

# Heartwood Forestland Fund IV, LP

## *Highlands Property*

Executive Summary of the 10-Year Management Plan  
The Forestland Group, LLC

### I Description of Property

- i) 130,973 acres in western Virginia in Buchanan, Dickenson, Russell and Wise counties.
- ii) Acquired through multiple deeds starting in 4Q03 from Pyxis, Paramount and Clinchfield Coal Companies.
- iii) Property lies in a largely rural area where forest products, along with coal mining and gas development are the major industries.
- iv) Dominated by hardwood species, in particular, mixed oaks and yellow poplar.

### II Conservation Value

- i) There are no conservation easements on the Highlands property.
- ii) High Conservation Value Forests:
  - (1) Compartment 2 – Along the Pound River north of the Town of Pound, 305 acres
  - (2) Compartment 2 – Along Cranes Nest River riparian areas north of Coeburn, 755 acres
  - (3) Compartment 4 – Along the Russell Fork River north of Haysi, 264 acres
  - (4) Compartment 7 – Overton Sutherland tract along Clinch River near Carbo, 209 acres
  - (5) Compartment 5 – Along Fryingpan Creek, Clark Harrison tract, 1 acre
- iii) Rare, Threatened or Endangered Species

*\*The Virginia Natural Heritage determined the following species' habitats are found either on the property or in this area.*

<u>Federal/State</u>	<u>Status</u>	<u># of species</u>	<u>Example</u>
<b>ANIMALS</b>			
Federal	Rare	31	Northern Map Turtle
	Threatened	0	---
	Endangered	11	Oyster Mussel
State	Rare	11	Tangerine Darter
	Threatened	7	Spiny Riversnail
	Endangered	12	Indiana Bat
<b>PLANTS</b>			
Federal	Rare	2	Alabama Grape Fern
	Threatened	2	Virginia Spiraea
	Endangered	0	---
State	Rare	0	---

	Threatened	0	---
	Endangered	1	Virginia Spiraea

- If an RTE issue arises, TFG will
  1. Manage as if the species is present until a survey is completed to verify presence of the species.
  2. If present, necessary modifications will be made to the harvest prescription (details included in the 10-year management plan).
  3. Conservation zones will be created.

iv) Wildlife Resources: Common wildlife species found on the property include whitetail deer, wild turkey, cottontail rabbit, ruffed grouse, black bear and grey squirrel.

v) Indigenous/Cultural issues:

- (1) According to the federal Bureau of Indian Affairs, there are no populations of indigenous people on or near the Highlands property.
- (2) There are a few known isolated cemeteries, abandoned structures, chimneys, houses and barns on the property. As management proceeds on the property, these locations will be identified on management maps.

vi) FSC Certification status and issues

- Managed according to FSC principles & criteria and are subject to regular FSC audits
- Operated under an active Forest Management Chain of Custody Certificate (COC)
- Has a completed 10-year management plan
- Mountain Forest Products is the only local FSC COC certified market for stumpage sales from the Highlands property.

### III Timber Resource

i) 113,564 acres forested; 23,575 acres non-forested

- Non-forested acreage largely due to active coal mining and surface mine reclamation where afforestation and reforestation is occurring.

ii) Overall forest cover type proportions

<u>Forest Type</u>	<u>Proportion</u>
Riverine Forest Type	3%
Broad Cove Forest Type	8%
Lower Slope Forest Type	18%
Upper Cove Type	10%
Mid Slope Type	10%

Upper and Mid Slope Benches	11%
Upper Slopes & Sheltered Ridges	2%
Exposed Ridge Tops & Steep South Slopes	20%
Non-forest, reclaimed mine sites	18%

iii) General Forest Management Objectives are:

- (1) Maintain a diffuse canopy cover by harvesting a high percentage of financially mature stems of commercial species
- (2) Release crowns of well formed stems with the potential for accelerated growth in both size and value by removal of stems through all diameter classes, grades and species
- (3) Release of advanced regeneration of desirable species by small patch clearcuts
- (4) Provide for the desirable regeneration in areas where stocking is below full occupancy or would become so as a result of removals
- (5) Maintain adequate and appropriate wildlife habitat
- (6) Avoid, as knowledge permits, the taking of any state threatened or endangered species
- (7) Avoid impairment of water quality in streams and rivers by any management activity
- (8) Create no significant or enduring reduction of the scenic attractiveness of the property
- (9) In sum, the overall objective is to sustain or improve the biological characteristics of the

Cumberland Mountains, site type by site type, while earning an acceptable return for our investors.

iv) Most common species

By Volume:

- (a) Yellow Poplar, 19%
- (b) Chestnut Oak, 12%
- (c) Red Oak, 9%

By Value:

- (a) Yellow Poplar, 27%
- (b) Red Oak, 25%
- (c) Hard Maple, 21%

v) Average Annual TFG Removals: Approximately 60% of annual allowable cut

vi) Operations Plan

1. Statement of General Harvest Strategy - The goal of timber management is to maximize the value, quality, and growth potential of the entire forest. Harvest strategies will focus on capturing the value of financially mature timber through regeneration cuts. Retention cuts will be the primary silvicultural tool, creating residual basal areas targeting 20 square feet per acre. By concentrating treatments on stands having a substantial element of mature timber, TFG will ultimately create a better distribution of size classes, higher quality sawtimber, and substantial in-growth from small to large sawtimber. The overall quality of the forest will be improved over the ownership of the property.
2. Description of Harvest Methodologies
  - A. Partial Cuts - Recognized harvesting practices that remove only part of the overstory canopy are known to include: (1) uneven-aged Management, (2) even-

aged shelterwood, (3) removal of older age class in a two-aged stand, and (3) timber stand improvement (TSI).

- B. Uneven-aged management is well suited for the regeneration of valuable shade-tolerant species where both value and merchantable volume can economically support the removal of a limited portion of the forest canopy. Hard maple is both very shade-tolerant and relatively valuable for adapting to uneven-aged management. Other valuable species such as northern red oak, black oak, white oak, and yellow poplar require more sunlight and do not adapt well to the traditional implementation of uneven-aged management.
- C. Even-aged shelterwood management is well suited for the regeneration of mid-intolerant species and temporarily creates a two-story stand. The shade produced from the residual stand impacts the most intolerant species to some degree. Economically, this technique requires a significant original basal area to allow a partial harvest while retaining enough trees to justify returning to harvest them a few years later. This return harvest is considered the removal of the older age class in a two-aged stand and is sometimes considered an overstory removal harvest. On the Highlands property, such partial cuts are usually uneconomical to pursue due to the low stocking and low volume per acre
- D. Canopy Removal, Justification - The Highlands property contains mostly understocked even-aged and two-aged hardwood stands that are capable of producing moderate to high volumes per acre of good quality timber. The growth and value potentials of this property lie overwhelmingly with the future crop of trees and subsequently with regeneration treatments that mimic intensive natural disturbance. Stand rejuvenation through the removal of the forest canopy will significantly improve the long-term health, growth and quality of these stands. In order to maximize, or at least improve the economies of scale from such canopy removal harvests, the size of the cutting units need to be as large as certification restrictions allow. Restrictions to limit the size of harvest units, coupled with difficult terrain, legal access constraints, low timber volumes and poor timber quality jeopardize the economical management of this property. There is an increasing risk that such restrictions may lower the stumpage values below acceptable margins.
- E. Complete canopy removal will be recommended where a minimum of 300 stems per acre of acceptable advanced regeneration at least four feet in height are present. This stocking will be determined during the pre-sale inventory cruise. Stands that contain less than 300 desirable stems per acre of sufficient height may be treated with the appropriate partial canopy removal treatment with retained residual basal area or with a full canopy removal covering areas of less than 10 contiguous acres.
- F. In the case of a full canopy removal, the typical presence of mature mixed oak, soft maple, hard maple, and yellow poplar within the harvest area, around the perimeter of the stand, and within the retention corridors, will promote the regeneration potential of the various species following harvest. Natural seeding

and coppice from existing sources within the cutting unit will add significantly to the post harvest regeneration count and species mix. The irregular layout of clearcuts along with the inclusion of the retention corridors will encourage the intermediate shade-tolerant species while further promoting the seeding process. Therefore, perceived limitations derived from advanced regeneration stem counts will likely be more than made up for by natural seeding from existing seed sources and from root and stump sprouting following harvest.

### 3. Description of desired harvest equipment

- A. **Conventional** methods including manual felling, rubber-tire skidding, and decking and loading with knuckle boom loaders.
- B. **Modified Conventional** methods include **shovel logging** that involves the use of a modified excavator to “bunch” and position the felled timber for easier accessibility for the grapple skidder. A **feller-buncher** is a mechanical harvesting machine that both fells trees and gathers them into groupings for more efficient handling of the material.
- C. **Non-conventional** systems such as **cable logging** are used in areas considered inoperable for conventional systems. A suspended aerial cable system is strung from the top of a hillside to the bottom and felled logs are pulled uphill along the cable. The log is suspended partially or completely off the ground to minimize soil disturbance. The need for constructed skid trails is greatly reduced.

## IV Climatic and Biological Risks

- i) Currently, the risk of insects and disease are minimal; therefore, no measures have been taken in preventing disease or insects on the tracts.
- ii) There are several invasive plants that threaten the health and productivity: ailanthus, kudzu, multi-flora rose, Japanese knotweed, and Japanese stilt grass and autumn olive.
  - If it is determined to be necessary to apply herbicide, a written prescription will be prepared prior to any chemical use, including application objectives, rate and method, risks and benefits of the chemical used and alternatives considered.
  - Areas of highest threat from these invasive species are on timber harvest areas or surface mine operations and along open public road corridors.

## V HBU and Leases

- i) The highest and best use of the Highlands property is timberland management.
- ii) About 75,000 acres are leased for hunting.
- iii) Highlands has the first and only Public Access Lands for Sportsmen (PALS) public hunting area on private land in the Commonwealth of Virginia. This area of approximately 19,500 acres is overseen under a leasing agreement with the Virginia Department of Game and Inland Fisheries.
- iv) Approximately 4,500 acres of reclaimed mine sites are leased for pasturelands.

## VI Agreements and Contracts

- i) Managed by The Forest Management Company, LLC in Abingdon, Virginia.
- ii) No formal timber supply agreements exist on the property.

## **VII Energy**

- i) TFG did not acquire the oil and gas rights with the Highlands property. Pine Mountain Oil and Gas, Inc. of Abingdon, Virginia owns the gas and oil rights.
  - Each well application is reviewed by the Regional Director and field reviewed by the Property Manager for operations concerns related to timber availability, access and pipeline location.
- ii) TFG did not acquire the coal rights with the Highlands property. Natural Resource Partners, L.P., of Houston, Texas owns the coal rights.
  - The operator, Alpha Natural Resources, Inc. of Abingdon, Virginia, is responsible for giving TFG nine months of notice of surface operation.
  - Surface mine reclamation now utilizes the 'Forest Reclamation Approach' that requires fertile topsoil to be segregated during the excavation process. These soils are later loosely re-applied into the approximate original contour configuration, stabilized with non-competing native ground cover and planted with native hardwood species that will more quickly reproduce a new forest that is similar to the natural forest that was removed during the mining operation. Former reclamation methods produced a hardened, compacted soil surface that impeded tree establishment and growth.
- iii) Waste coal, "gob," is present on many sites across the Highlands property. Due to the current coal market, "gob" sites may contain significant commercial quantities of recoverable product. However, these sites have also been marked as an environmental concern and TFG has entered into a contractual agreement to recover the waste and to reclaim the sites.
- iv) Highlands is located near existing wind energy projects. Having significant acreage of open, reclaimed mine sites at relatively high elevations may be appealing for future wind energy proponents; however, at this time, no interest has been focused on the property.