***Lye Brook By Year***

 ***Year*** ***Title*** ***Objective*** ***Sub Project Title*** ***Start and End***

 **1982**

 *Biological and Chemical Survey of Selected Surface Waters in Lye Brook*

 *Wilderness Area*

 Determine the present biological and chemical characteristics of

 principal water bodies in and around Lye Brook Wilderness Area

 so that changes to air quality related values (AQRV) can be

 documented

 Water chemistry of water bodies 3/1/82 Ongoing

 Macroinvertebrate communities 4/1/93 10/3/95

 Stream fish communities 4/1/93 10/3/95

 Fish tissue analysis 4/1/94 10/3/94

 Surficial sediment 4/1/94 7/20/94

 Vernal pool chemistry 3/1/96 1/1/97

 **1988**

 *Fine Aerosol Monitoring*

 Determine concentrations and composition of fine aerosols

 (PM-2.5) of relevance to light scattering, light absorption, human

 health and biological effects. Data available for use in

 conjunction with other biological, physical and chemical

 variables in trend and relationship assessments.

 IMPROVE 9/1/88 Ongoing

 NePART 9/1/88 5/1/95

 Partner Network 1/1/00

 *Incidence of ozone and its effects on vegetation in Lye Brook Wilderness Area*

 To monitor ozone concentrations near and within Lye Brook

 Wilderness (LBW) and relate these concentrations to the degree

 of injury to vegetation within LBW.

 Ozone effects on vegetation in the Lye Brook 4/1/88 8/30/95

 Wilderness Area

 Monitoring ozone concentrations 5/30/89 9/1/94

 *Particulate Matter Monitoring*

 Determine compliance with (PM-10) National Ambient Air

 Quality Standards; determine concentrations and composition of

 fine aerosols (PM-2.5) of relevance to light scattering, light

 absorption, human health and biological effects. 9/1/88

 **1991**

 *Amphibian Survey and Monitoring*

 To document the occurrence of amphibian species at each study

 site; establish a baseline data set on their distributions and

 abundances; and to monitor reproductive status in relation to

 environmental conditions.

 Drift Fences 4/15/91 Ongoing

 Egg-mass Counts 4/15/91 12/31/96

 General inventory 4/15/91 12/30/96

 Stream Survey 4/15/93

 *Forest Bird Surveys*

 The primary goal is to conduct habitat-specific monitoring of

 forest interior breeding birds and to determine trends over time. 6/1/91 Ongoing

 *Forest Health Monitoring*

 Annual remeasurements of forest plots to determine the condition,

 trends and relationship to stressors using the same plot design as

 in the National Forest Health Monitoring Program (NFHM).

 Forest Health Monitoring 6/1/91 Ongoing

 *Forest Pest Monitoring*

 Monitoring trends in major insect pest populations, and

 documenting the occurrence of damage to forests.

 Forest Damage Survey 6/1/91 Ongoing

 *Ozone Bioindicator Plant Monitoring*

 Detect ozone injury on sensitive native plants, record first

 occurrence data for each species, and evaluate the maximum

 severity of the damage. 6/1/91

 *Tree Phenology Monitoring*

 Annual measurements of tree phenology to establish the timing of

 developmental events and trends, especially as they relate to

 changes in weather or insect and disease occurrence.

 Fall color and leaf drop 7/15/91

 **1993**

 *Lichens and air quality in the Lye Brook Wilderness Area*

 Collect lichens for a lichen species list; collect lichens for

 elemental analysis; study the health and distributions of species

 most sensitive to air pollution; and assess the effects of air quality 7/1/93 8/30/93

 *Lye Brook Area Ecological Land Type Classification*

 To classify ecological communities in the Lye Brook Area based

 on an integration of soils, vegetation & physiographic data, that

 will lead to mapping of these units within the area. 2/26/93 12/31/95

 **1994**

 *Clean Air Status and Trend Network (CASTNet)*

 To provide site specific data meteorology, dry deposition of sulfur

 and nitrogen species, wet deposition of major ions, and ozone. To

 provide air quality data specific to the Lye Brook Wilderness

 Area, a Class I Wilderness Area, to support research on the effects

 of air pollution on the Air Quality Related Values (AQRV) of the

 wilderness area.

 Meteorology 1/1/94 5/1/2007

 Ozone Monitoring 1/1/94 3/31/2007

 Dry Deposition 4/6/94 5/1/2007

 Wet Deposition 7/4/95 5/1/2007

 *Effects of acidic deposition on terrestrial and aquatic ecosystems of Class I*

 *Wilderness Areas.*

 Determine the distribution of areas sensitive to deposition of

 sulfur and nitrogen; determine the current status of sensitive areas

 utilizing atmospheric deposition of nitrogen; determine the

 degree of base cation leaching and aluminum mobilization (use

 soil, vegetation, land use history assocations to identify

 impacts); verify deposition thresholds; and assess impacts to

 terrestrial and aquatic ecosystems if under the PSD process. 5/1/94 10/18/96

 *Ozone Bioindicator Plant Monitoring*

 Detect ozone injury on sensitive native plants and evaluate the

 amount and severity of foliage injury. 6/1/91

 *High Elevation Pond Sensitive Species Survey*

 Ten year sampling intervals 1/1/1994 Ongoing

 **1995**

 *Lye Brook - Wildlife*

 Quantify wildlife habitat type and extent. 1/1/95 12/31/95

 ***Year*** ***Title*** ***Objective*** ***Sub Project Title*** ***Start and End***

 **1999**

 *Long-term soil monitoring*

 Detect changes in soils due to human caused impacts (i.e. climate

 change, air pollution, forest management) at two forested sites in

 Vermont

 Feasibility study for long term soil monitoring 10/1/99 Ongoing

 *Paleostratigraphy of mercury in lakes and ponds*

 Assess mercury and methyl mercury in sediment cores from lakes

 and ponds in and around Lye Brook Wilderness Area.

 Paleostratigraphy of mercury in Branch Pond 6/1/99 12/31/99

 **2000**

 *Development of Soil Climate Analysis Network (SCAN) sites*  9/13/00 Ongoing

 *Tree nutrition status on long-term soil monitoring plots*

 To determine the content of major elemental nutrients in tree

 foliage, twigs and wood for use in initial characterization of the

 long-term soil monitoring sites, and for application in the New

 England Governors/Eastern Canadian Premiers Forest

 Sensitivity Mapping Project. 7/1/00 10/31/00

 **2001**

 *National Visitor Monitoring*

 Annual collection of visitor trends, including numbers and dates 1/1/2001 Ongoing

 **2002**

 *Biomolecular Indicators of Acid Stress*

 Investigate the effects of air quality, especially acid deposition,

 on terrestrial and aquatic ecosystems. Specific objectives include

 assessingn the diversity and community structure of soil bacteria

 (nitrifiers and methanotrophs) in different acid depostion

 environments; develop a biomolecular method for determining

 ecosystem acid stress; and validate the PnET-BGC

 forest-soil-water model on field, GIS and remote sensing data then

 regionally apply the model. 6/10/02 6/11/02

 **2004**

 *Campsite Monitoring*

 Five year sampling intervals 1/1/2004

 **2005**

*Stream sampling* 1/1/2005

 **2007**

 *Throughfall Study* 1/1/2007

 **2009**

 *Long Term Wilderness Management Challenge Monitoring*

 Ten year sampling intervals to manage for wilderness

 characteristics such as primeval experience, solitude, etc.

 Includes an Air Quality plan for camping. 1/1/2009

 **2013**

 *Fish Stocking Monitoring* 1/1/2013

 *Lichen Survey*

Lichens surveyed by Forest Service subcontractors8/1/2013

 **2014**

 *Recreation Effects at Bourne Pond*

 Fishing survey 1/1/2004

 **Start year unknown**

 *Aerial Surveys for Insects and Disease (same as Forest Pest Monitoring above?)*

 Aerial surveys in the Green Mountain National Forest for

 insect pest and disease conditions as a joint effort between the

 Northeastern Area State and Private Forestry and the Vermont

 Department of Forests, Parks and Recreation Ongoing

 *Forest Health Plots (FIA?)* Ongoing

 *Impaired Stream Monitoring*

 Monitoring of acid precipitation impaired streams outside of the Lye

 Brook Wilderness area: Bourne Pond Brook and Lye Brook as part of

 TMDL regulation. Five year sampling due limited funding.

 *Pond Core Monitoring*

 Examine diatom and chrysophyte communities as part of TMDL

 assessment. Goal is for alkalinity of 2.5 1/1/2001?

 *Non-native Plant Survey*