



NFRPA/GIS 2005 Meeting
October 17-19, 2005

Forest Sustainability Indicators Information System



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USDA FS, NA S&PF, Information Management & Analysis





Criteria & Indicators of Forest Sustainability





Forest health

Biota





Air



Soil

Water



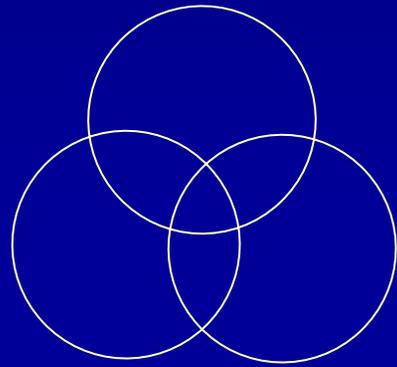


People





*Legal, institutional,
economic framework*

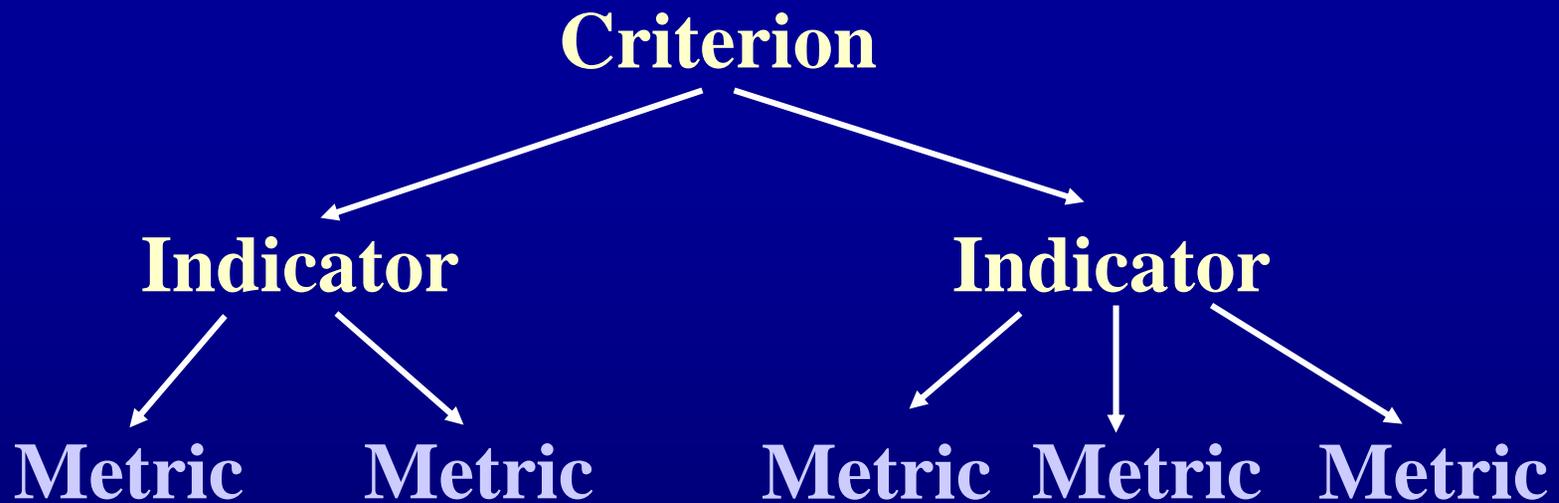


Sustainability





Criteria and Indicators help us understand the concept of sustainability





The “Montreal Process” Criteria

1. Biological diversity
2. Productive capacity of the forest
3. Forest ecosystem health
4. Soil and water resources
5. Contribution to global carbon cycles
6. Socio-economic benefits of forests
7. Legal, institutional, and economic systems

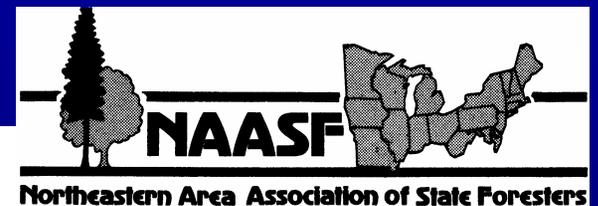




Base Set of Forest Sustainability Indicators for the Northeastern Area



Collaborative effort between NA and States

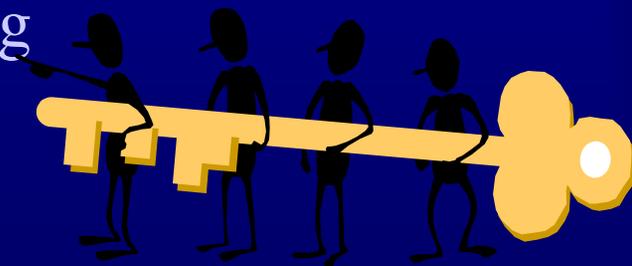


A Commitment to Forest Sustainability



Why Use Criteria and Indicators

- Monitor sustainability at different scales
- Convey critical and complex information simply
- Reveal trends and cumulative effects
- Encourage holistic problem-solving
- Provide context for NA/NAASF strategic plans
- Support State forest resource planning
- Issue management





Development of Indicators & Metrics

- Requested by the NAASF
- Indicators, metrics, & data selected by work group:
NA staff & State forest resource planners
- Indicators, metrics, & data selected considering:
 - Scale appropriateness
 - Reliability
 - Feasibility
 - Ability to measure over time
 - Ease of analysis/interpretation
 - Usefulness to audience
- Span the Montreal Process Criteria



NA/NAASF Base Indicators

Criterion 1: Conservation of Biological Diversity

1. Area of total land, forest land, and reserved forest land
2. Forest type, size class, age class, and successional stage
3. Extent of forest land conversion, fragmentation, and parcelization
4. Status of forest/woodland communities and associated species of concern

Criterion 2: Maintenance of Productive Capacity of Forest Ecosystems

5. Area of timberland
6. Annual removal of merchantable wood volume compared to net growth

NA/NAASF Base Indicators

Criterion 4: Conservation and Maintenance of Soil and Water Resources

8. Soil quality on forest land
9. Area of forest land adjacent to surface water, and forest land by watershed
10. Water quality in forested areas

Criterion 5: Maintenance of Forest Contribution to Global Carbon Cycles

11. Forest ecosystem biomass and forest carbon pools

NA/NAASF Base Indicators

Criterion 6: Maintenance and Enhancement of Long-term Multiple Socio-economic Benefits to Meet the Needs of Societies

- 12. Wood and wood products production, consumption, and trade
- 13. Outdoor recreational participation and facilities
- 14. Investments in forest health, management, research, and wood processing
- 15. Forest ownership, land use, and specially designated areas
- 16. Employment and wages in forest-related sectors

Criterion 7: Legal, Institutional, and Economic Framework for Forest Conservation and Sustainable Management

- 17. Forest management standards/guidelines
- 18. Forest-related planning, assessment, policy, and law



Use Depends on Scale

- State
 - Starting point for State assessments & plans
- Regional
 - Use for NA/NAASF strategic planning
 - Various communication products
- National
 - Complements indicators work by FS, WO
 - National Roundtable on Sustainable Forests





Reporting on the Base Indicators of Forest Sustainability





Indicator Reporting

- On-line Indicator Information System
 - Database driven Web reporting
 - Graphs, maps, tables
 - Data at State, regional, and other scales
 - Tracks trends over time
 - Technical notes
 - Ongoing updates
- Regional assessment reports every 5 years





Target Audience

- State Foresters & forest resource planners
- NA S&PF staff
- Other natural resource professionals
- Policy makers
- Others involved in strategic planning



Forest Sustainability Indicators

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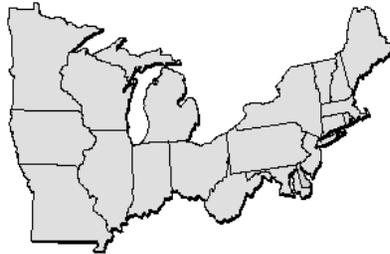
Browse by Audience

Browse by Subject

- Sustainability C&I
- C1 Biological diversity
- C2 Forest productivity
- C3 Forest health
- C4 Soil and water
- C5 Forest carbon
- C6 Socio-economic benefits
- C7 Legal and institutional
- Create a report

You are here: NA/ indicators home

Forest Sustainability Indicators Information System



This information system provides data and other resources for 18 indicators of sustainability that the USDA Forest Service Northeastern Area State and Private Forestry (NA) and the 20

State forestry agencies represented by the Northeastern Area Association of State Foresters (NAASF) selected to monitor the region's forests. These "base indicators" address information needs common to the region. Tracking common indicators and data across States and over time can help reveal important trends and cumulative effects. Indicator data are presented in maps and dynamic graphs at regional and State levels for the 20 Midwestern and Northeastern States.

Select "Sustainability C&I" to the left to view the list of forest sustainability criteria and indicators.

Select "Create a report" to the left to create a State, multistate, or regional report including the data for all 18 indicators.

[Printer Friendly](#)

Tools for This Site

- o Tutorial for this Web site
- o *Northern United States*
- o More on the criteria and indicators framework
- o Ecological mapping units

Regional Resources

- o Regional sustainability assessments
- o Development of the 18 indicators
- o Northeastern Forest Resource Planners Association

National Resources

- o National Roundtable on Sustainable Forests
- o National reports on sustainable forests
- o Montreal Process Working Group

Forest Sustainability Indicators

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Browse by Audience

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Sustainability C&I

C1 Biological diversity

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C5 Forest carbon

C6 Socio-economic
benefits

C7 Legal and
institutional

Create a report

You are here: [NA/ indicators home/ C&I](#)

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Forest Sustainability Indicators Information System

Select either a criterion or an indicator to learn more.

Criterion 1: Conservation of Biological Diversity

1. Area of total land, forest land, and reserved forest land
2. Forest type, size class, age class, and successional stage
3. Extent of forest land conversion, fragmentation, and parcelization
4. Status of forest/woodland communities and associated species of concern

Criterion 2: Maintenance of Productive Capacity of Forest Ecosystems

5. Area of timberland
6. Annual removal of merchantable wood volume compared with net growth

Criterion 3: Maintenance of Forest Ecosystem Health and Vitality

7. Area of forest land affected by potentially damaging agents

Criterion 4: Conservation and Maintenance of Soil and Water Resources

8. Soil quality on forest land
9. Area of forest land adjacent to surface water, and forest land by watershed
10. Water quality in forested areas

Criterion 5: Maintenance of Forest Contribution to Global Carbon Cycles

11. Forest ecosystem biomass and forest carbon pools

Criterion 6: Maintenance and Enhancement of Long-Term Multiple Socioeconomic Benefits to Meet the Needs of Societies

12. Wood and wood products production, consumption, and trade
13. Outdoor recreational participation and facilities
14. Investments in forest health, management, research, and wood processing
15. Forest ownership, land use, and specially designated areas
16. Employment and wages in forest-related sectors

Criterion 7: Legal, Institutional, and Economic Framework for Forest Conservation and Sustainable Management

17. Forest management standards/guidelines
18. Forest-related planning, assessment, policy, and law

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- C6 Socio-economic benefits**
- 12. Production
- 13. Outdoor recreation
- 14. Investments
- 15. Ownership
- 16. Employment
- C7 Legal and institutional
- Create a report

You are here: [NA/ indicators home/ C&I/ C6 socio-economic benefits](#)

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Criterion 6. Maintenance and Enhancement of Long-term Multiple Socio-economic Benefits to Meet the Needs of Societies



This criterion addresses economic values associated with forests and the values people place on forests for meeting their recreational, cultural, social, and spiritual needs. Tracking these values, as well as monitoring shifts in demand for products and services, provides useful insights for the future. Changes can indicate potential drains on the forest resource or highlight management opportunities.

The region's forests produce a multitude of goods and services—everything from timber and mushrooms to recreation and water. Market forces are the dominant influence on resource-based goods and services, but nonmarket forces—such as the desire to sustain biological diversity or the opportunity to dwell in or visit a natural place—are important factors.

Indicators for This Criterion

Select an indicator below

- [12. Wood and wood products production, consumption, and trade](#)
- [13. Outdoor recreational participation and facilities](#)
- [14. Investments in forest health, management, research, and wood processing](#)
- [15. Forest ownership, land use, and specially designated areas](#)
- [16. Employment and wages in forest-related sectors](#)

No priority is implied in the numeric listing of the criteria and indicators

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- Create a report

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Maintenance and Enhancement of Long-term Multiple Socio-economic Benefits to Meet the Needs of Societies

Indicator 13. Outdoor recreational participation and facilities

Forest-based recreational facilities include a wide array of public and private trails, campgrounds, picnic areas, interpretive centers, parks, and other specially designated areas such as game or hunting reserves. The amount and type of outdoor recreational activity and facility usage influences other factors such as forest fragmentation, wildlife habitat, and water quality. Because of the diversity in recreational activities, adequate monitoring requires looking at trends and identifying possible impacts on sustainable forest management.

[Related national sustainability indicators](#)

Indicator 13 Metrics

Select a metric below to see the data report

- o [Participation in outdoor recreation](#)
- o [Federal land open to recreation](#)
- o [Recreational facilities on State land](#)
- o [Trails](#)
- o [Campgrounds](#)
- o [Recreational facilities in national forests](#)



Much of the forest land that is publicly owned (Federal, State, county/municipal) and owned by forest industry is open to outdoor recreation. See indicator 15 for the [amount of forest by ownership type](#).

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- Create a report

You are here: NA/ indicators home/ C&I/ C6 socio-economic benefits/ indicator 13/ participation

Maintenance & Enhancement of Long-term Multiple Socio-economic Benefits to Meet the Needs of Societies
Indicator 13. Outdoor recreational participation and facilities

Metric: Participation in outdoor recreation

Select other metrics for this indicator in the box to the right.

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Indicator 13 Metrics

- o Participation in outdoor recreation
- o Federal land open to recreation
- o Recreational facilities on State land
- o Trails
- o Campgrounds
- o Recreational facilities in national forests

Resources

- o USDA FS National Survey on Recreation & the Environment

Definitions

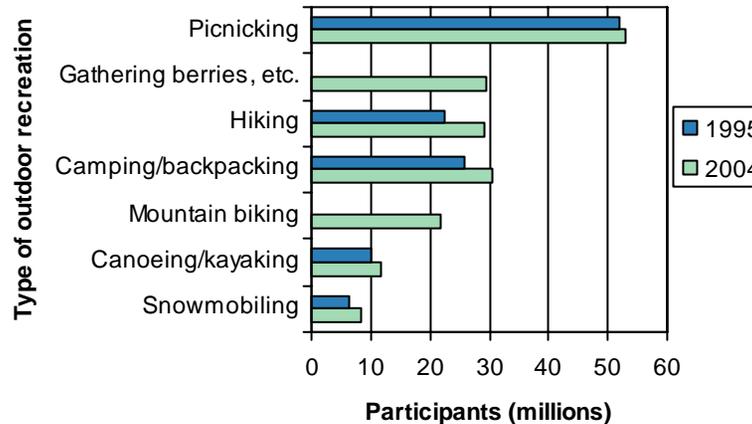
- Days of participation—**
- o Northern United States
 - o Glossary

Data Note(s)

The categories "gathering berries, etc." and "mountain biking were not included in the 1995 survey.

- o Technical note

Outdoor recreation participation in the Northern United States



Includes participation in outdoor recreation on all land, not just forest land. Additional participation categories are available in the data file.

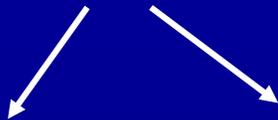
Data Source: USDA Forest Service, Southern Research Station, National Survey on Recreation and the Environment

- Select Scale
- Download Data
- Save Graph
- Technical Note



On-line Reporting on the Base Indicators

7 National Criteria



18 NA/NAASF Indicators



73 Metrics

38 Data sources

On-line reporting:
93 graphs (dynamic)
20 tables (dynamic)
18 maps (static)





Data Needs & Gaps





Data Needs & Gaps

➤ State questionnaire

- Collect State information for 4 of the indicators
- 11 States have completed—THANKS!
- For others, please complete and return





Data Needs & Gaps

- Data gap areas—opportunity to share methods
 - Successional stage
 - Forest fragmentation
 - Water quality in forested areas
 - Bioenergy
 - Trade/wood flow
 - Non-timber forest products





Summary





NA & NAASF made a
commitment to monitor
forest sustainability
following the Montreal
Process criteria and
indicators.





Work group of NA & NFRPA developed a base set of 18 forest sustainability indicators, adopted by NAASF





State & regional data for 73 metrics, using 38 data sources will be available soon through an on-line information system





Please complete the questionnaire
and share your state's methods in
the data gap areas.





<http://www.na.fs.fed.us/sustainability>

Thank You!

