

APPENDIX D. DEVELOPMENT OF INDICATORS FOR THE NORTHEASTERN AREA

The process followed to develop the recommended set of base forest sustainability indicators for the Northeastern Area is similar to the processes taken by many other C&I efforts. As requested by NAASF, the NFRPA/NA C&I project work group developed and implemented an indicator selection process. During a half-day meeting in October 2000, the work group agreed on the process for indicator development. This process entailed six major steps: (1) agree on the indicator evaluation method, (2) develop an initial set of potential NA indicators, (3) evaluate potential NA indicators, (4) narrow the indicator list and adjust the wording of the potential NA indicators, (5) send out the draft set of indicators for peer review and evaluation, and (6) consider the results of indicator review and evaluation (box 6). This process of indicator selection for the Northeastern Area demanded a majority of the work group's time.

To complete step 1 of the process, the work group identified and agreed on the indicator evaluation method. This included agreeing on a list of important questions that potential

Box 6. Process for developing indicators of forest sustainability for use in the Northeastern Area

1. Agree on an indicator evaluation method.

- Develop indicator evaluation questions and worksheets.

2. Develop an initial set of potential NA indicators (not limited to 10–15).

Each C&I working group member drafts a list of potential indicators. Consider the following:

- Analyze the Montreal Process indicators for potential applicable indicators.
- Look at indicators from other programs, e.g., *Maine Forest Sustainability Standards*, *Great Lakes Forest Alliance*, *Local Unit Criteria & Indicators Development Project (LUCID)*, *Sustaining Penn's Woods*, *Minnesota Environmental Indicators Initiative*, *Sustainable Forestry Initiative Program*.
- Consider whether there are additional long-term issues of critical concern to forest sustainability in the Northeastern Area for which indicators should be developed.

3. Evaluate potential NA indicators.

- Each member of the work group evaluates each indicator (results compiled and redistributed to group).

4. Narrow the indicator list and adjust the wording of the potential NA indicators.

From the results of the indicator evaluation:

- Agree on a narrowed set of indicators (narrow to a set of no more than 20–25 indicators).
- Agree on the wording of each indicator (making corrections and adjustments where necessary).

5. Send out this draft set of indicators for peer review and evaluation.

6. Consider the results of indicator review and evaluation:

- Narrow the list of indicators to the set that will be presented to NAASF.
- Refine the wording of indicators and indicator definitions, where necessary.

Present the recommended set of indicators to NAASF at the summer 2001 meeting.

indicators should be evaluated by. Several key resources were consulted to formulate an appropriate list of indicator evaluation questions, which include consideration of the indicator wording, C&I framework, data/measurement issues, and indicator use concerns (box 7). The indicator evaluation questions were agreed upon at the October 2000 meeting of the work group.

Steps 2 through 4 of indicator development were carried out as an iterative process to evaluate and prioritize potential indicators. This process began with each work group member individually proposing a set of potential forest sustainability indicators for the

Box 7. Indicator evaluation questions used to evaluate potential indicators

Indicator Wording Checklist

- The indicator is precisely defined.
- The indicator is a specific and measurable parameter (not too vague).
- The indicator is written nondirectionally (not suggesting a response in either direction).
- The indicator wording does not include or imply the methods or reference values (target/threshold).

C&I Framework Questions

1. Is the indicator closely and unambiguously related to one of the Montreal Process criteria?
2. Does the indicator link to or feed into any of the Montreal Process indicators? (Contribution of region to national reporting) Which ones?
3. Does the indicator assess sustainable forestry at the regional level? (Relevance to NA)
4. Is the indicator of unique/particular concern to the Northeastern Area? (Regional importance)
5. Does the indicator overlap with other indicators in the set?

Indicator Data/Measurement Questions

6. Is the indicator appropriate for data collection at the State level?
7. Is the indicator reliable? (Can you trust the information the indicator is providing?)
8. Can the indicator be feasibly collected?
 - a. Is it costly or difficult? Does it require a special agency arrangement?
 - b. Can it be measured over time or measured repeatedly?
 - c. Can it be comparably collected across the 20 States?

Indicator Use Questions

9. Is the indicator useful to the intended audience? (Does it convey information that is meaningful to decision makers and/or the public, suitable for use across the 20 States and/or the region as a whole?)
10. Is the indicator relatively easy to analyze/interpret?
11. Is the indicator relatively easy to present and understand (for reporting to the general public)?

Northeastern Area. All indicators submitted were put into the first draft list of indicators, with little effort to condense those indicators that overlapped. This first draft list consisted of over 70 indicators. The work group met on a conference call to discuss how to proceed with the long list of indicators. In the next step, each work group member reviewed the combined list of indicators and individually identified no more than 15 top indicators. Each indicator chosen by one or more work group member was then compiled into the second draft list, resulting in roughly 35 potential draft indicators. The work group met during another conference call to further condense and narrow this list to 20 indicators. Although each indicator was not fully subjected to each indicator evaluation question by each work group member in this phase of the process, the indicator evaluation questions were considered when determining whether or not to drop an indicator from the list.

With the potential draft indicator list reduced to 20 indicators, the NFRPA/NA C&I project work group agreed to fully evaluate each indicator. Each work group member was asked to consistently evaluate the 20 indicators using an indicator evaluation matrix (figure 12), in which each indicator was evaluated according to 11 questions taken from the original list agreed upon in step 1 (box 7).

Figure 12. Portion of the indicator evaluation matrix used by the NFRPA/NA C&I project work group

Ind. #	C & I Framework Questions					Indicator Data / Measurement Questions			Indicator Use Questions		
	Quest. #1	Quest. #2	Quest. #3	Quest. #4	Quest. #5	Quest. #6	Quest. #7	Quest. #8	Quest. #9	Quest. #10	Quest. #11
	Relates to M.P. Criterion (list #):	Links to M.P. Indicator (list #):	Assesses forest sustain. at NA level (relevance)	Of unique / particular concern to NA	Overlaps w/ other indicators in the set (list #)	Approp. for data collection at state level	Is reliable (trust info. indicator provides)	Feasibly collected: a. Costly or difficult b. Measurable over time c. Can be comparably collected across NA states	Useful to audience	Easy to analyze / interpret	Easy to present & understand
1								a b c			
	Metrics:										
	Comments:										
2											
	Metrics:										
	Comments:										
3											
	Metrics:										
	Comments:										

All indicator evaluations were compiled along with information about related Montreal Process indicators from the U.S. Roundtable on Sustainable Forests (U.S. Roundtable on Sustainable Forests 2001). Next, each work group member made recommendations for indicator revisions and the work group met again during a conference call to discuss the indicator evaluations and agree on proposed revisions. As a result, the 18 forest sustainability indicators listed in box 2 (page 5) were recommended as a base set of indicators for the Northeastern Area.

The NFRPA/NA C&I project work group considered potential indicator verifiers, including metrics and data sources for each indicator. In part, the group was able to utilize information provided by work group members through the indicator evaluation matrix. Draft copies of the forest sustainability assessment report for the Northern United States (USDA Forest Service 2001a) were also consulted and additional research done to determine relevant data and search out reliable data sources. The base NA forest sustainability indicators, along with the proposed metrics and data sources, are presented in appendix E.