

## **Data and Resource Issues**

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### **Criterion 1: Conservation of Biological Diversity**

#### *Reserved Forestland – Indicators 3, 4, 10 (Criterion 2), and 42 (Criterion 6)*

USDA Forest Service Forest Inventory and Analysis (FIA) data related to reserved forestland in Illinois has a relatively high degree of uncertainty and some discrepancies associated with it. It is known that FIA data becomes less accurate when applied to finer spatial scales, and reserved forestland makes up such a small percentage of overall forestland in Illinois that this may have affected the accuracy of the data. This fact combined with the disjunctive occurrence of reserved forestland throughout the state suggests that an independent inventory and monitoring program initiated at the state level may be necessary to completely assess the indicators associated with reserved forestland in Illinois.

#### *Forest Fragmentation – Indicators 5 and 8*

Much of the forested landscape in Illinois consists of small isolated patches or riparian zone forests that essentially have little or no forest interior, making forest fragmentation a serious issue in Illinois. Some data is available to assess forest fragmentation in Illinois, but further refinement of GIS data is necessary to completely assess this issue. The fragmentation metrics developed by the USDA Forest Service need to be integrated with digital maps of forest cover by forest type in Illinois in order for fragmentation to be quantified by forest type. In addition, this type of analysis could be expanded to more thoroughly address the effects of urbanization on forest cover.

#### *Forest Dependent Species – Indicators 6-9*

Further collection and refinement of data related to forest dependent species is necessary to completely assess this suite of indicators, particularly with respect to monitoring population levels, restrictions in range, or other fluctuations in available habitat. The Vertebrate Mapping and Distribution program of the Illinois GAP Analysis Project may address a significant number of concerns related to these issues in the future.

### **Criterion 2: Maintenance of Productive Capacity of Forest Ecosystems**

#### *Non-Timber Forest Products (NTFPs) – Indicators 14, 30 (Criterion 6), 32 (Criterion 6), and 34 (Criterion 6)*

Data pertaining to non-timber forest products (NTFPs) is significantly lacking at the state (and national) level at this time, except for popular game animals and possibly furbearers. The development and implementation of a statewide program to document and monitor the value and quantities of NTFPs removed from Illinois' forests on an annual basis will be required if these indicators are to be fully assessed in the future.

**Criterion 3: Maintenance of Forest Ecosystem Health and Vitality**

*Invasive Species – Indicator 15*

Further quantification of the extent to which invasive shrub species are impacting forest understories statewide is recommended. Data from the Illinois ForestWatch monitoring network shows an alarming trend with respect to this phenomenon. Monitoring and control efforts related to invasive shrub and herbaceous species need to be implemented and/or expanded statewide. The continuation and/or expansion of monitoring and control efforts related to exotic/invasive insects and other species is also essential.

*Air pollutants – Indicator 16*

Air quality and atmospheric deposition data for the state of Illinois are available from a variety of sources. At this point in time, however, bridging this data to the area and percent of forestland that may be directly or indirectly affected by such processes is not readily feasible. In order to fully assess this indicator, air quality and atmospheric deposition data will have to be spatially coupled with data related to the occurrence of forestland. This information will then have to be integrated with data related to the susceptibility of different types of forest vegetation to the quantities of air pollutant it may be acutely or chronically exposed to. The USDA Forest Service Forest Inventory and Analysis (FIA) program is partially addressing this issue through the collection of data related to ozone damage, but this type of effort needs to be extended to other potentially damaging pollutants.

*Oak regeneration – Indicator 17*

A decline in successful oak regeneration in some of Illinois' forests continues to be a cause for concern. This phenomenon has been linked to fire suppression and maple takeover, among other potential factors. Continued monitoring and further research into the ability of periodically prescribed fire in oak-hickory forests to mediate this problem, as well as the feasibility of using prescribed fire as a management tool over the long term, is recommended.

**Criterion 4: Conservation and Maintenance of Soil and Water Resources**

*Soil Resources – Indicators 18, 21, 22, and 25*

There are a significant amount of data gaps related to statewide forest soil resources in Illinois. However, many of these data gaps have been addressed at the national level by the USDA Forest Service Forest Inventory and Analysis (FIA) program and incorporated into data collection protocols. The complete assessment of these indicators will be contingent upon the future availability of FIA soil quality data for the state of Illinois. A statewide forest soil quality monitoring network initiated at the state level may be redundant at this time.

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### *Water Resources – Indicators 20, 23, and 24*

Rivers, streams, and other water bodies throughout the state are intensively monitored by both the United States Geological Survey (USGS) and the Illinois Environmental Protection Agency (IEPA), but little if any of this data specifically address water quality in forested catchments or stream reaches. The Illinois RiverWatch monitoring network does incorporate information related to adjacent land use into data collection protocols and therefore provides some insight into water quality in forested vs. non-forested stream reaches. The issue is confounded, however, by the fact that many of Illinois' streams and rivers continually flow from non-forested reaches into forested reaches and vice-versa. The complete assessment of these indicators will likely be contingent upon the development and implementation of more rigorous monitoring protocols to address this issue by those agencies that already have water quality monitoring networks in place.

### *Riparian Zone Management – Indicator 19*

Much of the forestland throughout Illinois is closely associated with river and stream systems. Although it is known that forested riparian zones provide important benefits to aquatic ecosystems in Illinois, very little quantitative information is currently available to fully address this indicator. The degree to which the spatial extent of forested riparian zones in Illinois has been fully and quantitatively identified is also unclear. The complete assessment of this indicator will be contingent upon the analysis of GIS data combined with an investigation into spatially correlated trends in ownership patterns and management goals as they relate to forested riparian zones throughout the state.

### **Criterion 5: Maintenance of forest contribution to global carbon cycles**

A number of parameters related to the three indicators in Criterion 5 need to be further refined in order to increase the accuracy of this assessment. A better understanding of the biomass and carbon pools and fluxes related to the belowground portions of trees as well as non-tree forest ecosystem components (e.g., forest soils) in Illinois is needed. Further research into the potential impacts of utilizing biomass plantings for fuel and carbon sequestration to mediate the imbalance between carbon uptake and emissions within Illinois is also recommended. In addition, tighter and more frequent monitoring of the quantities of timber removed from Illinois' forests that are used for wood products and other purposes could enhance estimates of long-term carbon storage in wood products.

### **Criterion 6: Maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of societies**

#### *Production and Consumption – Indicators 29-34*

The recovery and use of wood mill residues in Illinois is relatively well documented. National data concerning the recovery and use of post-consumer paper products is also

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readily available. However, statewide data related to post-consumer recycling is notably lacking. Given that Illinois ranks 5<sup>th</sup> in the nation in consumption of wood products based on population estimates, the initiation of a study to more accurately determine statewide post-consumer recycling trends is recommended. Non-timber forest products (NTFPs) are addressed in the recommendations section for Criterion 2.

### *Recreation and Tourism – Indicators 35-37*

Outdoor recreation sites and facilities in Illinois have been surveyed by a number of different sources over the years and data is readily available to support these indicators with one important caveat. Many outdoor recreation sites in the state are located on or adjacent to a variety of land cover types including forests, making it difficult to distinguish between forested and non-forested recreation areas. For this reason the recreation section of Criterion 6 has been applied to outdoor recreation in general in the state of Illinois, regardless of whether all such areas are forested or not. A significant number of outdoor recreation sites in Illinois also contain protected forestland. It is therefore recommended that if a statewide program is initiated to inventory and monitor protected forestland (see recommendations for Criterion 1), then it should be adapted or modified to also include forested portions of recreation areas.

### *Investment in the Forest Sector – Indicators 38-41*

There are several recommendations for this section. First, state accounting systems could be adjusted or appended to incorporate new categories related to the types of expenditures on forest related issues described in this set of indicators. Second, annual expenditures on non-consumptive forms of outdoor recreation (e.g., wildlife observation) in Illinois are significant enough to merit a closer look into not only their impacts on the state economy, but also ways in which to further develop them. Third, a study to ascertain how new and improved technologies have specifically impacted the forest industry and related socio-economic factors in Illinois is also recommended. Finally, although state and federal cost-share programs in Illinois do support a variety of forest-related activities, these programs could be further expanded in both type and extent.

### *Cultural, Social and Spiritual Needs and Values – Indicators 42 and 43*

See recommendations for reserved forestland (Criterion 1) and recreation and tourism (Criterion 6).

### *Employment and Community Needs – Indicators 44-47*

The existence of data and other information concerning the economic viability of forest dependent communities in Illinois is currently extremely limited. Furthermore, exactly what constitutes a forest dependent community is unclear. Although the forest and paper products and related industries constitute a relatively small percentage of the overall state economy, their effect on local economies could be significant. This issue is likely strongly related to rural and community development in Illinois, and could certainly bear

further study. The extent to which forestland in Illinois is used for subsistence purposes also requires further study. Currently no data on that topic exists, although the issue could feasibly be linked to studies related to the use of non-timber forest products (NTFPs).

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

Two key issues addressed in Criterion 7 are a lack of forestry-related staffing to meet the varied forestry needs within the state and a lack of management on non-industrial private forestland. At the time of writing a number of district forester and other positions throughout the Division of Forest Resources and the Office of Resource Conservation in general are vacant and unable to be filled due to shortfalls in the state budget and subsequent monetary allocations to the Illinois Department of Natural Resources (IDNR). Similarly, the University of Illinois currently does not support an extension forester position. This presents a serious obstacle for the goal of sustainable forest management in the state of Illinois. Without adequate field staffing, many programs essential to sustainable forest management are inevitably sidelined. For example, private non-industrial forest landowners, who own 82% of the forestland in the state, require approved forest management plans to be eligible for many forestry assistance programs. Without an adequate number of district and regional foresters to develop and approve such plans, the backlog of landowners on waiting lists, although already manifest, could significantly lengthen. Although private consulting foresters can develop and submit management plans for approval, many landowners are unwilling to spend the extra money to hire these professionals. The end result of this situation is counterproductive to the goal of sustainable forest management in Illinois. Many forest landowners who desire to have forest management plans developed for their property, thereby ensuring its sustainable management, are unable to do so through no fault of their own. This issue must be addressed if the goal of statewide sustainable forest management is to become a reality in Illinois.