monthly data are not. Jack Cranford from Virginia Tech (cranford@vtvm1.cc.vt.edu) is continuing collecting the same kinds of data at same research site

Data Format :: Data for years 1980-83 are maintained by John Porter at the University of Virginia (jhp7e@amazon.evsc.virginia.edu) on electronic file. Data from 1984-1993 are maintained by J. Wolff in his office in Oregon. Data from 1984-88 are in field notes only, data from 1989-92 are on electronic file, data from 1993-94 are in field notes only. Data after 1994 are maintained by Cranford

Status :: Is this data (already collected) at risk of being abandoned? no

Does a plan currently exist for continuation of data collection? indirectly. so the data set will continue, but data after 1994 data will be maintained by Cranford.

Publications :: Wolff, J.O. 1992. Parents suppress reproduction and stimulate dispersal in opposite-sex juvenile white-footed mice. *Nature* 359:409-410.

Wolff, J.O. and D.M. Cicirello. 1991. Comparative paternal and infanticidal behavior of white-footed mice and deer mice. *Behav. Ecol.* 2:38-45.

Wolff, J.O., K.I. Lundy, and R. Baccus. 1988. Dispersal, inbreeding avoidance, and reproductive success in white-footed mice. *Anim. Behav.* 36:456-465.

Funding :: NSF (14 years)

Availability :: Data available pending permission of investigators

Notes ::

Descriptors :: Not at risk

78.

Title :: ELF Communications Systems Ecological Monitoring Programs

Caretaker :: John E. Zapotsky, Program Manager

Address :: IIT Research Institute, 10 West 35th St., Chicago IL 60616-3799

Phone :: 312 567-4532

Fax :: 312 567-4543

Electronic Mail :: zapo@eagle.hq.iitri.com

Location of Study :: 10 studies, each with multiple treatment and reference sites in North Central Wisconsin (Chequamegon National Forest-Ashland and Sawyer Counties) and the Upper Peninsula of Michigan (Escanaga and Copper country State Forests in Marquette, Dickinson, and Iron Counties)

Objectives :: The purpose of the monitoring program was to determine whether electromagnetic fields (EM) produced by the U.S. Navy's ELF Communications System affect resident biota or their ecological relationships. Physiological, developmental, behavioral, and ecological variables for dominant biota in upland, wetland, and riverine habitats were examined in this long-term study.

Methods :: Treatment sites were located close to elements of the transmitting antenna, while environmentally matched control sites were located at such a distance (5-25 miles) from the transmitting elements that ELF EM exposures were at least an order of magnitude less than at treatment sites. Studies were performed prior to energization of the antenna, during its intermittent use, as well as under full operational conditions. Naturally occurring site-dependant and meteorological differences were determined. There were 26 study sites and 10 bird transects in Michigan; and 14 sites and 10 transects in Wisconsin. Sites varied from small buried culture chamber to sites as large as several acres; transects were 2.7 miles long. Well-established techniques pertinent to each variable were used. Variables and organisms were: forest health and productivity (phenology and growth of both herbs and trees; population and community structure of biota important in nutrient cycling (fungi, amoebae, soil arthropods, and earthworms); behavior and mortality of native bees; structure and function of lotic communities (periphyton, insects, fish), physiological ecology of wetland trees, shrubs, herbs, and mosses; small vertebrate behavior, development, health, and population structure. Soils, biogeochemistry, and climate data accompany.

Time Frame :: Started research in 1983-84. Ended in 1994. Censused more than once a month during the growing season (Apr-Oct)

Data Format :: Hard and electronic copies of data, Paper field notes and tables, maps and photographs

Status :: There are no current plan to coalesce data into one accessible format. Data currently stored in PC's at each university team

Publications :: Summaries of these data have been presented in annual (1982-1993) and final summary reports (1994). In addition, over 300 publications and presentations have been given using these data.

Funding :: U.S. Navy

Availability :: Willing to be contacted. Permission from researchers required.

Notes ::

Descriptors :: Environmental impact, Michigan, Wisconsin, Extremely low frequency-electronic fields, ELF communications system, Northern temperate forests, wetlands and rivers.

79.

Title :: Southern California Estuarine Monitoring

Caretaker :: Joy Zedler

Address :: Pacific Estuarine Research Laboratory, San Diego State University, San Diego, CA 92182-4614

Phone :: (619) 594-5809

Fax :: (619) 594-2035

Electronic Mail :: jzedler@perl.sdsu.edu

Location of Study :: Tijuana Estuary, San Diego Bay; Los Pinas Quitos Lagoon; San Elijo Lagoon; San Diego River

Objectives :: To understand ecosystem functioning and improve management.

Methods :: The sampling design in 1979 was extensive, with 0.25 m² circular quadrats at 5-m intervals along 8 transects. In 1984, transects were extended to sample the upper marsh more thoroughly. Method were modified in 1989 to evaluate more precisely the interannual variability and to sample equally in low, mid and high marsh. Currently we maintain 4 20-m transects in each habitat type with 4-fold replication. Cover is assessed with line-intercept methods, and cordgrass numbers and heights and measures in quadrats. The 1979 transects were to be resampled at 5-year intervals, but only a subset was relocatable in 1994. The 20-m transects will be sampled annually as part of the National Estuarine Research Reserve monitoring program . which is funded by NOAA.

Time Frame :: 1979 - present, censused annually.

Data Format :: electronic database (EXCEL for macintosh), archived on a sun work station (not all

quality assured)

Status :: Data are not at risk of being abandoned. The reside at PERL, which is housed at San Diego State University. The 20-m transects will be sampled annually as part of the National Estuarine Research Reserve monitoring program, which is funded by NOAA.

Publications :: Zedler, J.B. 1977. Salt Marsh community structure in the Tijuana Estuary, California. *Estuarine and Coastal Marine Science*. 5:39-53

Pacific Estuarine Research Laboratory (PERL). 1990. A manual for assessing restored and natural coastal wetlands with examples from southern California. California Sea Grant Report No.T-CSGCP-021. La Jolla, California. (Principal author with sections by René Langis.) 105pp.

Zedler, Joy B. Christopher S. Nordby, and Barbara E. Kus. 1992. The ecology of Tijuana Estuary: A National Estuarine Research Reserve. NOAA Office of Coastal Resource Management, Sanctuaries, and Reserves Division, Washington, D.C.

Funding :: NOAA (current), FWS, NBS, California Sea Grant

Availability :: Data are not available.

Notes :: Other similar projects are: (1) San Diego Bay site started in 1989 which is more extensive, and joint with manipulated experiments (see manual), (2) 3 other smaller, more restricted projects (San Diego River, Los Pinas Quitos Lagoon, San Elijo Lagoon).

Descriptors :: Salt Marsh, coastal wetland, vegetation, cordgrass, *Spartina foliosa*

Part II: Contributions from Field Stations

Summary Description

Biological Field Stations and Coastal Marine Laboratories have a history of collecting long-term data relevant to their region and an interest in making them available for secondary use (See Directory 3 for on-line address of Organization of Biological Field Stations and Volume I: Section 4 for data sharing concerns of the Organization of Biological Field Stations). As of November 1995, we had received responses from ten Biological Field Stations that provided us with brief descriptions of 34 long-term data sets being archived.

All of these Field Stations tend to monitor ecologically relevant data on physical characteristics of their region: 13 (38.2%) of the data sets reported consist of biogeochemical, streamflow, or climate data. Nine (26.5%) data sets monitor terrestrial vertebrates and invertebrates, mostly birds and small mammals. Three (8.8%) of the data sets monitor marine organisms (snails, crabs, and plankton). Four (11.8%) data sets deal primarily with plants. Another three data sets (8.8%) are combined species lists or student projects on all taxa and two (5.9%) are photographic monitoring of the region.

Metadata Questionnaire for Biological Field Stations

Field Station Questionnaire

The Ecological Society of America's FLED Committee (Chaired by Kay Gross), is concerned with the Future of Long-term Ecological Data. The Committee is investigating many issues surrounding the preservation, curation, restoration, and continuation of long-term ecological studies. One aspect of our efforts is directed at locating long-term data sets. This is motivated by the need for the committee to be informed when making recommendations (e.g., How many data sets are precariously funded? How many are in need of archiving?). In addition, the information about data sets can serve to promote communication among scientists.

Could you provide us with more information about your Field Station by filling out this brief questionnaire?

(1)

Field Station Name:

Contact:

Phone:

FAX:

Email:

Address:

(2) Long-Term Data Sets archived (maintained) by the Field Station. Feel free to elaborate as much as you like. (Please include whether or not the continued data collection is at risk of abandonment and whether the data archives are at risk of abandonment due to insufficient funds, lack of interest, etc. Also, please note the format of the data (raw, summarized, or published) and whether access to data would require special arrangements, for example permission from particular individuals or investigators.)

2a. Project Title/Organism:

Time Frame: Start date: _____ End date: _____

Plans for continuation? _____ Still in progress? _____

Gaps in continuity? _____

Collection at Risk ? ___Y ___N

Archives at Risk ? ___Y ___N

Data Availability: ___Raw ___Summarized ___Published

Special Arrangements?

2b. Project Title/Organism

Collection at Risk? Y N

Archives at Risk? Y N

Data Availability: raw summarized published

Special Arrangements:

2c. Project Title/Organism:

Collection at Risk? Y N

Archives at Risk? Y N

Data Availability: raw summarized published

Special Arrangements:

3. Long-Term Data Sets In the hands of individual researchers.

Please supply us with the NAMES of researchers who may be interested in participating in our project, their EMAIL ADDRESSES or TELEPHONE NUMBER.

Are any of the projects you have referred to above already summarized in a directory (or example in "Permanent Plots: A Directory of Long-term Studies in Vegetation" --Canham, Parker, Siccama 1992) or already available on-line through an ecological data exchange network? If so, which ones?

THANK YOU!

Please return completed questionnaire to:

After 1 Jan., 1996 information or questions regarding this Directory should be directed to :
Chair, The Long-Term Studies Section (LTSS)
c/o The Ecological Society of America
2010 Massachusetts Avenue, NW
Suite 430
Washington, D.C. 20036 USA

Metadata for Data Sets from Field Stations

1.

Field Station Name: Archbold Biological Station

Contact: Fred Lohrer, Information Manager/Librarian or Roberta Pickert, GIS Lab Manager

Phone: (941) 465-2571

FAX: (941) 699-1927

Email:

Address: P.O.Box 2057, Lake Placid, FL 33862

First project title: Fire History of Archbold Biological Station.

Time Frame: ca 1965-to present. ongoing database, each fire is field managed and digitized

Collection at Risk: No

Archives at Risk: No

Data Availability: raw, summarized, published (on GIS). Contact Eric Menges, Plant Ecologist; Kevin Main, Research Assistant-monitoring or Roberta Pickert

Second project title: Climatological records of Archbold Biological Station. (Temp., precipitation, relative humidity, evaporation potential

Time Frame: some records begin in 1931

Collection at Risk: No

Archives at Risk: No

Data Availability: raw, summarized. Contact Nancy Deyrup, Education Coordinator

Third project title: Bird nest records from ABS

Time Frame: ca 1,000 of 255 species 1967-current

Collection at Risk: No

Archives at Risk: No

Data Availability: raw. Contact Fred Lohrer

Fourth project title: Ground water monitoring at ABS 30 seasonal ponds, 3 lakes and 3 wells.

Time Frame: Since 1985

Collection at Risk: No

Archives at Risk: No

Data Availability: raw. Contact Kevin Main or Nancy Deyrup.

Fifth project title: Limnological Monitoring of Lake Annie, ABS

Time Frame: weekly samples of routine parameters since 1983

Collection at Risk: No

Archives at Risk: No

Data Availability: raw, some summarized. Contact Nancy Deyrup.

Sixth project title: Small mammal population monitoring on 5 permanent grids and several transects at ABS.

Time Frame: 2x a year since 1992. Continues 25 year intensive study by James N. Layne, Vertebrate Ecologist at ABS. Database summarized but not published. Contact JNL .

Collection at Risk: No

Archives at Risk: No

Data Availability: raw. Contact Kevin Main

Seventh project title: Annual mast census (acorns, palmetto berries, hickory nuts) on 4

permanent grids and several transects

Time Frame: since 1992, continues 25 year study by James Layne

Collection at Risk: No

Archives at Risk: No

Data Availability: raw. Contact Kevin Main

2.

Field Station Name: Bodega Marine Laboratory and Reserve

Contact: Dr. Peter Connors

Phone: (707) 875-2020

FAX: (707) 875-2089

Email: pgconnors@ucdavis.edu

Address: Bodega Marine Lab., Box 247, Bodega Bay, CA 94923

First project title: Wintering shorebird abundance in Bodega Harbor

Time Frame: Started 10/84. Still in progress, no gaps, plan to continue indefinitely. Data collected 9 times annually.

Collection at Risk: No

Archives at Risk: No

Data Availability: summarized.

Second project title: Ground based photomonitoring of Reserve

Time Frame: Started 6/86. Photos from multiple fixed locations on Reserve taken four times annually. Still in progress, no gaps, plan to continue indefinitely.

Collection at Risk: No

Archives at Risk: No

Data Availability: raw. Archived color slides available to researchers.

Third project title: MOMS meteorological and oceanographic monitoring

Time Frame: Started 5/88. Meteorological data collection still in progress. Plans to continue meteorologic monitoring indefinitely. Oceanographic data not collected after 11/93 because cable to underwater sensors broke; will resume after repairs to subtidal data cable and sensors.

Collection at Risk: Yes

Archives at Risk: No

Data Availability: raw. Data archived in Paradox database files, and available, with permission from researchers.

Fourth project title: Aerial photo monitoring of the Reserve

Time Frame: Started 1990, no gaps, with plans to continue. Aerial photos taken once annually.

Collection at Risk: No

Archives at Risk: No

Data Availability: raw. Nine separate photos, which encompass the entire Reserve, are taken with 9x9" contact prints archived and available to researchers.

Fifth project title: Monitoring size distribution and numbers of Littorina snails at three locations and six tidal heights in rocky intertidal habitats on Reserve.

Time Frame: Monthly monitoring from 12/88 to 10/93, no gaps. No plans to continue project.

Collection at Risk: Yes, 5+ years of monitoring came to an end 2 years ago

Archives at Risk: No

Data Availability: Summarized.

3.

Field Station Name: F.T. Stone Laboratory
Contact: Dr. Jeffrey M. Reutter
Phone: 614 292-8949
FAX: 614 292-4364
Email: Reutter.1@osu.edu
Address: Ohio State University, 1314 Kinnear Rd., Columbus, Ohio 43212

First project title: Water temperature and transparency

Time Frame: Historical info going back to 1930. Many gaps but also lots of data. Good data for several years in the decades of the 40's, 60's, 70's, 80's, and 90's. We will continue to collect this info.

Collection at Risk: No

Archives at Risk: No

Data Availability: raw, summarized. Contact John Hageman (419) 285-2341

Second project title: Diatoms and Plankton

Time Frame: Lots of data and lots of gaps, but the best data is from several years in the 60's, 70's, and since 1984. Historical data available from the 1930's and 40's. Planning to continue collections, but analyses are problematic.

Collection at Risk: Yes

Archives at Risk: Yes

Data Availability: raw, summarized, published. Contact John Hageman (419) 285-2341 or Al Beeton at GLERL

Third project title: Satellite and Physical data

Time Frame: Have reconstructed historical data daily and hourly for the past 20 years. Earlier physical data also available. Plan to continue this work for modeling and forecasting work.

Collection at Risk: Yes

Archives at Risk: Yes

Data Availability: summarized. Contact Kieth Bedford (614)292-7338

4.

Field Station Name: Long Marine Lab, UC Santa Cruz
Contact: Steve Davenport
Phone: 408 459-4771
FAX: 408 459-3383
Email: sldaven@cats.ucsc.edu
Address: 100 Shaffer Rd., Santa Cruz, CA 95060

First project title: Meteorological station: wind, air temp., Relative humidity, solar irradiance, barometric pressure, rainfall, more recently include sea temp., ocean surface currents.

Time Frame: from 1990

Collection at Risk: No

Archives at Risk: No

Data Availability: raw, summarized. Contact, Rob Franks, Institute of Marine Sciences, Univ. of California, Santa Cruz, CA. 95064. 408 459-2372; email machem@cats.ucsc.edu

Second project title: Monterey Bay oceanographic Data. Routine monthly cruises to established sampling stations: surface temp., secchi disk, ctd cast, phytoplankton tow, zooplankton tow, misc. observations. Preserved plankton samples are available-condition of samples is variable.

Time Frame: Series beginning in 1978

Collection at Risk: No

Archives at Risk: Yes

Data Availability: raw

5.

Field Station Name: Manomet Observatory for Conservation Sciences

Contact: Jon Atwood

Phone: (508) 224-6521

FAX: (508) 224-9220

Email: jlamanomet@aol.com

Address: P.O.Box 1770, Manomet, MA 02345

First project title: Landbird population trend data

Time Frame: started 1966, is ongoing with no gaps.

Collection at Risk: No

Archives at Risk: No

Data Availability: Raw, summarized, published. Contact Trevor Lloyd-Evans.

Second project title: Shorebird population trend data

Time Frame: started in 1973, is ongoing with no gaps.

Collection at Risk: No

Archives at Risk: No

Data Availability: raw, summarized, published. Contact Brian Harrington

Third project title: Colonial waterbird population/reproductive biology data

Time Frame: variable time frame depending on project

Collection at Risk: No

Archives at Risk: No

Data Availability: raw, summarized, published. Contact Kathy Parsons (Herons) or Jon Atwood (Terns).

6.

Field Station Name: Mohonk Preserve, Daniel Smiley Research Center

Contact: Paul C. Huth, Director of Research

Phone: (914) 255-5969

FAX: -5646

Email:

Address: Mohonk Lake, 1000 Mountain Rest Rd., New Paltz, NY 12561

First project title: Mohonk Lake Cooperative Weather Station (NOAA).

Time Frame: Established 1890 and affiliated with Weather Service since January 1890

Collection at Risk: No

Archives at Risk: No

Data Availability: Raw, Summarized. Through Mohonk Preserve Director of Research, Paul C. Huth.

Second project title: Shawangunk Mountains Groundwater and Precipitation (pH monitoring)

Time Frame: Some as far back as the 30's, 1971 began solid monitoring. 1977 to present, daily pH of lakes. 1977 to present, 2x per week sampling of rain and spring pH.

Collection at Risk: No

Archives at Risk: No

Data Availability: raw, summarized. Through Mohonk Preserve Director of Research, Paul C. Huth.

Third project title: Shawangunk Mountains Species Occurrence Data and Collections - including plants, insects, birds, herps., and mammals

Time Frame: Since late 1920's
Collection at Risk: No
Archives at Risk: No
Data Availability: raw, summarized, published (some)

7.

Field Station Name: Powdermill Biological Station @ MNH
Contact: Dr. Joseph F. Merritt, Director
Phone: 412 593-2221
FAX: 412 593-6570
Email: merrittj@clp2.clpgh.org
Address: Star Route South, Rector, PA. 15677

First project title: Small Mammal Demographic Data. (12 species of small mammals;)
Time Frame: 1979-present, one 4-day trapping period/mos. Year-round ~340 periods to date

Collection at Risk: No
Archives at Risk: No
Data Availability: raw, summarized, published. Part now on relational database (foxpro=machintosh). Contact J.F. Merritt

Second project title: Bird-Banding Project - Powdermill ~ 163 species.

Time Frame: 1958-present. year-round passerine series
Collection at Risk: No
Archives at Risk: No
Data Availability: raw, summarized. Correspond with Mr Robert Leberman c/o Powdermill and Section of Birds, CMNH, 4400 Forbes Ave. Pittsburg, PA 15213 Attn: Dr. Brad Livesey

8.

Field Station Name: Shannon Point Marine Center, Western Washington University
Contact: Gene McKeen
Phone: 360 650-7400
FAX: 360 293-1083
Email:
Address: 1900 Shannon Point Rd., Anacorteds, WA. 98221

First project title: Long-term water quality database (seawater)

Time Frame: measurements of salinity, temperature, dissolved oxygen, pH 5 times per week: 1974-1990; 2 times per week 1990-present. Measurements of ammonium, orthophosphate, nitrate and nitrite, and chlorophyll: 2 times per week 1990-present

Collection at Risk: No
Archives at Risk: No
Data Availability: raw data, summarized monthly, the latter available on a dbase IV relational database program, as well as a hard-copy annual report series in the SPMC library

Second project title: Weather database for high and low air temperature, rainfall, estimated cloud cover:

Time Frame: 2 times per week from 1990-present
Collection at Risk: No
Archives at Risk: No
Data Availability: dbase IV

Third project title: Species list, with sample locations and times of reproduction

Collection at Risk: No
Archives at Risk: No
Data Availability: dbase IV

9.

Field Station Name: University of Massachusetts Nantucket Field Station

Contact: Dr. Wesley N. Tiffney, Jr., Director

Phone: 508 228 5268

FAX: 508 228 7834

Email: WTiffney@AOL.com

Address: 180 Polpis Rd., Nantucket, MA 02554

First project title: SE Mass./Nantucket herbarium collection

Time Frame: since 1969, with some specimens from early 1960's; ongoing

Collection at Risk: No

Archives at Risk: No

Data Availability: Make arrangements to visit the station

Second project title: Student research papers

Time Frame: since 1969; ongoing

Collection at Risk: No

Archives at Risk: No

Data Availability: Make arrangements to visit the station

Third project title: Hermit crab data

Time Frame: since about 1980

Collection at Risk: Yes?

Archives at Risk: Yes?

Data Availability: contact Prof. John P. Ebersole, Biology Department, UMASS Boston, 100 Moressey Blvd., Dorchester, MA 02125 617-287-6681

10.

Field Station Name: St. Croix Watershed Research Station

Contact: Ron Lorenz

Phone: 612-433-5953

FAX: 612-433-5924

Address: 16910 152nd St. N., Marine on St. Croix, MN 55047

First project title: Weather Data

Time Frame: Begun in 1989 (precipitation, temps); expanded (ground temperatures, wind speed, etc., etc.) with data logger since 1993. Ongoing, no gaps.

Collection at Risk: No

Archives at Risk: No

Data Availability: Raw, summarized, contact research station.

Second project title: *Andrena asteris*: Long-term colony monitoring.

Time Frame: 1990 to present; ongoing with a gap in 1995.

Collection at Risk: No

Archives at Risk: No

Data Availability: Raw. Contact Ron Lawrenz.

Third project title: Long-term response of Ten Communities to Siltation.

Time Frame: Started in 1990 as part of a Global Change project; ongoing, no gaps.

Collection at Risk: No

Archives at Risk: No

Data Availability: Raw, Summarized. Contact Ron Lawrenz or Jan Janssens (612-379-4604).

Directory 3

Annotated Bibliography of Existing Catalogs, Directories and HomePages with Long-Term Ecological Data

This Directory provides a summary of existing compilations of sources of long-term ecological data that have been compiled by various groups. We have not included here data or information that is currently maintained by U.S. governmental agencies; information regarding these agencies and the types of data they provide are given in Directory 1. The information provided here should be considered a guide, or starting point, to existing sources of long-term ecological data sets. Only some of these sources currently provide direct access to data sets - though a number plan to have data available (on-line) in the near future. Many of these sources provide expert contacts from whom data may be obtained. Some sites simply provide information on means of networking to locate useful sources of long-term ecological data.

The data sets or pointers that are available electronically require the user to have access to a World Wide Web (WWW) browser software or a gopher client server. A contact name is included (when known) who can provide additional information on how to access these data. It should be noted that the information on these sources - particularly the electronic sources - is ever changing and varied. Thus this listing of references is by no means a conclusive nor final guide to the vast amount of long-term ecological information available. It should, however, along with the information and sources given in Directory 1 provide a useful guide to a variety of established compilations of U.S. and international long-term ecological data sets.

Australian Environmental Resources Information Network (ERIN)

Maintained by: Australian Environmental Resources Information Network (ERIN)

Contact: see WWW HomePage

Description: Contains information about natural resource management primarily in Australia. Included are summary statistics of the flora and fauna of Australia, maps, images, spatial data services, endangered species lists, protected areas plans, legislation, a national index of ecosystems, bibliographies, contacts for further information about national programs, newsletters, national conference postings and proceedings as well as general data about the native flora and fauna of Australia. The HomePage also provides pointers for information on biodiversity, ecology and specimen collections at various institutions in Australia.

On-Line Source: URL: <http://kaos.erin.gov.au/erin.html>

Hard Copy Source: N/A

Australian National University

Maintained by: Australian National University, Canberra, Australia

Contact: bioinformatics-group@life.anu.edu.au

Description: This HomePage provides information on paleoenvironments, palynology, FireNet (a Landscape fire information network), landscape ecology, plant ecology, plant taxonomy, world-wide agriculture, biogeography, GIS, weather, satellite monitoring and pointers to other biological resources and organizations across the globe.

On-Line Source: URL: <http://life.anu.edu.au>

Hard Copy Source: N/A

Biodiversity and Ecosystems Network (BENE)

Maintained by: Biodiversity and Ecosystems Network (BENE) Texas A&M University, College Station, Texas.

Contact: Leland Ellis (leland@straylight.tamu.edu) or Steve Young (young@epamail.epa.gov)

Description: BENE is designed to foster communication and collaboration among people from governmental and international agencies, universities and museums who are interested in biodiversity conservation and ecosystem protection, restoration, and management. It provides a searchable index for BENE and BIN21 (Biodiversity Information Network 21) an international biodiversity information network.

On-Line Source: URL: <http://straylight.tamu.edu/bene/bene.html>

Hard Copy Source: N/A

Biological Databases

Maintained by: Cornell University, Ithaca, New York

Contact: Julian Humphries (jmh3.cornell.edu)

Description: This is a general repository information available from sources at Cornell. It contains information about botany, herpetology, invertebrates, entomology, ichthyology, mammalogy, mycology, microbiology, ornithology, taxonomy and systematic standards. It also contains information about biological collections at Cornell University and biological software.

On-Line Source: URL: <http://muse.bio.cornell.edu>

Hard Copy Source: N/A

Biological Resources

Maintained by: Center for Scientific Computing, Espoo, Finland

Contact: Center for Scientific Computing, PO Box 405, 02101 Espoo, Finland, T: 358-0-4571

Description: This gopher contains ftp sites for data and biological information available from various Finnish sources; includes, book lists and access to other biological servers.

On-Line Source: gopher.csc.fi

Menu Items: Information in English; Scientific Topics; Finnish EMBnet BioBox

Hard Copy Source: N/A

Bird Studies in Australian National Botanical Gardens

Maintained by: Australian National Botanical Gardens, Canberra, Australia

Contact: Jim Croft (jrc@anbg.gov.au)

Description: Gives a descriptions sketches and songs of birds found at the botanical gardens. Ornithologists at ANU have long-term research data on bird species in the gardens. This data will be available on the HomePage in the near future. As of September 1995 general information about the research programs is provided.

On-Line Source: URL: <http://osprey.erin.gov.au/projects/birds/bird-studies.html> or URL: <http://life.anu.edu.au>

Hard Copy Source: N/A

Brazilian Tropical Databases

Maintained by: Base de dados Tropical, Campinas, São Paulo, Brazil

Contact: dora@bdt.org.br

Description: Information about biological control, biotechnology, botany, Brazilian ecosystems, climate, meteor and environmental monitoring, microbiology, molecular biology, zoology, zoos, antimicrobials and biodiversity in Brazil. Contains a number of directories and 117 databases of Brazilian experts and organizations. It is also the home of two major international efforts: the Biodiversity Information Network (BIN21) and Boline Publications.

On-Line Source: <http://www.bdt.org.br/>

Hard Copy Source: N/A

CalCOFI (California Cooperative Oceanic Fisheries Investigation)

Maintained by: Scripps Institute of Oceanography, LaJolla, CA

Contact: Tom Hayward (thayward@ucsd.edu)

Description: This is a long-term broad-scale research and monitoring program focused on the Pacific Ocean off of California. Its major goal is to describe and understand relationships among biological processes, physical oceanographic variables and the climate. The data collected by this research program includes composition and abundance of ichthyoplankton, zooplankton and phytoplankton, and measurements of temperature, light, chlorophyll, dissolved oxygen, nitrate, nitrite, phosphate, silicate, salinity, water transparency and various other related oceanographic measurements.

On-Line Source: <http://www-mlrg.ucsd.edu/calcofi.html>

Hard Copy Source: *California Cooperative Oceanography Fisheries*

Investigation (CalCOFI). 1992. Data Report: Physical, Chemical and Biological Data. Scripps Institute of Oceanography, University of California, San Diego.

California Rivers Assessment

Maintained by: California Rivers Assessment, Davis, CA

Contact: info@ice.ucdavis.edu

Description: Provides a comprehensive inventory and evaluation of California's river resources. It focuses on the riparian and aquatic components and the value of a river as a natural resource.

On-Line Source: URL: http://ice.ucdavis.edu/Rivers/Rivers_main_page.html

Hard Copy Source: N/A

Canadian Forest Service (CFS)

Maintained by: Canadian Forest Service (CFS), Edmondton, Alberta, Canada

Contact: webmaster@nofc.forestry.ca

Description: The Canadian Forest Service (CFS) is a federal agency responsible for forest research and development. This site contains information about the Canadian Forest Service and their programs. A pointer to Natural Resources Canada. Provides a contact starting point rather than the actual data sets.

On-Line Source: URL: <http://www.nofc.forestry.ca>

Hard Copy Source: N/A

Catalog of Marine Fish and Invertebrates

Maintained by: Active Window Productions

Contact: Mark Rosenstein mar@actwim.com

Description: An archive of information about aquariums. It also provides information about research and data on fish and invertebrates (marine and freshwater, tropical and temperate). Provides pointers to other resources on aquatic environments, rather than the actual data.

On-Line Source: URL: <http://www.actwin.com/fish/index.html>

Hard Copy Source: N/A

CIESIN Global Change Information Gateway

Maintained by: The Consortium for International Earth Science Information Network (CIESIN)
Contact: CIESIN User Services, 2250 Pierce Rd, University Center, MI 48710,
(ciesin.info@ciesin.org)

Description: This gopher provides information on a variety of programs focusing on global environmental change. It also provides an access point to data sets collected by US governmental agencies, the scientific community, non-governmental agencies and international governmental organizations for use in scientific research, policy making and education. It also provides an access point to the USDA's Current Research Information Service (CRIS).

On-Line Source: URL: <http://www.ciesin.org/home-page/ciesin-home.html>

Hard Copy Source: N/A

Ecology WWW Page

Maintained by: Jean Thioulouse, University of Lyon, France

Contact: Anthony Brach (brach@oeb.harvard.edu)

Description: This is an exhaustive list of ecological information of interest to students, teachers, researchers and WWW surfers. This list of pointers was originally compiled by Anthony Brach. It provides a great starting point for an initial search for information. It does not contain the data sets themselves, but rather guides to ecological information.

On-Line Source: URL: <http://biomserv.unix-lyon1.fr/Ecology-WWW.html>

Hard Copy Source: Solomon, J.C. (ed) Herbarium News 15(4):30-34. April 1995

Brach, A.R. "Ecology and the World Wide Web. Commentary." Bulletin of the Ecological Society of America 76(2): 112-113. June 1995.

EDEX Forest Plot Data

Maintained by: Yale University, New Haven, CT

Contact: Tom Siccama, Yale Forestry School, 370 Prospect St., New Haven, CT 06511

Description: Contains data and metadata from various long-term studies of forest permanent plots from Hubbard Brook LTER as well as some individual permanent forest plot data sets.

On-Line Source: gopher.yale.edu

Copy Source: N/A

Edwards Aquifer Research and Data Center

Maintained by: Edwards Aquifer Research and Data Center, Southwest Texas State University, San Marcos, Texas

Contact: Nisai Wanakule (nisai@eardc.swt.edu)

Description: This provides information about the Edwards Aquifer from 1979 to present. It contains information about the water supplies for agricultural industrial and municipal uses for more than 1.5 million people. This also provides information on the several endangered species that live in the aquifer.

On-Line Source: URL: <http://eardc.swt.edu>

Hard Copy Source: N/A

Entomology at Colorado State University

Maintained by: Colorado State University, Fort Collins, CO

Contact: Louis B. Bjostad (lbjostad@lamar.colostate.edu)

Description: Provides links to a variety of entomology resources available at CSU. Includes drawings, publications and pointers to other biological resources.

On-Line Source: URL: <http://www.colostate.edu/Depts/Entomology/ent.html>

Hard Copy Source: N/A

Environmental Resource Center (ERC)

Maintained by: Environmental Resource Center (ERC), Houston, TX

Contact: Environmental Resource Center, 2525 Bay Area Blvd., Suite 500, Houston, TX 77058
T: 713-280-3200

Description: Provides access to various environmental data and information. The ERC finds, identifies, accesses, catalogs and integrates existing environmental information sources. The HomePage provides access to photos and Earth Observation Images through the On-Line Query System (OLQS) and WAIS Environmental Database Search.

On-Line Source: URL: <http://www.clearlake.ibm.com/ERC>

Hard Copy Source: N/A

Global Change and Climate History

Maintained by: U.S. Global Change Research Program, Reston, VA

Contact: Dr. Michael D. Carr, Mail Stop 104, USGS, Reston, VA 22092, T: 703-648-4450
(mdcarr@isdmnl.wr.usgs.gov)

Description: This server contains data sets from the USGS and other information on its current activities and programs. The research emphasis is on the geological, hydrological, geochemical and geophysical processes involved in environmental change.

On-Line Source: URL: <http://geochange.er.usgs.gov/gch.html>

Hard Copy Source: N/A

GLOBEC United States Global Ocean Ecosystems Dynamics Program

Maintained by: Center for Coastal Physical Oceanography, Norfolk, VA

Contact: Director, Center for Coastal Physical Oceanography, Old Dominion University, Norfolk, VA 23529

T: 804-683-4945

Description: Data sets from the GLOBEC field programs are available in the fields of physics, biology and chemistry.

On-Line Source: URL: http://www.ccpo.odu.edu/globec_menu.html

Hard Copy Source: N/A

Great Lakes Information Network

Maintained by: CICNet, Ann Arbor, MI

Contact: info@cic.net

Description: This server stores and spreads bi-national data and information about the environment, resource management, transportation, demography and development in the Great Lakes region in the US and Canada. Approximately 250 organizations are connected by CICNet. In addition to providing a connection to various organizations, CICNet provides access to information resources and the management of information resources in a wide-area network (WAN) environment.

On-Line Source: gopher.cic.net

Hard Copy Source: N/A

Harvard Biodiversity and Biological Collections

Maintained by: Harvard University, Cambridge, MA

Contact: Keith Robison (krobison@nucleus.harvard.edu)

Description: Provides pointers for a variety of ecological and general biological information sources. A gopher which contains a searchable index of the Harvard Biological Diversity Collection is also available.

On-Line Source: URL: <http://golgi.harvard.edu/biopages/biodiversity.html> and Harvard gopher://huh.harvard.edu/1

Hard Copy Source: N/A

ICE: Information for the Environment

Maintained by: University of California, Davis, CA

Contact: Harvey Chinn (icemaster@ice.ucdavis.edu or info@ice.ucdavis.edu)

Description: Provides a very comprehensive access point for environmental information. Data sets are not readily available on the HomePage, but there are pointers to data sets.

On-Line Source: URL: <http://ice.ucdavis.edu/>

Hard Copy Source: N/A

IES Permanent Plots

Maintained by: Institute of Ecosystem Studies (IES), New York Botanical Garden and Long-Term Studies Section (LTSS) of the ESA

Contact: Kerry Woods (kdw@world.std.com), Institute of Ecosystem Studies (IES), New York Botanical Garden, Millbrook, NY.

Description: A listing of 231 long-term vegetation studies. This catalog provides descriptions of long-term

ecological studies and was published by the LTSS of the ESA. Actual data are not provided, but contact names are given.

On-Line Source: N/A

Hard Copy Source: Canham, C.D., G. G. Parker and T. Siccama (eds) December 1992.

Permanent Plots: A Directory of Long-Term Studies of Vegetation, IES New York Botanical Garden, Millbrook NY.

International Arctic Buoy Program

Maintained by: International Arctic Buoy Program, Washington University, Seattle, WA

Contact: Ignatius Rigor (igr@apl.washington.edu)

Description: This HomePage monitors synoptic-scale fields of pressure, temperature, and ice motion throughout the Arctic basin from automatic data buoys. This information has been gathered since 1979. Data sets as well as pointers to other Arctic data sets are available.

On-Line Source: URL: <http://iabp.apl.washington.edu/>

Hard Copy Source: N/A

International Tree Ring Database (ITRDB)

Maintained by: University of Arizona, Tree Ring Laboratory, Tucson, AZ 85721

Contact: Malcom Hughes, Director, University of Arizona Tree Ring Laboratory, Tucson, AZ 85721

Description: The main goal of this program is to share international tree ring data among scientists. The entire data sets are available for a fee at an ftp site.

On-Line Source: URL: <http://www.ndgc.noaa.gov/paleo/treering.html>

Hard Copy Source: N/A

Institute of Terrestrial Ecology

Maintained by: Institute of Terrestrial Ecology, Cambridgeshire, U.K.

Contact: N/A

Description: The ITE develops long-term multidisciplinary research and makes use of new technology to study terrestrial ecosystems.

On-Line Source: URL: <http://www.nmw.ac.uk/ite>

Hard Copy Source: N/A

Land Margin Ecosystems Research (LMER)

Maintained by: Marine Biological Laboratory, Woods Hole, MA

Contact: dscanlon@lupine.mbl.edu

Description: This HomePage provides a contact point for the six LMER sites in the United States. It does not provide the data sets but gives descriptions of the projects and pointers to the six research sites that house the data sets. The research sites focus their research on scientific and

societal questions about the future and function of coastal environments
On-Line Source: URL: <http://www.mbl.edu/html/ECOSYSTEMS/lmer/lmer.html>
Hard Copy Source: N/A

ILTER (Long-Term Ecological Research) CORE Network

Maintained by: Long-Term Ecological Research (LTER) Network, Seattle, WA
Contact: LTER Network Office, University of Washington, College of Forestry Resources, Room 178B, Bloedel Hall, Box 352100, Seattle WA, 98195, T: 206-543-4853 or -6764, office@LTERnet.edu

Description: The main mission of the LTER is to conduct long-term ecological research in a variety of ecosystems. This HomePage contains information about Network programs and the people working with the LTER. A contact point for the LTER sites across the country and their on-line data sets.

On-Line Source:URL: <http://lternet.edu>

Hard Copy Source: Database publication and research sites descriptions:
Michener, W.K., A.B. Miller and R.W. Notrott (eds.). 1990. *Long-Term Ecological Research Network Core Data Set Catalog*. Belle W. Baruch Institute for Marine Biology and Coastal Research, University of South Carolina, Columbia, SC 322 pages.
Van Cleve, K., and S.J. Martin. 1991. *Long-Term Ecological Research in the United States, A Network of Research Sites 1991. Sixth Edition*. LTER Publication No. 11. Long-Term Ecological Research Network Office, University of Washington, Seattle, WA. 178 pp.

Man and the Biosphere (MAB)

Maintained by: University of California, Davis, CA

Contact: info@ice.ucdavis.edu

Description: Provides access to various databases about flora and fauna, biological information servers, international organizations, images and maps.

On-Line Source: URL: http://ice.ucdavis.edu/MAB/MAB_main_page.html

Hard Copy Source: Access: Directory of Contacts, Environmental Databases and Scientific Infrastructure on 175 Biosphere Reserves in 32 countries. July, 1993, National Technical Information Service(NTIS) U.S. Dept of Commerce, Springfield VA.—NTIS PB93-183705

Missouri Botanical Garden

Maintained by: Missouri Botanical Garden, St.Louis, MO

Contact: Alan Tucker (tucker@mobot.org)

Description: This gopher and HomePage provides a vast amount of information on botany and horticulture. It specifically contains data and taxonomic manuals/lists of plants for North America, Costa Rica, Peru, Argentina(Poaceae family), West central Africa and China. It also contains databases of herbariums and botanists and a searchable database of plant taxonomy.

On-Line Source: gopher.mobot.org; URL: <http://www.mobot.org/welcome.html>

Hard Copy Source: N/A

North American Pollen Database

Maintained by: NOAA/Palaeoclimatology Program

Contact: Eric Grimm (grimm@museum.state.il.us)

Description: Distributes the products of various collaborative efforts to collect and organize pollen records from around the globe. The HomePage provides access to ftp files and a search tool for querying the data sets. It also has software that can be downloaded onto a ms-windows computer for a database search. Data include pollen counts, site of collection, specimen type, and pollen diagrams. In addition to the raw data, the NOAA/Palaeoclimatology program makes available several different derived data sets.

On-Line Source: URL: <http://www.ngdc.noaa.gov/paleo/pollen.html>

Hard Copy Source: Anonymous. 1995. Pollen Database Manual. Illinois State Museum.

Springfield Illinois. 75pp.

ORNL Oak Ridge National Laboratories Environmental Sciences Division

Maintained by: ORNL Oak Ridge National Laboratories, OakRidge, TN

Contact: Forrest Hoffman ORNL, Bldg 1505, Rm 216, Mail Stop 603, PO Box 2008, Oak Ridge TN 37831

or (webmaster@www.esd.ornl.gov)

Description: Describes the projects, facilities, and research projects at ORNL. On-line data is limited.

On-Line Source: URL: <http://www.esd.ornl.gov>

Hard Copy Source: N/A

Organization of Biological Field Stations (OBFS)

Maintained by: Organization of Biological Field Stations, Eureka, MO

Contact: Richard Coles, OBFS, Tyson Research Center, Washington University, PO Box 258, Eureka, MO 63025

Description: This guide and HomePage provide an access point to biological field stations. In North America. Information on long-term studies and individual data sets are located. The guide and HomePage also provide a description of the field research being conducted at the various field research stations.

On-Line Source: URL: <http://jasper.stanford.edu/OBFS>

Hard Copy Source: Merritt, J.F. and C.J. Hannakan (eds.), 1992. *Guide to Biological Field Stations: Directory of Members*. OBFS, Powdermill Biological Field Station: The Carnegie Museum of Natural History, Rector, Pennsylvania.

Resource Guides to Science

Maintained by: University of Michigan, Ann Arbor, MI

Contact: N/A

Description: A very good internet resource guide for various fields in science. Contains pointers to various scientific information and data sets but does not house the actual data sets.

On-Line Source: una.hh.lib.umich.edu

Hard Copy Source: N/A

Rothamsted Data Sets (Park Grass Experiment)

Maintained By: The Open University Conservation Research Group, Harpenden, Harfordshire, U.K.

Contact: Dr. Jonathan Silvertown, Dept of Biology, The Open University, Milton Keynes MK7 6AA, UK. (J.Silvertown@Open.ac.uk)

Description: This Homepage gives information on the Park grass experiment, the longest running ecological experiment. It provides background information, descriptions of experimental treatments and layout, recent publications, and a contact point to obtain the data.

On-Line Source: URL: http://www.open.ac.uk/OU/Academic/Biology/RS_prog/RSprog.htm

Hard Copy Source: N/A

Smithsonian National Museum of Natural History

Contact: webmaster@si.edu

Description: This provides various documents and data about Smithsonian Museum research and the national collections. It also contains information about programs and projects housed at the Institute or conducted in association with it.

On-Line Source: URL: <http://nsmnhwww.si.edu/nsmnhweb.html>

Smithsonian CONSLINK

Contact: listserv@sivm.si.edu

Description: This is not a gopher. It is a resource that provides biodiversity information via e-mail.

Smithsonian Institution Research Information System (SIRIS)

Contact: webmaster@si.edu

Description: This is a computerized collection of research catalogs maintained by Smithsonian Institution Libraries, archives, and research units. SIRIS is a database management and retrieval system which contains information about books, serials, archives & manuscripts, films, sound recordings, paintings, sculptures, and other materials found in the collection at the Smithsonian.

On-Line Source: URL: <http://www.si.sgi.com/resource/library/start.htm>

Smithsonian Marine Station at Link Port

Contact: Smithsonian Marine Station at Link Port, 5612 Old Drive Highway, Fort Pierce, FL 34946

Description: Information on research programs conducted at the station are provided. Current areas of emphasis are: 1. the systematics and biogeography of major groups of marine organisms in the Floridian coastal zone, focusing on issues of biodiversity; 2. evolutionary patterns, ecological significance and physiological mechanisms of life histories of marine organisms; and 3.

investigations of the complex interactions of marine organisms and the community structure of the diverse and productive habitats of south Florida.

Smithsonian Research Centers

Contact: webmaster@serc.si.edu

Description: This HomePage describes various research projects and provides descriptions of collection that are currently not on display at the institute. Available data is limited, but a contact point for research programs is provided.

On-Line Source: URL: <http://www.si.sgi.com/organiza/start.htm#centers>

Yale Peabody Museum of Natural History

Maintained by: Yale University, Peabody Museum of Natural History, New Haven, CT

Contact:

Description: A searchable gopher of various biodiversity and biological collections housed at the Yale Peabody Museum of Natural History.

On-Line Source: gopher.peabody.yale.edu or <http://www.yale.edu>

Hard Copy Source: N/A

