



## *Lichens and Air Quality Workgroup*

### *Mission Statement*

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#### ***Vision***

A growing number of federal, university, and state programs collect lichen data to assess air quality and monitor pollution-related effects on public lands. The Lichens and Air Quality Workgroup (LAQW) exists to promote consistency, collaboration, and information exchange between these entities and to improve the utilization of this tool in management and policy decisions regarding air quality.

We envision an efficient and effective working environment wherein

1. Participating entities share data and information
2. Many entities share common protocols allowing for broad regional and interagency analyses
3. Group members collaborate to fill information gaps in databases, research, and monitoring,
4. Tools are developed needed by Federal Land Managers to make policy decisions
5. Lichens are routinely used to assess air quality
6. Lichen taxa and communities are monitored for status and trends related to pollution.

Work group members believe that lichens

1. Are valuable components of ecosystems
2. Can be damaged or eliminated by air pollution
3. Are useful indicators of air pollution affecting air-quality-related values, human health and ecosystem health on public lands
4. May be restored to vitality through pollution reductions

#### ***Context***

Air pollutants cause adverse effects to global, regional and local ecosystems, to human health and to resources valued by humans (e.g., visibility, diversity of organisms). Lichens can serve as passive air pollution monitors, and they can also be damaged by air pollution. They are therefore useful monitors of temporal change, spatial distribution, and ecosystem effects from air pollution. Our work is driven by the need to understand effects of air pollution on lichen diversity and abundance—and to use this information to assist in decision making processes in the proper management of land leading to healthy forests and clean air. These efforts are part of broader efforts that use lichens as early indicators of pollution stress on ecosystems and seek to understand impacts to healthy lichen communities from a variety of anthropogenic threats (e.g., structural modification of forests, development, mechanized recreation). Various agencies are addressing these issues; integrating these efforts to meet land managers needs is critical to our work.

## ***Mission***

Our mission is to produce and share lichen information that can be used in decision-making processes affecting air quality and lichen community health on public lands.

## ***Areas of Focus***

Our workgroup facilitates communication between members and provides a vehicle for coordination of air pollution-related lichen research, monitoring, assessment, and policy application. This cooperation aims to reduce duplication of effort and build upon the strengths of each entity to produce research, monitoring and policy products greater than the sum of the parts. Our focus areas are thus information gathering and storage, information analysis, and information sharing and utilization.

### ***Information Gathering and Storage***

LAWQ coordinates lichen community and tissue chemistry projects between investigators, provides a forum for discussions, encourages collaborations, promotes the collection of baseline data needed to understand changes over time and space and assists with the development and maintenance of accessible data/metadata archives for information collected on federally managed lands.

### ***Information Analysis***

Our organization facilitates interactions, information exchange, and the development of information products among and for air program managers, other federal land managers and decision-makers, and researchers involved in air quality monitoring using lichens.

### ***Information Sharing and Utilization***

We seek to create a situation wherein lichen-monitoring information and methods are not only efficiently produced but also efficiently accessed and effectively utilized. We strive to meet on a regular basis to keep participants and interested parties updated on current information. We provide a clearinghouse for lichen-air monitoring that can serve as a first point of contact for agencies and the public and provide access to lichen data sets, analytical tools and reports. We advance the use of biomonitoring in regulatory and decision-making processes.

## ***Organizational Structure and Resources***

Human resources are central to the maintenance and success of our organization. Participation in the organization increases production and performance of its members through collaborative products and access to information. Technical resources are also central. The Natural Resources Information System will support USFS lichen data. NACSE supports web-based queries, an informational website, and serves as the vehicle for our Data Co-op. ASU-CES provides additional resources regarding database linkages and query applications.

Interested individuals may join the work group by subscribing to the airlichen list server at <<http://www.nacse.org/mailman/listinfo/airlichen/>>. Members receive electronic notification of upcoming workshops, meetings, and recent publications. Members can post questions, provide information to, or seek advice from, the membership via the list server [airlichen] and website at the url <<http://ocid.nacse.org/reasearch/airlichen/workgroup>>.

Our core organizational group consists of members who volunteer to coordinate the actions and products identified in biannual meetings, workshops and other member communications. These members are primarily self-recruited through communications with other members of the core group or by voicing interest at workshops or meetings. The core group consists of representatives from the federal land agencies that manage Class I airsheds (USFS, NPS, USFWS) and institutions and facilities that support our work and contains at least one representative each from the USFS-NFS Air Program, NPS Air Division, USFS-FIA, USFS Natural Resource Information System, and OSU's NACSE. Individuals representing the USGS, USFWS, BLM, and other state and federal land management agencies, such as DOE, USBIA, USBR, are welcome and encouraged. We also invite individuals from universities, research institutions, and regulatory agencies.

Members of the current core group are Suraj Ahuja (USFS California Regional Air Program), Jim Bennett (USGS-BRD), Tamara Blett (NPS Air Division), Corinna Gries (Arizona State U), Joe Hanus (NACSE), Anne Ingersoll (NRIS) Tom Nash (Arizona State U), Peter Neitlich (USFS-FIA and NPS), Sherry Pittam (NACSE), Shaun McKinney (NRIS-Air), and Susan Will-Wolf (USFS-FIA and University of Wisconsin). Linda Geiser (USFS Pacific Northwest Regional Air Program) is coordinating efforts of the core group.

Funding for LAQW is provided by members' supporting agencies and institutions in the form of salaries, travel costs, and research costs. No membership dues are collected. Human resources are contributed by the supporting agencies, as determined by the program of work.