Green Bay Packaging
Public Summary:
Wood and Fiber Supply Area Plan
Landowner Resource Program (LRP)

General Program Overview

This "Public Summary: Wood and Fiber Supply Area Plan" supports the SFI Small Lands Group (SLG) managed by the Fiber Resource Division of Green Bay Packaging Inc. The WFS Plan consists of this document and several other supporting documents and long-standing programs.

Sustainable Forestry Initiative® and the American Forest Foundation designed their joint Small Lands Group Certification Program to allow participating organizations to build on existing programs, adjusting those programs as needed to support their SLG. GBP has taken this approach, adjusting existing programs to meet the requirements. Any tasks related to SLG requirements which do not easily fit within existing programs have been incorporated into this plan and other procedures developed for the unique purposes of the SLG.

Programs and Publications that Support the SLG

- ☐ Green Bay Packaging *Landowner Resource Program* (LRP)
  - Landowner Master Agreement
  - Tree Farm Forest Management Plan - Landowner Resource Program (LRP)
  - LRP Landowner Records
  - GIS, including maps and associated databases

- ☐ SFI® Fiber Sourcing Standard Program including:
  - SFI Indicators & Evidence Manual (17-GBP-16)
  - SFI Program Procedure (4-GBP-03)

- ☐ GBP's Landowner Resource Guide

- ☐ Arkansas Forestry Association's *A Landowner's Guide to Sustainable Forests* https://www.arkforests.org/page/forestmanagement

This summary includes the two key elements of the plan, at two different scales:

A. Wood and Fiber Supply Area Plan – landscape scale
B. Tree Farm Forest Management Plan – tract or property scale

A. Wood and Fiber Supply Area Plan

Long-Term Resource Analysis

This plan is based on part on the following resource studies and information, including analysis of social, environmental and economic impacts of forest operations on forest resources:

FIA Data and Published Summary Reports

Annually, GBP foresters review data and published summary reports from the U. S. Forest Service's Forest Inventory and Analysis (FIA) to assess trends in forest extent, growth, removals, and standing volumes.

FIA and other data have long been used to shape the decisions of the company, including decisions about the following broad topics:

- Pulp mill, chip mill, and saw mill operations, including configurations of wood handling equipment, decisions about expansions and upgrades, and locations or possible locations for infrastructure related to wood purchasing, transportation, and storage;
- The overall structure and approach of the Fiber Resource Division in its wood procurement operations;
- Assistance provided to landowners through various programs and initiatives (many of which are being utilized to meet the SFI Small Lands Group requirements); and
- Approaches to silviculture and forest management on company lands and on lands owned by other landowners.

Summary: The forest inventory data from the company's fiber supply area indicate:

1. A forest resource that is stable in acres and growing in total volumes
2. Regeneration and forest development tendencies where forests are well-stocked to overstocked, generally with commercially desirable species well suited to the growing conditions of the site
3. Some understocked stands, indicating the need for artificial regeneration, both to supplement natural regeneration in some places or to develop dense, fast-growing pine plantations; and
4. The need for regular, periodic intermediate silvicultural treatments including thinning to address overstocking and improvement-oriented thinning to favor the most valuable tree species or the trees with the form, health, and vigor needed to grow into larger and more valuable products.

The company's forestry programs and mill operations address two key needs in the region: markets for thinning overstocked stands, and support for reforestation.

Arkansas' Wildlife Action Plan

The Arkansas Wildlife Action Plan provides a statewide assessment of all aspects of wildlife and conservation of biodiversity. This information has been used in support of the long-standing SFI® Fiber Sourcing program. It was also used to guide management of selected important habitats (described in a later section of this plan), to ensure that landscape scale factors are considered in the overall program.

Information from the Arkansas Wildlife Action Plan is also used in making planting decisions. The GBP SFI® Fiber Sourcing program provides a framework for analysis prior to planting open lands.

The Arkansas Wildlife Action Plan can be found at the following website: Fiber Resource Environmental - Arkansas Wildlife Action Plan.pdf - All Documents (sharepoint.com)

An executive summary is also available: 2017ExecutiveSummary.pdf (conservingarkansaswildlife.org)

Arkansas' Statewide Forest Action Plan

The Arkansas Forest Action Plan is a statewide analysis of the past, current and projected future conditions of Arkansas's forest resources. Completed in 2020 by the Arkansas Department of Agriculture Forestry Division and partners, it is found at the following website location: https://www.agriculture.arkansas.gov/wp-content/uploads/2021/01/Arkansas-Forest-Action-Plan.pdf

This document provides descriptions of forest resources, their different uses and functions, and objectives for their management. The Forest Action Plan includes critical issues and present strategic objectives, descriptions of forestry programs implemented by the Forestry Division and partner agencies and identifies performance measures to assess progress towards its priorities. Pages 1-8 of AR Forestry Association's *A Landowner's Guide to Sustainable Forests* provide further description and analysis of the forest resources in the fiber supply area.

The program is consistent with legislation and the above strategic plans, which are the closest analogue to the "land-use plans" referred to in the SLG requirements.

Sustaining Timber Resources, Including Volumes, and Keeping Forests as Forests

Green Bay Packaging Inc. has long developed policies and implemented programs to promote timber stocking and improve timber growth, including the afforestation of agricultural and treeless land into forests. At its two mills in central Arkansas the company provides markets for pine pulpwood and saw timber. The focus of the Landowner Resource Program (LRP) is to support timely and high-quality reforestation, thinning, and final harvesting. The Landowner Resource Program provides tree seedlings and associated services (site preparation, release) that can be used to reforest areas that have been harvested or to return non-forested sites to forest cover.

A review of FIA data trends and of the Forest Stewardship Council® Controlled Wood National Risk Assessment show that the risks of conversion of forests to non-forest uses is low. Programs described above which provide markets, support sustainable forestry practices, and support planting of pine trees help reduce the risk of conversion by making it easy and profitable to keep forests as forests.

Harvest Levels and Stocking Trends

The Fiber Resource Division monitors growth and drain trends across the wood and fiber supply area. This includes review of published reports on Arkansas' forest resources including growth and drain information, stocking levels, and acreage trends for forestland and timberland.

The company also analyzes timber resource information for its core fiber supply area. The FIA's EVALIDator USFS Evalidator and other tools as appropriate USFS FIA Data and Tools.

The monitoring information helps identify trends. For example, while the number of acres of forestland has been steady lately there has been a slow increase in the percentage of the supply area classified as overstocked. There are also significant (but generally stable) acreage of understocked stands. The company's plans and programs are to continue to provide pine markets and to continue to support pine planting, thinning, and final harvests at levels which can be sustained.

The procurement wood flow plan is linked to the harvest and management plan for company lands and lands in the LRP.

Non-Timber Forest Values and Resources

Management of Habitats Guided by the Arkansas Wildlife Action Plan

Information from the Arkansas Wildlife Action Plan is used in making forest management decisions for landowners who prioritize wildlife habitat. The plan ranks (scores) the 37 terrestrial habitats of Arkansas for their habitat value. The ten habitat types with the highest habitat value scores are listed below. Commentary on applicability within this program and a summary of the approach taken is provided for the top ten types. More-detailed considerations for management are provided below the table for the three terrestrial habitats on this list that could commonly be within the scope of an active forest management plan in the Green Bay Packaging Landowner Resource Program (LRP).

Highest Habitat Scores: These rankings are based on the Sum of Species Priority Scores as presented in Table 4.1, Terrestrial Habitat Scores on pages 1 and 2 of "Section 4. Terrestrial Habitats" of the Arkansas Wildlife Action Plan.		
Habitat Score	**Habitat Name**	**Comments (and applicability)**
6925	Caves, Mines, Sinkholes and other Karst Features	Generally, would be avoided, per BMPs. These sites have no commercial timber.
3952	Ozark-Ouachita Prairie and Woodland	This habitat occupies sites which have low productivity for forest management.
3778	Ozark-Ouachita Riparian	Riparian zones are protected by use of Forestry BMPs.
2586	**Ozark-Ouachita Mesic Hardwood Forest**	Management of mesic hardwood forest must consider wildlife habitat value.
2226	**Ozark-Ouachita Dry Oak & Pine Woodland**	Management of dry oak and pine woodland must consider wildlife habitat value.
1733	West Gulf Coastal Plain Calcareous Prairie and Woodland	This habitat occupies sites which have low productivity for forest management.
1716	Pasture Land	Pasture land is not currently forest but could be reforested. The GBP SFI® Fiber Sourcing program provides a framework for analysis prior to planting open lands.

1650	**Ozark-Ouachita Pine-Oak Forest/Woodland**	Management of pine-oak forest/woodland must consider wildlife habitat value.
1551	Ozark-Ouachita Large Floodplain	Most sites have little commercial timber and would be hardwood dominated. Not likely to be included in the active forestry program.
1515	Lower Mississippi Alluvial Plain Grand Prairie	These sites have no commercial timber. Most not currently forest but could be reforested. The GBP SFI® Fiber Sourcing program provides a framework for analysis prior to planting open lands.

Management of the following three habitat types should include enhanced attention to consider wildlife habitat uses and values whenever wildlife management is landowner objective.

(Note: Extracted from above list of top ten habitats in Arkansas based on aggregated habitat scores.)

Habitat Name	Habitat Score
Ozark-Ouachita Mesic Hardwood Forest	2586
Ozark-Ouachita Dry Oak & Pine Woodland	2226
Ozark-Ouachita Pine-Oak Forest/Woodland	1650

Ozark-Ouachita Mesic Hardwood Forest

(Refer to pages 1376-1385 of Arkansas WAP; portions quoted below.)

Ecoregions where the "Ozark-Ouachita Mesic Hardwood Forest" habitat occurs

Ozark Highlands	Boston Mountains
Arkansas Valley	Ouachita Mountains

"**Description:** This system is found on toe slopes, valley bottoms and north slopes. Quercus rubra increases in abundance compared to dry-mesic habitats, and Acer saccharum is sometimes a leading dominant. On more alkaline moist soils, Quercus muehlenbergii, Tilia americana, and Cercis canadensis may be common. In the Boston Mountains, mesic forests may also be common on protected slopes and terraces next to streams. Here Fagus grandifolia may be the leading dominant, with codominants of Acer saccharum, Liquidambar styraciflua, Tilia americana, Magnolia acuminata, and others. Similar habitats occur in the western Ouachita Mountains. (Adapted from NatureServe 2005)"

Key Habitat Factor	Canopy closure
Factor Description	Combination of stem density, basal area and extent of canopy cover, with intermittent closure as ideal (Surrogate for Horizontal Structure).
Conservation Action	Maintain or, where necessary, restore the percent of the spatial extent of all known occurrences with a canopy closure of greater than 80 percent (BA 70 or greater) to 51 percent or more.

Note on "Conservation Action": This describes the ideal action that would be taken if the landowner objective was solely the protection and enhancement of biodiversity and there were few limitations as to costs. Most family forest owners will balance this ideal with other goals.

Key Habitat Factor	Composition
Factor Description	The diversity, species richness, and relative abundance of vegetative elements in this habitat type.
Conservation Action	Maintain or, where necessary, restore the percent of groundcover in non-native herbaceous vegetation to nine percent or less.

Key Habitat Factor	Fire Regime
Factor Description	Fire Return Interval and Seasonality, including landscape-scale fire in surrounding/adjacent habitats to prevent woody encroachment and allow for distribution and dispersal of obligate species
Conservation Action	When burning, burn during either March/April or August/September, or from leaf-expansion to leaf-fall, depending on project-level goals.

Key Habitat Factor	Fire Frequency
Factor Description	Fire Frequency
Conservation Action	Burn at least 51 percent of the spatial extent of all known occurrences of this habitat type every 5-7 years.

Key Habitat Factor	Remoteness
Factor Description	Mean density of roads (miles per square mile) within this community type at the landscape scale.
Conservation Action	Maintain or, where necessary, restore the average number of road miles per square mile to one or less across all known occurrences of this target.

Key Habitat Factor	Spatial Ecology
Factor Description	The relative spatial abundance, proximity, distribution, and arrangement of this habitat type on the landscape. (More and more-clustered are better.)
Conservation Action	Maintain or, where necessary, restore the median nearest distance between patches of this habitat type to two miles or less.

Key Habitat Factor	Spatial Ecology
Factor Description	Average Block Size (Larger blocks are better)
Conservation Action	Maintain or, where necessary, restore the average patch size of this habitat type to 501 acres or more across all known occurrences.

Ozark-Ouachita Dry Oak & Pine Woodland

(Refer to pages 1339-1347 of Arkansas WAP; portions quoted below.)

Ecoregions where the "Ozark-Ouachita Dry Oak & Pine Woodland" habitat occurs

Ozark Highlands	Boston Mountains
Arkansas Valley	Ouachita Mountains

"**Description:** This system occurs along gentle to steep slopes and over bluff escarpments with southerly to westerly aspects. Parent material can range from calcareous to acidic with very shallow, well- to excessively well-drained soils. This system was historically woodland in structure, composition, and process but now includes areas of more closed canopy. Oak species such as Quercus stellata, Quercus marilandica, and Quercus muehlenbergii dominate this system with an understory of grassland species such as Schizachyrium scoparium and shrub species such as Vaccinium arboreum. Drought stress and fire are the processes influencing and maintaining this system. (Adapted from NatureServe 2005)

Key Habitat Factor	Composition
Factor Description	The diversity, species richness, and relative abundance of vegetative elements in this habitat type.
Conservation Action	Maintain or, where necessary, restore the average percent total native herbaceous groundcover across all known potential occurrences to 41 percent or more. Goals include Density must be sufficient to carry growing season fire at least once every five years. Composition should include only native species.

Key Habitat Factor	Fire Regime
Factor Description	Fire Return Interval and Seasonality, including landscape-scale fire in surrounding/adjacent habitats to prevent woody encroachment and allow for distribution and dispersal of obligate species
Conservation Action	When burning, burn during either March/April or August/September, or from leaf-expansion to leaf-fall, depending on project-level goals.

Key Habitat Factor	Fire Frequency
Factor Description	Average percent of all known occurrences burned per 3-5 year interval
Conservation Action	Burn at least 51 percent of the spatial extent of all known occurrences of this habitat type every 3-5 years.

Key Habitat Factor	Spatial Ecology (Patch Proximity)
Factor Description	The relative spatial abundance, proximity, distribution, and arrangement of this habitat type on the landscape.
Conservation Action	Patch Proximity: Maintain or, where necessary, restore the median nearest distance between patches of this habitat type to two miles or less.

Key Habitat Factor	Spatial Ecology (Average Block Size)
Factor Description	Block is defined by the minimum convex polygon bounded by known occurrences of this habitat type in which the median patch size is above the fair level for patch size, and in which each of the patches score fair or better on the patch proximity threshold.
Conservation Action	Maintain or, where necessary, restore average block size to 10,000 acres or more.

Key Habitat Factor	Spatial Ecology (Average Patch Size)
Factor Description	Poor Level: <500 acres Fair Level: 500-1,000 acres Good Level: 1,001-2,000 acres
Conservation Action	Maintain or, where necessary, restore the average patch size of this habitat type to 1,001 acres or more across all known occurrences.

Ozark-Ouachita Pine-Oak Forest/Woodland

(Refer to pages 1397-1406 of Arkansas WAP; portions quoted below.)

Ecoregions where the "Ozark-Ouachita Pine-Oak Forest/Woodland" habitat occurs

Ozark Highlands	Boston Mountains
Arkansas Valley	Ouachita Mountains

"**Description:** This system represents forests and woodlands in which Pinus echinata is an important or dominant component. Although examples of this system occur throughout this region, there is local variation in the extent to which they were present. For example, this system was historically prominent only in the southeastern part of the Ozark Highlands where sandstone derived soils were common (USFS 1999); being limited from other areas by inadequate winter precipitation, and non-conducive soils. In contrast, pine was "virtually ubiquitous in the historical forests of the Ouachitas" (USFS 1999). In nearly all cases (at least in the Ouachitas), Pinus echinata occurs with a variable mixture of hardwood species. The exact composition of the hardwoods is much more closely related to aspect and topographic factors than is the pine component (Dale and Ware 1999). In some examples of this system, the aggregate importance of hardwoods may be greater than pine, especially on subxeric and mesic sites (Dale and Ware 1999). (adapted from NatureServe 2005)"

Key Habitat Factor	Canopy Closure
Factor Description	Combination of stem density, basal area and extent of canopy cover, with intermitent closure as ideal (Surrogate for Horizontal Structure).
Conservation Action	Maintain or, where necessary, restore the percent of the spatial extent of all known occurrences with a canopy closure of greater than 70 percent to 51 percent or more.

Key Habitat Factor	Composition
Factor Description	The diversity, species richness, and relative abundance of vegetative elements in this habitat type. (Note: the concern is encroachment by Loblolly pine.)
Conservation Action	Maintain or, where necessary, restore the total percentage of land area in loblolly to nine percent or less.

Key Habitat Factor	Fire Regime
Factor Description	Fire Return Interval and Seasonality, including landscape-scale fire in surrounding/adjacent habitats to prevent woody encroachment and allow for distribution and dispersal of obligate species.
Conservation Action	Burn at least 51 percent of the spatial extent of all known occurrences of this habitat type every 3-5 years.

Key Habitat Factor	Fire Regime
Factor Description	Fire Seasonality/Intensity
Conservation Action	When burning, burn during either March/April or August/September, or from leaf-expansion to leaf-fall, depending on project-level goals.

Key Habitat Factor	Spatial Ecology (Average Block Size)
Factor Description	The relative spatial abundance, proximity, distribution, and arrangement of this habitat type on the landscape.
Conservation Action	Maintain or, where necessary, restore average block size to 10,000 acres or more.

Key Habitat Factor	Spatial Ecology (Average Patch Size)
Factor Description	Poor Level: <500 acres Fair Level: 500-1,000 acres Good Level: 1,001-2,000 acres
Conservation Action	Maintain or, where necessary, restore the average patch size of this habitat type to 1,001 acres or more across all known occurrences.

Key Habitat Factor	Spatial Ecology (Patch Proximity)
Factor Description	Median nearest distance between patches.
Conservation Action	Maintain or, where necessary, restore the median nearest distance between patches of this habitat type to two miles or less.

Important, Special, and Sensitive Sites and Species

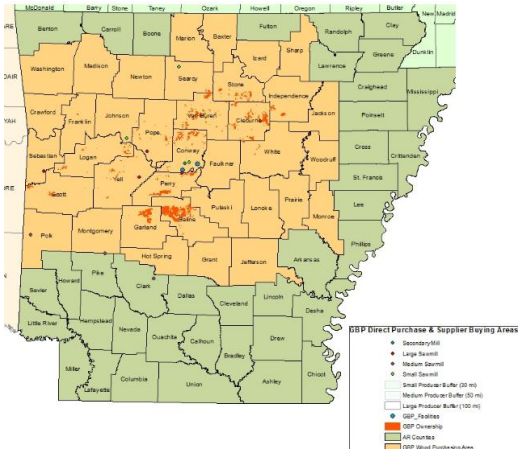
Note: Each landowner's management plan provides guidance on this topic, with an emphasis on property or site-specific issues. This and other sections of the Fiber Supply Plan provide additional landscape context.

Green Bay Packaging Inc. sources wood from the north-central portion of Arkansas (see map below, right). This supply area is rich in terms of wildlife and biodiversity, as it includes all five of Arkansas' biophysical regions:

1. Ozark Highlands
2. Arkansas River Valley
3. Ouachita Mountains
4. Gulf Coastal Plain
5. Delta (Mississippi Alluvial Plain and Mississippi Valley Loess Plains)

(Note: Some ecologists list a sixth region, Crowley's Ridge, which is located within the northern Delta and is just outside of the company's fiber supply area.)

Source: Arkansas BMP Manual



GBP Fiber Supply Area

As should be expected in such a diverse area there are many species of plants and animals, including those that are considered rare, threatened or endangered. The company's GIS includes information on rare plants, animals, and natural communities in Arkansas that has been collected and organized by the Arkansas Natural Heritage Commission (ANHC) https://www.naturalheritage.com/About/about-us . ANHC'S Arkansas Heritage Program maintains a database https://www.naturalheritage.com/Research-and-Data/rare-species-search which provided information for the entire state.

GBP has a subscription with the Arkansas Natural Heritage Inventory to obtain up-to-date detailed information on natural heritage (biodiversity) sites on and in proximity to company-owned lands. Some of this mapped detail applies to a portion of the procurement work. The company also has a system in place to obtain needed information from the Arkansas Natural Heritage Inventory on natural diversity issues for the entire procurement territory. When there is a "hit" then foresters contact the Natural Heritage Commission for advice. This information is used to adjust the forestry recommendations and management practices as needed for any sites or stands that are included in the database.

Soil, Air and Water Quality, Carbon, Recreation and Aesthetics

Refer to the Tree Farm Forest Management Plan, Green Bay Packaging's Landowner Resource Program (LRP).

Forest Health

Including Impacts from Undesirable Wildfire, Pests, Diseases, Invasive Exotic Plants & Animals

Monitoring for European ash borer (EAB) is conducted by the Arkansas Department of Agriculture, which includes the duties formerly covered by the Arkansas Plant Board. The Arkansas Division of Forestry conducts aerial reconnaissance of the state's forests for forest health issues. During fire season fire-watch flights may be daily. The division also places insect traps and tracks findings. The U.S. Forest Service and the U.S. Fish and Wildlife Service also monitor various issues and resources. Results of this monitoring are shared with professional foresters at various meetings, workshops, and conferences. GBP's foresters are closely associated with the Arkansas Forestry Association, which sponsors or participates in many of these events. The result is that GBP's foresters are up-to-date on forest health trends and issues. The company's foresters also support the monitoring work by sharing information from their field observations.

Historic and Culturally Significant Sites

Arkansas Register of Historic Places

"The Arkansas Historic Preservation Program was created by the Arkansas General Assembly in 1969. The AHPP's mission is to fulfill the objectives of the National Historic Preservation Act through the identification, preservation and protections of the cultural heritage of the State of Arkansas. The AHPP is charged with "conducting relations with representative of the federal government, the respective states, governmental units within Arkansas state agencies, organizations and individuals regarding matters of historic preservation, including the programs carried out under Public Law 89-655 (16 U.S.C. & 47, et seq)." Source: https://www.arkansaspreservation.com/About-Us/about

National Register of Historic Places

https://www.nps.gov/subjects/nationalregister/index.htm

Landowner Goals, Strategies and Silviculture for Achieving Goals

Foresters of the Fiber Resource Division are trained to and experienced with designing and implementing silviculture and regeneration methods to achieve forest management objectives

Most participating landowners have identified income from harvests of forest products and wildlife habitat suited to game species of wildlife as their primary objectives. The Tree Farm Forest Management Plan provides information on appropriate silviculture, supplemented by these documents:

- ☐ GBP's *Landowner Resource Guide*
- ☐ Arkansas Forestry Association's *A Landowner's Guide to Sustainable Forests*

Implementing the Wood and Fiber Supply Area Plan

Putting FIA Data, Wildlife Information and Forestry Knowledge to Productive Use

The data and the training, knowledge, and experience of company foresters support several key conclusions which drive actions of the GBP Landowner Resource Program:

- ✓ Soils, climate, laws, local customs and practices, and the presence of tree species well-adapted to Arkansas combine into excellent prospects for profitable forestry at many scales, from tens of acres to hundreds of thousands of acres.
- ✓ Forestry knowledge, including technology to raise tree seedlings, prepare sites, plant, thin, release, harvest, transport, and mill the wood, is readily available in the region.
- ✓ Most landowners do not have all the knowledge they need to obtain the full value of the potential of their land to grow forest products and provide other forest-related values and services. Foresters from Green Bay Packaging Inc. are well-positioned to fill this gap.
- ✓ Markets are needed for energy wood, pulpwood, and sawtimber. The company provides many of the needed markets and has links to all markets.
- ✓ Planting and thinning are among the most important and occasionally challenging aspects of forestry, and inventory data show the ongoing need for both. GBP excels at both.

B. Tree Farm Forest Management Plan (LAP)

Green Bay Packaging Inc.'s foresters develop and maintain, for each enrolled tract, a management plan that meets the requirements established by the American Forest Foundation https://www.treefarmsystem.org/certification-american-tree-farm-standards. Each plan incorporates the forest owner's objectives into the recommendations for actions.

The property/tract plans each contain the following sections:

Standard 1 Commitment to practicing Sustainable Forestry

Standard 2 Compliance with the Law

Standard 3 Reforestation and Afforestation

Standard 4 Air, Water and Soil Protection

Standard 5 Fish, Wildlife, Biodiversity and Forest Health

Standard 6 Forest Aesthetics

Standard 7 Protect Special Sites

Standard 8 Forest Product Harvest and Other Activities

Additional Considerations:

- Desired Species
- Recreation
- Prescribed Fire and Wildfire
- Boundary Line Condition and Maintenance