Indiana Department of Natural Resources
Division of Forestry
DRAFT

RESOURCE MANAGEMENT GUIDE

State Forest: **Yellowwood** Compartment: **11** Tract: **05**
Tract Acreage: **44** Commercial Forest Acreage: **43**
Forester: **Amanda Smith (for Laurie Burgess)** Date: **9/9/2013**

Location

Y1105 is located in Sections 1 and 2 of Township 8N, Range 2E of Brown County. It is located roughly 2.5 miles north of Nashville and 5.7 miles northeast of Yellowwood Lake. Y1105 can be accessed by parking off of Grandma Barnes Road.

General Description

Y1105 consists of a total of 44 forested acres of which 21.5 acres are Oak-Hickory forest, 14.5 acres are of Mixed Hardwood forest, 7.0 acres are of old field forest in Yellowwood State Forest and a 1.0 acre strip is covered by Grandma Barnes Road. 43 acres are considered commercial forest acreage. Y1105's timber resource ranges from small to large sawtimber in size. The overall timber quality of this tract is average. A summary of the forest resources in Y1105 in relation to species dominance is noted below in Table 1.

Table 1. Overview of Forest Resources in Y1105 in August, 2013

Overstory Sawtimber Layer	Understory Poletimber Layer	Regeneration Layer
Chestnut Oak	American Beech	American Beech
Black Oak	Red Maple	Red Maple
Yellow Poplar	Sugar Maple	Blackgum
Scarlet Oak	Chestnut Oak	Sugar Maple
White Oak	Black Walnut	Bluebeech
Largetooth Aspen	Red Elm	Eastern Hemlock
Blackgum	American Elm	White Ash
Northern Red Oak	Yellow Poplar	Black Cherry
Red Maple	Black Locust	Dogwood
Pignut Hickory	Black Cherry	Sassafras
Bitternut Hickory	Northern Red Oak	American Elm
Black Cherry	Blackgum	Chestnut Oak
White Ash	White Ash	Shagbark Hickory
Black Walnut	Shagbark Hickory	Ironwood
Sugar Maple	Pignut Hickory	Bitternut Hickory
American Elm	Scarlet Oak	Black Oak
Black Locust	Sassafras	Black Walnut
American Sycamore	Basswood	Pignut Hickory
Shagbark Hickory	Eastern White Pine	Black Locust
Red Elm		Scarlet Oak
American Beech		White Oak
Basswood		*Red Elm

* Species not captured in Prism Plots but present within the tract.

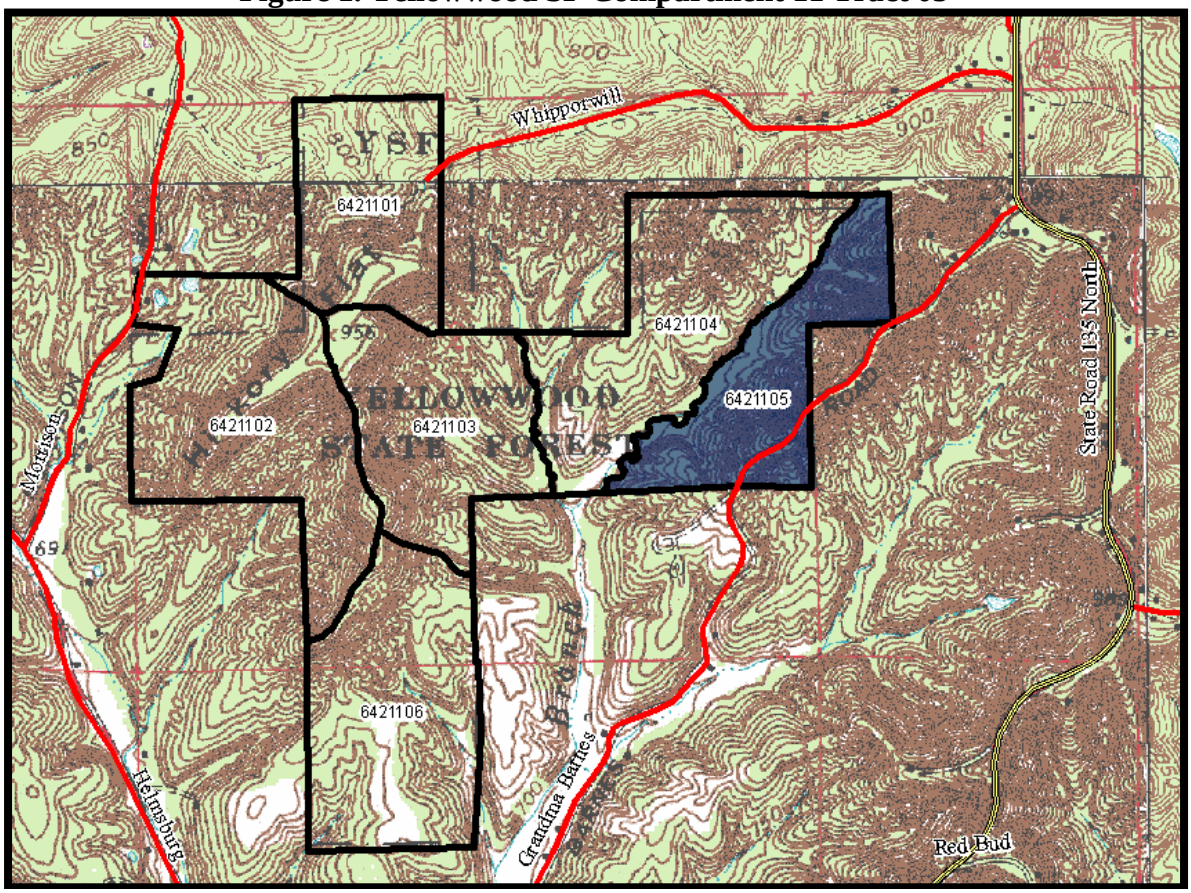
History

The land area that includes Y1105 was deeded to the State of Indiana in 1956 by the United States Department of Agriculture. Historical aerial photography suggests that prior to government acquisition the valleys and ridgetops were farmed and the sideslopes likely to have been grazed. Forester Akard conducted an inventory of Y1105 in November, 1973 (710 bf/a harvest and 232 bf/a leave). The most current tract resource inventory was completed on August 8, 2013 by Intermittent Forester Amanda Smith.

Landscape Context

The ridgetops of this tract are mostly comprised of an old field species mix and quality while the sideslopes are composed of mixed hardwood and oak-hickory species known to occur in the Brown County Hills Natural Region. The tract is bordered to the northwest by the dominantly closed forest canopy of Yellowwood State Forest. Private, forested property with dispersed residential buildings borders Y1105 on the north, east, and south. Grandma Barnes Road runs along the ridgetop and cuts across the southeast corner of the tract.

Figure 1. Yellowwood SF Compartment 11 Tract 05



Topography, Geology and Hydrology
Tract 05 consists of predominantly north and west facing slopes that drain into a mapped intermittent stream that runs the length of the northwest boundary of the tract. The mapped intermittent stream eventually drains into Salt Creek and eventually into Lake Monroe. In general, these upland soils were formed in residuum from sandstone, siltstone, and shale. The tract's topography ranges from 0 - 45% slopes with general north, west, and south aspects.

Soils
BgF- Berks-Trevlac-Wellston complex, 20 to 70 percent slopes
These moderately steep to very steep well drained soils are on hillsides in the uplands. They are fairly well suited to trees. Erosion hazards and equipment limitations are main management concerns due to slope. Consideration should be given during sale planning and implementation of Best Management Practices for Water Quality. This complex has a site index of about 70 for northern red oak. This soil type covers roughly 95.4% of Y1105 or 42 acres.

Ud- Udorthents, loamy
These nearly level to moderately sloping, deep to shallow, well drained to somewhat poorly drained soils are in disturbed areas on uplands, terraces, and flood plains. Most areas have been cut, built up, or leveled. Onsite evaluation is needed to determine suitability for woodlands. This soil has not been evaluated for site index. This soil type covers roughly 0.3 acres of Y1105.

WaD- Wellston-Berks-Trevlac complex, 6 to 20 percent slopes
These moderately sloping to moderately steep, well drained soils are on side slopes and narrow ridgetops in the uplands. They are well suited to trees. Seedling mortality can be an issue on south facing Berks soils due to droughty conditions. This complex has a site index of about 70 for northern red oak. This soil type covers roughly 1.7 acres of Y1105.

Access
Y1105 can be accessed off of Grandma Barnes Road. A proposed DHPA roadwork project will need to be reviewed by the Division of Forestry Archaeologist prior to completing any timber sale roadwork improvements or log yard construction.

Boundary
The tract is bordered to the west by the dominantly closed forest canopy of Yellowwood State Forest (YSF). Private, forested property with dispersed residential buildings borders Y1105 on the north, south, and east. The tract's private ownership boundaries have been marked and repainted by orange paint along the line for many years and are currently up to date, however, they should be repainted prior to the start of any potential timber harvest activities to make them more noticeable.

Wildlife
A Natural Heritage Database Review was completed in 2013 if Rare, Threatened or Endangered species (RTE's) were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

The current inventory was conducted during the late summer of 2013 so most summer breeding bird residents were present. Other species or sign observed within the tract indicates use by Eastern Box Turtle, White-tailed Deer, Grey Squirrel, Eastern Chipmunk, Raccoon, Opossum, Coyote and other small mammals. Multiple deer trails were also noted throughout the tract. The tract has an abundant supply of food resources such as soft and hard mast. The mapped intermittent stream that runs along the northwest boundary of the Tract provides an ephemeral water source for wildlife during periods of the year.

The Division of Forestry has instituted special procedures for conducting forest resource inventories so that the documentation and analysis of live tree and snag tree densities are examined on a compartment level basis in order to maintain long-term and quality forest habitats. Current snag tree densities meet target maintenance levels for all diameter classes. Crown release performed during timber harvests will stimulate the growth of the residual trees and will enhance the vigor of those trees. Timber Stand Improvement (TSI) following the harvest is planned which will increase standing snag counts. Management practices conducted on Y1105 will be conducted in a manner that will enhance wildlife habitat diversity and maintain the long-term forest habitats for wildlife populations.

Communities
Y1603 is composed of mesic upland hardwoods dominated by mixed oaks and mixed hardwoods. The dominant overstory timber species include chestnut oak, black oak, yellow-poplar, scarlet oak, white oak, and largetooth aspen. The understory contains some oak but consists mainly of American beech, red maple, sugar maple, and black walnut. The ground cover of Y1105 consists of mainly mesic to dry mesic species.

Exotic Species
Autumn olive, oriental bittersweet, periwinkle, Japanese stiltgrass, Japanese honeysuckle, and multiflora rose were observed during the inventory. Control measures may be warranted if populations are located in planned regeneration openings. Eradication of Japanese stiltgrass is unlikely; however, treatment to accessible areas prior to harvest operations is should be considered to reduce viable seed in conjunction with reseeding of disturbed areas.

Recreation
Activities on this tract include hiking, bird watching, wildlife viewing, hunting, and mushrooming. A posting for restricted access, during future management activities, is planned for safety reasons.

Cultural
Cultural resources may be present on this tract but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

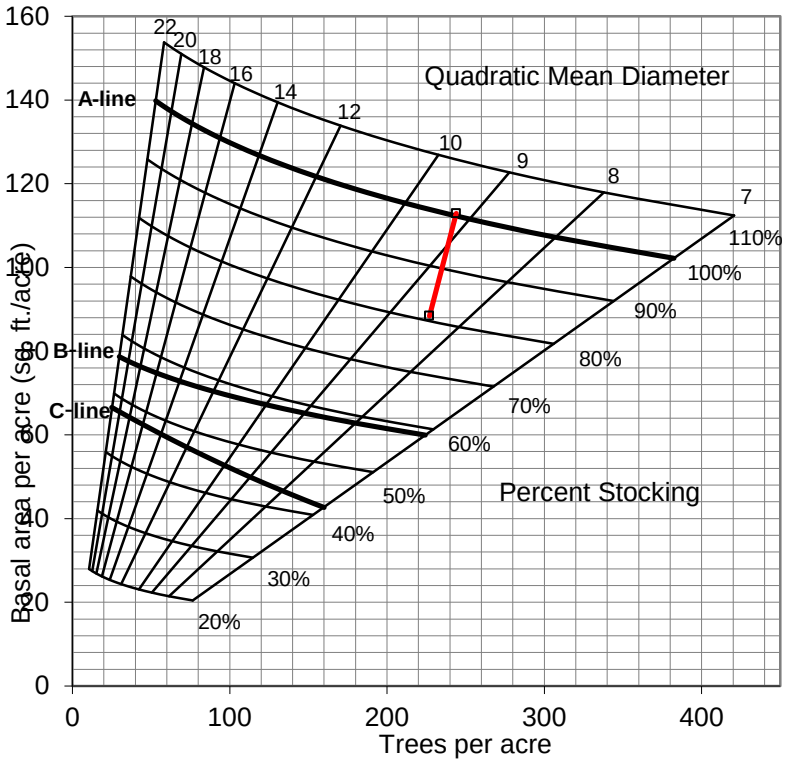
Tract Subdivision Description and Silvicultural Prescription

The overall stand structure for this tract is represented in the following Gingrich Stand and stock table that follows the individual stand summary.

Tract Summary Data

Total Trees/Ac. = **244 Trees/Ac.** Overall % Stocking = **100%** (Fully Stocked)
BA/A = **112.9 Sq. Ft./Ac.** Sawtimber & Quality Trees/Ac. = **50 Trees/Ac.**
Present Volume = **7,291 Bd. Ft./Ac.**

Table 3. Gingrich Stand and Stock Table for Y1105



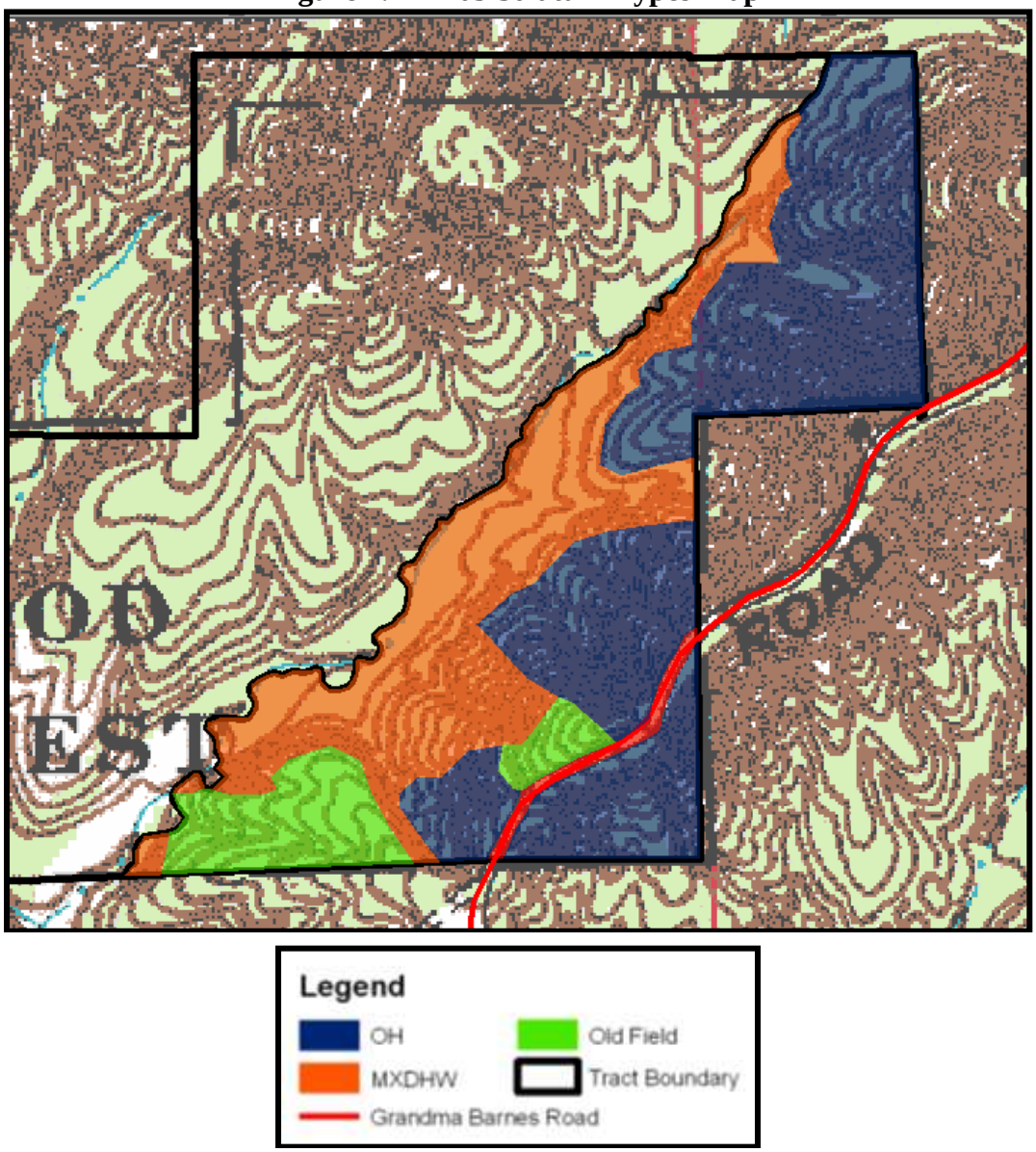
Summary Tract Silvicultural Prescription and Proposed Activities

The current forest resource inventory was completed on August 8, 2013 by Intermittent Forester Amanda Smith. 25 prism points were sampled over 44 acres (1 point for every 1.76 acres). A tract summary of the forest resource inventory is given above and a species breakdown of the summary is given in Table 3 below. This tract is fully stocked and a managed timber harvest over the entire area is prescribed. The tract's forest resource is composed of 3 different stratums based on the 2 major timber types and size classes mentioned below.

The Indiana guidelines for Best Management Practices (BMP's) will be followed during timber harvest closeout activities to maintain the area's water quality. Portions, or all, of the tract will be submitted for post-harvest TSI and/or invasives work if deemed appropriate by

the administering forester. A field review for successful regeneration of regeneration openings is planned 3-4 years after opening TSI completion.

Figure 2. Y1105 Stratum Types Map



Oak-Hickory Stratum

The oak-hickory timber type provides very significant value, both for wildlife and timber resources. The promotion of these strata is important in the Division's long term objectives. The oak-hickory type covers roughly 48.9% of the tract, or about 21.5 acres. The overstory is dominated by chestnut oak, black oak, scarlet oak, white oak, and blackgum with an average basal area of 123.7 square feet per acre. The understory layer consists of mainly sugar maple, chestnut oak, American beech, red maple, and black locust. The regeneration layer consists of mainly American beech, red maple, sugar maple, blackgum, and sassafras. Areas dominated by chestnut oak tend to be more overstocked with a higher basal area. Some areas of oak-hickory showed signs of fire damage from historical wildfires.

Single tree and group selection cutting are prescribed to remove lower quality stems and mature to overmature trees to release a growing stock of high quality, more vigorous stems. Likewise, careful selection by free thinning of co-dominant stems will help to improve overall tree spacing. Lower quality trees that include low-forking, leaning, overtopped/suppressed intermediates, epicormic sprouting, and deformed trees are planned to be marked for removal in an improvement cutting. Group selection may be implemented in areas of low quality stems, disease/damaged stems, low basal area, or mature trees to help promote Oak-Hickory and mixed hardwood forest regeneration and sustainability.

Mixed Hardwoods Stratum

The Mixed Hardwoods timber type can be very variable in their composition and thereby have more complicated prescriptions. The mixed hardwoods type covers roughly 33.0% of the tract or about 14.5 acres. The overstory is dominated by yellow-poplar, largetooth aspen, scarlet oak, black oak, white oak, and black walnut with an average basal area of 90.3 square feet per acre. The understory layer consists of mainly sugar maple, red maple, red elm, black walnut, and black locust. The regeneration layer consists of mainly American beech, bluebeech, blackgum, sugar maple, white ash, red maple, and black cherry.

A fair amount the tract's yellow-poplar appeared to be in modest decline as a result of the past three years of drought and the tuliptree scale insect infestation that occurred in the late spring of 2012. Affected yellow-poplar will need careful review when the tract is marked as mortality is expected.

Sugar maple borer damage was noted in understory sugar maple throughout both the mixed hardwoods and oak-hickory stratum. In time this pest girdles the bole of the tree that results in the stem breaking apart during moderate and severe windstorms. The removal of affected trees would be classified as a combination improvement and sanitation cutting.

Singletree selection cuttings are prescribed to remove lower quality stems and mature to overmature trees which will help to improve tree spacing. An improvement cutting is prescribed to release quality oaks, hickories, and walnuts from crown competition of other species. Overall, marking objectives within this component should consider oak, hickory, walnut, and other species of significant wildlife and timber value as the preferred residual trees for release. Improvement harvesting in this area will also be applied to remove low-forking, leaning, overtopped/suppressed intermediates, epicormic sprouting, and deformed trees. The long term result of these prescribed harvests will increase timber and wildlife habitat diversity. Group selection may be prescribed in areas of low quality, disease/damaged stems, low basal area, or maturity to help maintain long-term forest regeneration and sustainability. Planned regeneration openings will most likely return to mixed hardwoods with a strong component of yellow-poplar.

Old Field Successional Stratum

This timber type covers roughly 15.9% or about 7.0 acres of Y1105 with an average basal area of 128.3 square feet per acre. The overstory is dominated by black oak, black cherry, red maple, yellow-poplar, and sugar maple. The understory layer consists of mainly red maple,

black locust, white ash, yellow-poplar, American elm, and pignut hickory. The regeneration layer consists of mainly red maple, American beech, sugar maple, ironwood, bluebeech, and scarlet oak.

The timber quality of this stratum tends to be low; however, their long term management can be very important. These stratums are derived from abandoned croplands or pastured fields wherein some modest oak regeneration is present. Single tree and group selection harvesting is prescribed to remove poor form, lower quality, and mature to overmature trees to release higher quality, more vigorous stems. Group selection may be prescribed in areas of low quality, disease/damaged stems, low basal area, or maturity to help maintain long-term forest regeneration and sustainability. The creation of group selection openings will utilize this declining timber and increase the tracts horizontal heterogeneity by creating early successional habitat. Planned regeneration openings will most likely return to mixed hardwoods with a strong component of yellow-poplar, however, a presence of Oak on the drier aspects is expected. Overall, marking objectives within this component should consider oak and other species of significant wildlife value as the best trees for retention. Areas where better quality hardwood pole sized trees have emerged and entered the stratum canopy may be prescribed TSI for crop tree release and grapevine removal in the planned postharvest timber stand improvement project.

Given the recent inventory and growth of Y1105's forest resources, this tract is suitable for a 15 year management cycle wherein growth and development of the tract is reevaluated by a forest inventory every 15 years. A timber sale is proposed for this tract in CY2013-2014. This tract could be harvested in conjunction with tract 6421104.

Table 3. Overview of Sawtimber Volume Estimates in Y1105 in August of 2013

Species	Total
Chestnut Oak	97,840
Black Oak	60,650
Yellow Poplar	36,730
Scarlet Oak	23,910
White Oak	18,200
Largetooth Aspen	15,990
Blackgum	9,760
Northern Red Oak	9,280
Red Maple	8,720
Pignut Hickory	8,090
Bitternut Hickory	7,140
Black Cherry	7,000
White Ash	6,240
Black Walnut	4,460
Sugar Maple	3,880
American Elm	2,920
Black Locust	1,970
American Sycamore	1360
Shagbark Hickory	1,190
Red Elm	1,050

American Beech Basswood	720 520
Tract Totals (Bd. Ft.)	**320,810**
Per Acre Totals (Bd. Ft./Ac.)	**7,291**

Proposed Activities Listing

Proposed Management Activity	***Proposed Period***
DHPA timber sale project review	CY2013-2014
Roadwork Rehabilitation	CY2013-2014
Timber Marking & Invasive Evaluation	CY2016
Timber Sale	FY2016
Postharvest TSI & Invasives Follow-up	CY2016-2018
Regeneration Opening Review	CY2019-2021
Reinventory and Management Guide	CY2031

To submit a comment on this document, go to:

www.in.gov/dnr/forestry/8122.htm

You must indicate the State Forest Name, Compartment Number and Tract Number in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered. Note: Some graphics may distort due to compression.