

## **Appendix A. Core Themes/Layers Proposed for the Geospatial Component of State Assessments, Relevant SAP Data Layers, and Current State of Geospatial Data Available for Suggested Data Themes**

### **Development Pressure**

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**Purpose:** The Development, or development probability, data theme is intended to emphasize areas that are projected to experience increased housing development in the next 30 years. Policies that encourage and support conservation, protection, or active management of private forest lands can improve the likelihood that these lands will remain forested and continue to provide forest values such as timber, wildlife habitat, and water quality, and recreation.

**Relevant SAP Data Layer:** Threat of Development (likelihood of development)

**Data source used for SAP data layer:** Nationally available data layer–Housing Density Projections (D. Theobald, Colorado State University). Data sets developed by Dave Theobald were used by most states in the SAP. 2000 housing densities were subtracted from 2030 housing density projections to define areas under development pressure.

**Current state of geospatial data available:** Same, however the USFS has provided funding to the Conservation Biology Institute to update the Protected Areas Database (PAD), and Theobald has expressed interest in re-running his Housing Density models, incorporating these new data when available.

### **Forest Fragmentation and Parcelization**

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**Purpose:** The Forest Fragmentation and Parcelization data theme is intended to emphasize areas where fragmentation, parcelization, and related human activity makes a forest area more susceptible to several risk factors such as insect pests and disease and where parcelization also poses challenges for forest management, e.g., reduced economic viability of active forest management.

**Relevant SAP Data Layer:** None, although “Threat of Development” and “Forest Patches” could be considered proxies.

**Data source used for SAP data layer:** Nationally available “Classification of Forest Fragmentation of North America” data produced by Riitters in 2002 (available at <http://nationalatlas.gov/mld/forfrgi.html>). States might also use Forest Patch Size with the Development Risk layer (these layers are included in all State SAP assessments) to represent Forest Fragmentation.

**Current state of geospatial data available:** NRS FIA has generated some “urbanization, fragmentation, and context characteristics of forestland” for the 20 Northeast and Midwest states including forest by housing density, forest by population density, forest patch size, and forestland by distance to roads.

## **Wildfire Risk**

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**Purpose:** The Wildfire Risk data theme is intended to identify areas where planning and management are likely to reduce a relatively high risk of wildfire.

**Relevant SAP Data Layer:** Wildfire Risk

**Data source used for SAP data layer:** States provided and defined this data layer.

**Current state of geospatial data available:** In SAP, states provided and defined this data layer. A national effort called Landfire will create a series of data layers that could be used in the creation of a fire risk map (<http://www.landfire.gov/>). Data sets for the northeast will be completed in 2008.

## **Forest Health Risk**

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**Purpose:** The Forest Health data theme is intended to place importance on areas where silvicultural treatments can address pressing risks to forest health.

**Relevant SAP Data Layer:** Forest Health

**Data source used for SAP data layer:** Most states used multiple years of aerial detection survey data to identify areas with recurring or chronic forest health issues, and then chose to emphasize either the areas with health concerns or the inverse (healthy forests). Some states used the nationally available forest health risk data layer developed by the U.S. Forest Service's Forest Health Technology Enterprise Team (1 km grid of mortality risk).

**Current state of geospatial data available:** Tentative plans are underway to develop a 30 meter resolution version of the National Risk Map by 2011, led by the Forest Health Technology Enterprise Team. In the mean time, states can use the layer they included in SAP.

## **Fish and Wildlife Habitat**

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**Purpose:** The Fish and Wildlife Habitat data theme is intended to identify important plant communities that provide habitat for valued fish and wildlife species, including, but not limited to, threatened and endangered species.

**Relevant SAP Data Layer:** Threatened & Endangered Species

**Data source used for SAP data layer:** Most states had access to and used T&E habitat data from their state natural heritage program.

**Current state of geospatial data available:** States should have data available through their state natural heritage programs, as reported to NatureServe (the national data source). At a minimum, each state has access to precise spatial representation polygons for T&E species occurrence.

Some states now have geospatial data as a result of their state Wildlife Action Plan effort. The National Association of F&W Agencies has contracted NatureServe to develop a habitat map for the 13 Northeast states. They are developing the methodology this year—

we should look into potentially adding on to this effort so we can have a consistent product across all 20 states.

## **Water Quality and Supply**

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**Purpose:** The Water Quality and Supply data theme is intended to place emphasis on landscapes that impact long-term watershed function in supplying clean and adequate public water supplies, including watersheds that drain into public drinking water supply intake points. Priority watersheds can be either those that are impaired or deforested, but could be measurably improved through planning and active management, or those that are currently productive, but somehow threatened.

**Relevant SAP Data Layers:** Priority Watersheds, Public Water Supplies, Riparian Corridors

**Data source used for SAP data layer:** For SAP, states defined and provided all three of these data layers: (1) public water supplies, (2) priority watersheds, and (3) riparian corridors. The Public Water Supplies layer was developed by buffering municipal water supply intake points or areas. The protected nature of those intake points data make it somewhat difficult to obtain/share. For the Priority Watersheds layer, the EPA Unified Watershed Assessment (UWA) from the late 1990's was commonly used in SAP. The Riparian Corridors dataset was created by buffering perennial rivers and streams (typically by 300' on each side of the feature) and intermittent streams (typically by 100' on each side of the feature).

**Current state of geospatial data available:** All states developed Priority Watershed, Public Water Supplies, and Riparian Corridor layers through SAP that are intended to address aspects of water quality and supply. NA has also developed an "ability to produce clean water" index (Forest Water and People effort) based on 8-digit Hydrologic Unit Codes (HUC) and 1992 NLCD data ([http://www.na.fs.fed.us/watershed/fwp\\_preview.shtm](http://www.na.fs.fed.us/watershed/fwp_preview.shtm)). This could be re-run with 2001 NLCD data and with other newer data as available/appropriate (roads, housing density). NA could give states the data and the states can average the values for watersheds.

## **Tree Cover in Urban Areas**

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**Purpose:** The Tree Cover in Urban Areas data theme is intended to provide data important to identification of broad priority urban areas with greatest opportunity to enhance the benefits provided by trees and forests, and to influence the conservation and protection of adjacent working forest landscapes. As outlined in the first approach for the geospatial analysis in this guide, a separate analysis for urban lands may be conducted in two-phases. Phase one (see sidebar) is a geospatial overlay analysis including data key to the urban landscape (e.g., impervious surfaces, urban tree cover, population density, water quality) to identify broad priority urban areas across the State, and their relative juxtaposition to adjacent priority forests. In a second phase, states could then conduct a higher resolution analysis to further focus efforts (perhaps to the parcel level) within those urban areas that were identified in phase one.

**Relevant SAP Data Layer:** Forest Patch Size, Priority Watersheds, Riparian Corridors, and priority lands for stewardship in metropolitan counties

**Current state of geospatial data available:** Urban RPA data are available from the Northern Research Station for political boundaries, tree cover, impervious surface, population, and priority planting index. Data for community capacity for urban forestry efforts are available from the S&PF Community Accomplishment and Reporting System (CARS). NAIP high-resolution data are available leaf-on to support phase II analysis. Additional data layers are being evaluated by an NAASF Urban Geospatial Work Group and will be added here as available.

### **Biomass/Carbon (The National Biomass and Carbon Dataset 2000 (NBCD 2000) -Woods Hole Research Center))**

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**Purpose:** Scientists at the Woods Hole Research Center are producing a high-resolution “National Biomass and Carbon Dataset for the year 2000” (NBCD2000), the first ever spatially explicit inventory of its kind. The dataset is being produced as part of a project funded under NASA’s Terrestrial Ecology Program with additional support from the Landscape Fire and Resource Management Planning Tools Project (LANDFIRE). The primary objective of the project is to generate a high-resolution (30 m), year-2000 baseline estimate of basal area-weighted canopy height, aboveground live dry biomass, and standing carbon stock for the conterminous United States.

**Relevant SAP Data Layer:** None

**Current state of geospatial data available:** Available nation-wide for download by NLCD mapping zone at <http://www.whrc.org/nbcd/>.

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The following two data themes were suggested in the national guidance, but were deleted from the “suggested” set in this regional guidance document due to inadequate data availability. The purpose statements from the national guidance and notes on data availability are provided for reference:

### **Economic Potential (deleted from regional “suggested layers” list)**

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**Purpose (from national guidance):** The Economic Potential data theme is intended to place emphasis on areas where forests do or could potentially play a major role in local or state economic growth or contribute to the development of emerging markets such as biomass energy or ecosystem services.

**Notes:** Slope was derived from the USGS 30-meter Digital Elevation Model (DEM) and was used as proxy for site productivity and operability in SAP. Site index are also nationally available from the NRCS Soil Survey Geographic database (SSURGO). This focus on timber harvesting as the only economic benefit derived from forests is too limiting. RPA data on growth and removals are available by county from the Timber Products Output database, although there are some concerns with these data (e.g., missing mills). Data available, or even appropriate to address this theme will vary from state to state depending on opportunities for growth in markets/businesses. Economic importance and/or potential should be included in the State Assessment using qualitative and quantitative information available to the state (states can define how to best address the economic importance of forests).

## **Green Infrastructure (deleted from regional “suggested layers” list)**

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**Purpose (from national guidance):** The Green Infrastructure data theme is intended to emphasize opportunities for an interconnected green space network that includes natural areas and features, public and private conservation lands, working lands with conservation values, and other protected open spaces that are planned and managed for natural resource values and for associated benefits to human population. The layer could create an opportunity to influence local planning to maintain a network of open spaces and forested corridors. The data layer could also function to identify areas representing a high potential for “re-greening.”

**Notes:** States that have a green infrastructure analysis already available can use it, however, development of this layer is time consuming and expensive (not feasible with time constraint and resources available). Although this one was deleted from the regional “suggested layers” list, some data already available in the state SAP can serve as a proxy for this one, e.g., proximity to protected areas and forest patches. In addition, it is recommended that data important for identification of priority urban areas be included in the State Assessment (see Tree Cover in Urban Areas section above). For reference, the State of Maryland has done work to define a Green Infrastructure data layer (<http://www.dnr.state.md.us/greenways/gi/gi.html>), as has the State of Virginia ([http://www.dcr.virginia.gov/natural\\_heritage/vclnagr.html](http://www.dcr.virginia.gov/natural_heritage/vclnagr.html)).