

Criteria for selecting sites for demonstration plots

5 January 2004

The selection of plots for a demonstration project to generate data for calculating critical loads should be based on consistent criteria so that we end up with the best group of plots. Based on discussions at the November 2003 Riverside FS Critical Loads meeting, the best group of plots for applying the model across forested ecosystems in the U.S. would: provide information about sensitive areas in parks and wilderness areas; fill in spatial gaps nationally by including areas that receive high loads of deposition but for which we don't have substantial data; and utilize currently available data from existing monitoring sites. This strategy would give us information across some range of deposition scenarios, ecosystem types and geographic regions. The following are some plot selection criteria, provided in order of importance for meeting the goals identified at the Riverside meeting.

1. Ecosystem data is representative of Class I or Class II Wilderness Area AQRVs of concern

Elevation and sensitive ecosystem components in study plots matches those of relevance to FLM AQRVs in nearby (the closer the better) sensitive area. Dialogue and agreement with a contact at each FS region on these issues ensures information will be of relevance to and used by forest managers and other stakeholders.

2. Existing data for site contains all input info “mandatory” for model runs

Plots with needed information already available would provide the information needed to do the first model runs, without the high cost and time delays of additional data collection

3. Regional representation

We need to consider regional representation both to ensure that FS Regions have buy-in and to improve the robustness of our calculation method. This could also include under-represented sites where little data is available for a region or sub-region

4. Hotspot for deposition

The overwhelming majority of sites in this demonstration phase should have higher deposition levels.

5. Availability of additional (“non mandatory”) current or historical air quality or ecosystem data at the plot

Having supplementary data will facilitate the calculations and reduce some of the cost

6. In or near an existing research or monitoring site where calculations could be made after filling in a data gap

Consider how close the site is to a research or monitoring site (FS, other Fed, or University) that is staffed or visited regularly: for logistical reasons. These sites might give a fairly high return—if we are already able to calculate CL by estimating some values and we can reduce the uncertainty in our CL calculations by measuring a few things, that would be very worthwhile.

7. Pristine site

Some pristine sites should be included in the demonstration phase, more would be included in a larger scale project.

Other issues to consider:

(1) How rigorous are we going to be in creating the ICP plot system as it has been used in Europe?

- which parameters must all be at the same physical plot location, and which can be collected nearby,
- Should we alter ICPs grid approach of less intensive plots to focus on intensive plots in mountainous regions? (there is much area that is simply not of concern in the U.S., It might make sense to use some kind of clustered, non-random site selection, choosing sites to represent the range of conditions observed. We would like to use the plots to evaluate the watersheds or stands.)

Information for Demonstration Plot Application

To apply for consideration as a demonstration plot in this process, the following information should be provided :

- FLM contact
- Research/Monitoring Site contact
- Nearby Class I area names and distance from plot
- Nearby Class II wilderness names and distances from plot
- FLM identified AQRVs, and sensitive receptors, in wilderness areas of concern; along with elevations or areas at which these AQRVs are most sensitive
- Plot elevation
- Ecosystem and Air Quality data currently available (matching mandatory modeling input needs)
- Ecosystem and Air Quality monitoring supplemental information data currently available
- Current calculations?
- N and S Deposition loads – annual avg. in kg/ha/yr for all years available
- Forest Stand type
- Additional information