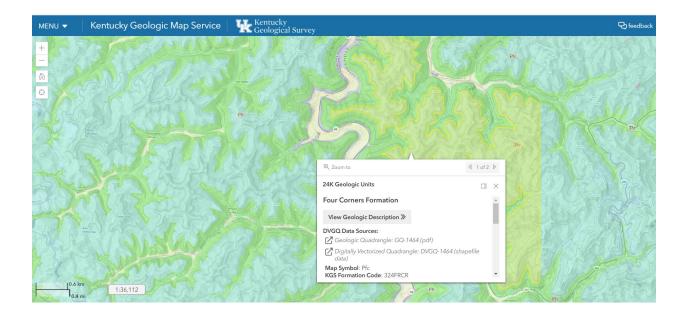
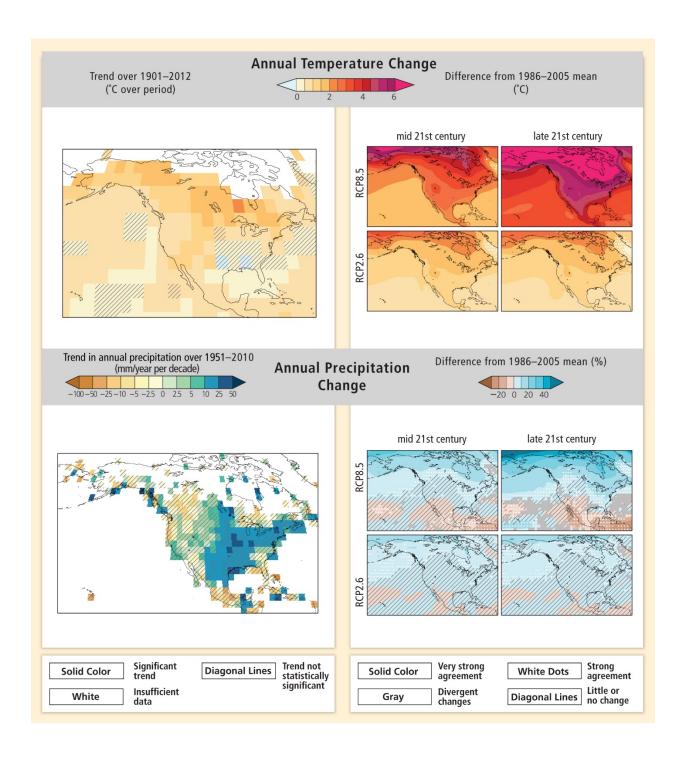
SYSTEM	SERIES	FORMATION, MEMBER, AND BED		LITHOLOGY	OF COAL BED, IN INCHES	THICKNESS, IN FEET	DESCRIPTION	
QUATERNARY		Alluvium Lost Creek				0-60	Sand, silt, gravel, and clay in channel and floodplain deposits along streams; unit grades to colluvium (not mapped) at valley sides. Contains pebbles and cobbles of sandstone, siltstone, and coal. Boulders of sandstone as much as several feet long are common along tributary streams. On Red Bird River near Sim Langdon school site, main alluvial deposit is 25 feet above normal water level; nearby remnants of older terraces 60 and 95 feet above stream level also are	
			Limestone of Morse (1931)			30+	preserved. Landslide deposits, not mapped but occurring in many small tributary hollows, are composed mostly of angular sandstone blocks a few to 100 feet long in a matrix of clay and silt.	
			Hindman *coal bed *		0?-15		Siltstone, shale, sandstone, limestone, and coal. About 20 feet above base is Lost Creek Limestone of Morse (1931), consisting of lenticular beds of dark-gray fossiliferous limestone overlain by black fossiliferous shale and dark-gray shale containing siderite nodules. Hindman coal bed is shaly. Unit forms tops of only three of the highest hills near south edge of quadrangle, and natural exposures are almost nonexistent.	
					0-10 0-18		Sandstone, siltstone, shale, coal, limestone, and underclay: Sandstone is light gray, medium to fine grained, thin to thick bedded, generally crossbedded; well sorted, composed of subangular grains of quartz and lesser amounts of feldspar and mica. Many sandstone beds contain fragments as much as 2 inches long of underlying coal or siltstone; locally contain impressions of logs and branches. Locally sandstone is as much as 100 feet thick, but no individual sandstone bed is continuous over much of quadrangle. Thicker sandstone beds generally cap highest hills and ridges. At places sandstone is thinly interbedded with and grades into siltstone and shale. Siltstone is dark gray and micaceous and weathers	
			Hazard No.8 coal zone *		0-6 0-22 0-12 0-14		to shades of light brown or brown; locally carbonaceous; at many places contains impressions of twigs, leaves, and roots. Shale is dark gray and weathers gray, mottled dark and light gray, brown and light grayish brown; commonly contains siderite concretions ½ to 2 inches long. Drill-hole data show two thin zones of fossiliferous marine shale and limestone; one occurs locally above Hazard No. 7 coal zone 240 feet above base of Magoffin Member, and the other above Hazard coal zone 170 to 180 feet above base of Magoffin. Coal beds are lenticular and tend to split; grade to carbonaceous shale and locally contain lenses of iron sulfide. Coal zones are more persistent than individual beds but are missing in parts of quadrangle. Hazard No. 8 zone known only	
			Hazard No.7 coal zone		0-69 0-24 0-10 0-32		Ashers Fork where it contains 12 separate coal beds over a stratigraphic interval of 90 feet; sparse information suggests that zone is less well developed in the few other areas of quadrangle where rocks of that stratigraphic horizon are preserved. Hazard No. 7 zone contains as many as five coal beds and may be as much as 30 feet thick, locally absent. The Hazard No. 7 coal bed mapped near east border between Old House Branch and Bowen Creek is about 70 feet higher above base of Magoffin Member than Hazard No. 7 coal beds shown elsewhere in quadrangle, but it correlates with a Hazard No. 7 bed mapped nearby in Hoskinston quadrangle (Taylor, 1978). Hazard zone contains as many as ten thin coal beds in an interval of as much as 60 feet; at places contains only one or two beds or is missing. In some sections Hazard zone merges with underlying Haddix zone, making separation of the two somewhat arbitrary. Haddix	
			* Hazard coal zone		0-10 0-35 0-12 0-30 0-22	290-360	zone appears to be most persistent and well-developed coal zone in quadrangle; contains one thin bed to as many as ten beds over a 50-foot interval. It has been more thoroughly explored west of Red Bird River than elsewhere. Where information from prospects or drill holes is detailed, it is apparent that individual Haddix beds are lenticular, as suggested by their discontinuities as mapped in western part of quadrangle. South of Ashers Fork drainage and in northeastern part of quadrangle, Haddix zone is poorly developed. In northeastern part, zone consists of several closely spaced but thin coal beds. Underclay is dark to light gray and light brownish gray, a few inches to 7 feet thick; commonly underlies coal beds. Basal contact of unit gradational below siltstone, sharp below channel-fill sandstone.	
	vanian		* Haddix coal zone *		0-30 0-12 0-26 0-37 0-10 0-57 0-7	00-140	Magoffin Member (Outerbridge, 1976) is equivalent to	
PENNSYLVANIAN	Middle Pennsyl	athitt Formation	Magoffin Member		0-14	20-70	Magoffin Beds of Morse (1931) as mapped in Beverly quadrangle (Weis and Rice, 1976). Member is siltstone, shale, sandstone, and limestone: Siltstone, dark-gray, weathers moderate yellowish brown. Shale is dark gray and weathers gray, mottled dark gray and light bluish gray, brown, yellowish brown, and grayish olive green; may weather light brown to dark yellowish orange where calcareous; contains siderite nodules ½ to 2 inches long that weather dark yellowish orange. Shale is concentrated near base of member and almost everywhere contains numerous small whole and broken marine invertebrate fossils at and a few feet above its base; less abundant fossils are locally found higher in member. Sandstone is generally silty and in thin beds. Gray fossiliferous limestone concretions, which weather yellowish gray	
	Lower and	B r e	Hamlin coal zone	*	0-24 0-15 0-36	140-190	and are as much as several feet long, occur locally in lower part of member. Magoffin very commonly forms a marked topographic break between steeper slopes formed by sandier intervals; in heads of hollows the Magoffin, together with blocks of sandstone from overlying beds, forms thick colluvial and landslide deposits. Field observations and drill-hole data show that the Magoffin in western part of south side of Creekville quadrangle is about 40 feet lower in elevation than that shown in the Beverly quadrangle (Weis and Rice, 1976). Siltstone, sandstone, shale, coal, underclay, and limestone. Rock types similar to those of unit	
			Fire Clay rider coal bed Fire Clay (Hazard No. 4) coal bed		0-8 0-8 0-70 0-8 0-36		overlying Magoffin, but sandstone bodies, as much as 50 feet thick, lack continuity, and proportion of sandstone in unit ranges from 20 to 80 percent. At places a thin zone of shale and, locally, of limestone, both bearing marine fossils, lies 100 to 130 feet below Magoffin and is exposed in walls of Shamrock mine near southeast corner of quadrangle. A similar zone lies in approximate middle of unit, 80 feet below Magoffin, on ridge east of lvy Hollow 1½ miles west of Creekville. Copland seam consists of one coal bed at most places, locally splits to two or three thin coal beds in interval of as much as 4 feet. Hamlin zone, 5 to 40 feet thick, contains as many as four coal beds; beds are lenticular and zone is absent at places. Interval that includes Fire Clay rider and Fire Clay coal beds is 20 to 50 feet thick, contains one to seven coal beds.	
			Whitesburg coal zone		0-16		Fire Clay rider is well developed in southeastern part of quadrangle. Fire Clay bed is a regionally significant marker bed, commonly contains flint-clay parting as much as 6 inches thick; flint clay locally occurs without the coal. Flint clay is a distinctive dense clay with conchoidal fracture, generally dark gray or brownish gray to black on fresh surfaces, weathering light bluish gray. Sandstone, siltstone, shale, coal, and underclay. Rock types similar to those of unit overlying Magoffin.	
					0-38	140–210	Sandstone content ranges from 10 to 70 percent. Sandstone bodies commonly 20 to 40 feet thick, as much as 70 feet thick; form cliffs and ledges along lower valley sides of Red Bird River, although few sandstone beds are present in some sections. A zone as much as 15 feet thick of dark-gray shale containing Lingula is persistent near top of unit in northwestern part of quadrangle, found as far southeast as mouth of Spring Creek and also in a drill hole in northeastern part of quadrangle. Kendrick Shale of Jillson (1919) is 0 to 60 feet thick; at places basal few feet contains sparse small marine invertebrate fossils; shale containing fossils may occur as much as 20 feet above lower coal bed in Amburgy zone; Kendrick generally grades upward to siltstone or sandstone, locally is cut out by sandstone-filled channels. In individual	
			Kendrick Shale of Jillson (1919)	e *	0-7	10-20	sections Whitesburg coal zone is typically 5 to 30 feet thick, contains as many as five thin coal beds that lense out in short distances; position of zone varies as much as 70 feet relative to Fire Clay and Amburgy coal beds; zone is absent locally. Lower coal bed of Amburgy zone generally persistent but only a few inches thick at many places. Amburgy zone well exposed in roadcuts near mouth of Upper Jacks Creek and along Red Bird River near Queendale.	
						100-135	Siltstone, sandstone, shale, and coal. Unit has larger proportion of siltstone and sandy siltstone and fewer thick sandstone beds than overlying units. Sandstone content about 20 percent. Unit contains two zones of light-brown-weathering limestone concretions, one 40 to 60 feet below top and another near base;	
			Upper Elkhorn No. coal bed	3 *	0-17	25-35	concretions are 1 to 2 feet thick and as much as 8 feet long. Unnamed coal bed is discontinuous and generally less than 10 inches thick but is prominent in roadcuts along the Red Bird River road from Creekville north. Upper Elkhorn No. 3 coal bed is generally a foot or two thick. Underlying part of unit is mostly covered by alluvium and colluvium.	

SYSTEM	SERIES		FORMATION AND BED	LITHOLOGY	THICKNESS OF COAL BED, IN INCHES	THICKNESS.	IN FEET	DESCRIPTION		
QUAIER- NARY			Alluvium			0	-25	Sand, silt, gravel, and clay, light-brown to brown, poorly sorted; local concentrations of gravel, composed of angular to subangular fragments of sandstone, and sand. Deposits are thin, discontinuous, commonly grade laterally into colluvium (not mapped).		
			Knob(?) * coal bed		0-30	120+	300+	Sandstone, siltstone, shale, limestone, and coal: Sandstone, light- to medium-gray and yellowish- gray, fine- to medium-grained; grains mostly quartz, commonly 10 to 15 percent feldspar, 10 to 15 percent other minerals; massive, less com- monly thin bedded, crossbedded, thin wisps of biotite common along crossbedding. Massive- bedded channel-fill sandstone as much as 45 feet thick overlies the Hindman coal zone along central part of east border of quadrangle. At places, especially in uppermost 75 to 100 feet of unit, thin-bedded sandstone and siltstone are commonly interlayered. Siltstone, olive-gray, yellowish-gray, light-brown, locally streaked dark gray by carbonaceous material; weathers to shades of light brown or brown; thin bedded. Commonly interlayered with thin-bedded sand- stone, less commonly with shale. Local mica concentrations on bedding planes. Shale, olive- to dark-gray, weathers dark brown; thin bedded; locally carbonaceous. Lost Creek Limestone of		
			Lost Creek Limestone of Morse (1931)		0-44	160-180		Morse (1931) is dark-gray argillaceous limestone as much as 8 feet thick containing abundant fragments of brachiopods, pelecypods, crinoid stems, and other unidentified shell fragments; weathers to red clay containing scattered residual limestone boulders; occurs 15 to 25 feet above top of Hindman coal zone; identified only in southeastern and south-central parts of quadrangle, and best exposed in highwall of strip bench half a mile northeast of Saylor School. Knob(?) coal bed may be present on highest ridges near south end of east border; occurs locally in northwestern part of quadrangle. Hindman coal zone consists of two beds: at head of McRoe Hollow west of Red Bird Creek, the upper bed is 24 inches thick and lies 12 to 20 feet above the lower bed. In parts of southeastern quarter of quadrangle, the upper bed appears to split into two beds, each no more than 5 inches thick.		
			(Hazard No. 9) * coal zone		0-14	140-200		Sandstone, siltstone, shale, coal, and underclay:		
			Hazard No. 8 * coal zone		0-50			Sandstone, gray, light-gray, grayish-yellow, locally pink, weathers to shades of light brown or brown; very fine to fine, in part medium grained, commonly poorly sorted; locally contains discontinuous carbonaceous streaks; sparsely pyritic; at places ribbed on weathered surfaces where differentially cemented by iron oxide; massive to thin bedded, unevenly bedded, or crossbedded; crossbedding commonly delineated by dark wisps of biotite. Along Red Bird Creek and its tributaries and along upper Goose Creek, sandstone is massive, cliff forming, locally 30 to 50 feet thick, generally lenticular, discontinuous. Massive sandstone commonly fills channels. Siltstone, medium-gray, olive-gray, dark-gray, grayish-brown, weathers to shades of light to medium brown and olive brown; locally micaceous and carbonaceous; thin bedded, commonly interbedded with and grades into shale or thin-bedded		
PENNSYLVANIAN	Lower and Middle Pennsylvanian	Breathitt Formation	Hazard * Coal bed *		0-24+ 0-6 0-30 0-12 0-40 0-3	360-420	230-600	sandstone. Shale, olive- to dark-gray, locally mottled; weathers to shades of brown to olive. Magoffin Beds of Morse (1931) consists of 30 to 60 feet of shale and siltstone; shale dominant in lower half, is dark gray, locally calcareous and carbonaceous, at places contains calcareous concretions and thin beds of limestone; lowermost 2 to 20 inches commonly contains sparse to abundant brachiopods, locally fragments of other marine fossils; good exposures in roadcut along Blue Hole Creek and along strip-mine access roads in McRoe Hollow and Spruce Branch; elsewhere poorly exposed. Hazard No. 8 coal zone consists locally of two coal beds 2 to 20 feet apart. Hazard coal bed is thickest in southwestern and southern parts of the quadrangle. Field data in the York Branch drainage indicate that it is about 60 feet lower than shown in the adjoining part of Balkan quadrangle (Froelich and Tazelaar, 1973). The Haddix coal bed, about 130 feet above base of the Magoffin, is best exposed near head of Spruce Branch; subsurface data indicate that the Haddix extends eastward to parts of Phillips Fork drainage; the seam is reported by local residents to be as much as 72 inches thick locally in these areas but probably contains many partings of impure coal and shale. Coal beds in this unit are probably thin or absent in northern part of quadrangle. Underclay, silty, gray; plastic when wet; in discontinuous layers and lenses less than 1 inch to as much as 4 feet thick; grades downward to siltstone. Upper half of unit is dominantly sandstone in northwestern part of mapped area, becomes progressively more silty and shaly to southeast and south. Lower half of unit is more than half shale and siltstone, almost entirely shale in southwestern part of quadrangle.		
						Magoffin Beds of Morse (1931) Copland coal bed * Hamlin coal zone		0-18 0-12 0-3 0-3 0-3 0-30 0-42	160-	-240
			Fire Clay rider * coal bed † Fire Clay (Hazard No. 4) { coal zone		0-14 0-24 0-42 0-50 0-84 0-24			Blue Hole Creek. The lower bed is 42 inches thick on upper Indian Grave Branch. An interval of 15 to 55 feet, 160 to 210 feet below base of the Magoffin, locally contains as many as seven coal beds. Interval includes both Fire Clay coal zone, the base of which is mapped, and Fire Clay rider coal bed, which is locally mapped in northeastern, central, and southwestern parts of quaddrangle. Underclay, gray, silty, discontinuous, locally as much as 3 feet thick. Unit is thickest in northeastern and southwestern parts of quadrangle, generally 160 to 170 feet thick elsewhere.		
			* Whitesburg coal zone		0-48	245	5+	Shale, sandstone, siltstone, and coal: Shale, medium-gray, olive-gray, dark-olive-gray, weathers dark olive brown; commonly carbonaceous; thin bedded. Makes up more than 50 percent of unit exposed near northeast corner of quadrangle, less than 25 percent in southwestern part. Sandstone, medium- to light-gray, weathers brownish gray; fine grained, impure; massive bedded, irregularly bedded, crossbedded, or thin bedded; sandstone bed 10 to 35 feet thick occurs 100 to 150 feet below Fire Clay coal zone. Siltstone, olive-gray, light-brown, weathers to shades of grayish brown; thin bedded, commonly interlayered with thin-bedded sandstone; locally grades to sandstone or shale. A coal bed in the Whitesburg coal zone occurs below 15-foot-thick sandstone bed on lower Indian Grave Branch and upper Goose Creek 240 to 260 feet below base of the Magoffin; coal bed is locally as much as 48 inches thick; the Fire Clay coal zone and Fire Clay rider coal bed were not recognized in this area.		
								this area.		

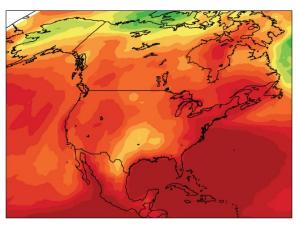
Kentucky Geological Survey Kentucky Geologic Map Service, located at https://kgs.uky.edu/kygeode/geomap/ and accessed October 1, 2020

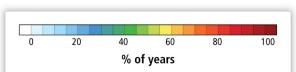


Romero-Lankao, P., J.B. Smith, D.J. Davidson, N.S. Diffenbaugh, P.L. Kinney, P. Kirshen, P. Kovacs, and L. Villers Ruiz, 2014: North America. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R., C.B. Field, D.J. Dokken, M.D. Mastrandrea, K.J. Mach, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1439-1498, Figures 26-3 and 26-4.

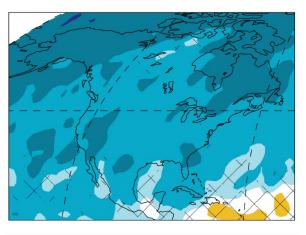


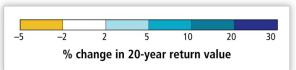
(a) Summer Extreme Hot RCP8.5 2046–2065



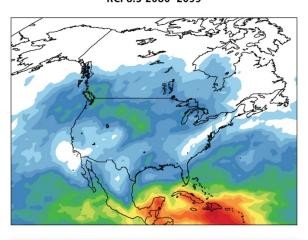


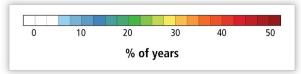
(b) Extreme Precipitation RCP4.5 2046–2065



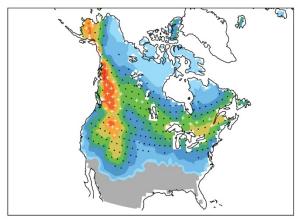


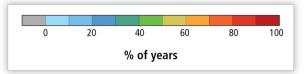
(c) Summer Extreme Dry RCP8.5 2080–2099





(d) March Extreme Low Snow RCP8.5 2070–2099





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p. 46 - times not frasible

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KENTUCKY HEARTW

Protecting the Beauty and Wellbeing of Kentucky's Native Forests

IT; went to field; found shop a verified

Robert Claybrook Redbird District Ranger 91 Peabody Road

Dits there

Big Creek, KY 40914

appears to the out fill from the road

December 6, 2019

5 assuring variance, we did forther BMP's

RE: South Redbird Wildlife Habitat Enhancement Project

Dear Ranger Claybrook, (1) Can't prove it but were likely arm raw Thank you for the opportunity to submit comments on the South Redbird Wildlife Habitat Enhancement Project (hereafter "South Redbird project"). These comments are being submitted on behalf of Kentucky Heartwood, the Center for Biological Diversity, and the Kentucky Resources Council. Commenters are deeply concerned about the environmental impacts posed by this project. Our concerns are grouped in four main sections. Section 1 details our concerns relating to soil and water resources, including impacts to aquatic habitats and federally-listed aquatic species and critical habitat. Section 2 details our concerns related to interior forest, old-growth, and other silvicultural issues. Section 3 addresses invasive species. and Section 4 addresses oak regeneration, early seral habitat, and the range of alternatives.

Section 1: Soil and Water Resources

I. Logging Activities Can Cause Significant Erosion and Sedimentation

Logging can have significant adverse impacts on the aquatic environment. Logging activities can a water chemistry, flow, temperature, and nutrient and sediment transport, and can interfere with no watershed functioning. Logging has multiple direct and indirect negative effects on aquatic biot across taxa. Erosion from poor forestry practices degrades water quality.²

Ground-based timber harvesting and road building can significantly increase erosion and sedimentation.3 Road systems can contribute to rill and gully erosion, at the outlet of cross-r

² Williams, J. D., M. L. Warren, K.S. Cummings, J.L. Harris, and R.J. Neves, 1993, Conservation status of the mussels of the United States and Canada. Fisheries 18(9):6-22.

Environmental Review. 14: 59-87. Mes, Sew. 14: 20-84. Mes, West, Dearly Pergy alverspore, once done, sunt out to turn

¹ Folkerts, G.W. 1997. State and fate of the world's aquatic fauna. P. 1-16 In: Benz, G.W. and D.E. Collins (ec Aquatic Fauna in Peril: The Southeastern Perspective. Southeast Aquatic Research Institute Special Publication Design and Communications, Decatur, GA. 553 pp.

Megahan, W.F. and King, J.G. 2004. Erosion, sedimentation and cumulative effects in the northern Rocky Mc. Ice, G.G., Stednick, J.D. eds. A century of forest and wildland watershed lessons. Bethesda, MD: Society of An Foresters: 202-222. Chapter 9; Croke, J.C. and Hairsine, P.B. 2006. Sediment delivery in managed forests: a re-

Slump W280' Eslope length 2100' est nor meas A combination of the above methods could meet the primary habitat objectives of the South Redbird project. A combination of the three management approaches above would support substantial creation and maintenance of ESH while supporting oak recruitment across the landscape. The primary obstacle to non-commercial management is of course paying for it. As the Forest Service has noted, habitat improvement work, including road and trail work, is typically paid for with timber receipts. Fortunately, the Forest Service has active partnerships with the RMEF and NWTF. According to public records, · 3 These two organizations together have around \$110,000,000 in assets. They could certainly put resources stoward implementing habitat management on the DBNF to benefit of their respective constituencies. Local partners like the Ruffed Grouse Society and Kentucky Division of Fish and Wildlife Resources \$could also help. If the Forest Service is willing to take a serious look at achieving the goals in this project through non-commercial methods with fewer environmental impacts, then we're willing to do what we can to help leverage support and funding to see this work happen. The Forest Service needs to take a second look at this project with fresh eyes. There are too many biases and predetermined courses of action baked into to the proposal for a reasonable and informed decision to be made. Viable alternatives to the proposed action that can meet the purpose and need of the project exist, and need to be explored in detail in a revised EA. 37011.26" ★Thank you for considering these comments. and daly 13- 3 83 34.45" Sincerely, 50% slope here 40% then Sim Schet there is a lands lide wes 60 60 of the skid hail that has Jim Scheff, Director depositul # sulment # 1/m Kentucky Heartwood P.O. Box 1482 Berea, KY 40403 KDE BANG, 2 on slopes 716th x was an existing round bed prior to sale this will in from dicision make in followed amp3 2 extreme rain crents We admonstragged this failure (9) This is informing us on SRB - 1095 & Slope Than here in sky slopes 2006 FS has developed better planning 1086 strep than here 1006

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1/13/20 CV x CC

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Response to Soil and Water Comments By Heartwood regarding the South Red Bird Project Claudia Cotton, Ph.D. Forest Soil Scientist **Daniel Boone National Forest**

fin mujor coals

Granny's Branch (Unit 18 of the Granny's Branch Sale within the Group One Project) Field visit on 1/9/20 with JW, Gavin, Wes, David T., and Kevin

1. Landslide and BMP's:

- a. Confirmed there is a slide and sediment off of the slide next to the creek; minimal sediment in the intermittent stream; sediment is equal to that found in an adjacent undisturbed intermittent stream in neighbor watershed.
- b. Origin of landslide appears to be a combination of extreme participation events and skid road placement on a water-perching coal seam. .
- c. Landslide width = 80' slope length = 100' vevised w/ bown x Was
- d. 61% slope at landslide
- e. We acknowledge this failure
- f. Appears to be the outfill of the skid road
- g. We did follow BMP's, distance between road and stream was appropriate (50 feet minimum) Coul Shall L
- h. We have an obligation to provide fiber
- i. This will inform SRB decision making: adaptive management
- j. SRB slopes are not as steep as these were, 20 percentage points less than NRB Incorrect, State
- k. Design criteria: no roads on coal seams over x % slope

- Shallower slopes means better everything
- m. Mac and Wes went down to Lower Jack's Branch and reported no change in the perennial stream upstream or downstream of the unnamed intermittent trib.
- n. Under the KY BMP's at the time this sale was implemented, it states on p. 54 that "In areas adjacent to intermittent streams, where possible, avoid equipment operation in a zone of at least 25' on each side of an intermittent stream.
- o. The Forest Plan calls for 50' SMZ on intermittent streams.
- p. KY State BMP's (edition that was in place when this unit was harvested, 1997, aka FOR-67) state that:
 - i. (p. 49) "Where minimum distances are not possible, roads, trails, and landings can be located at less than the recommended distances but should be constructed to protect water quality."
- q. Extra waterbars were installed to overcome this exception. Waterbars are vegetated.
- r. We measured 65 horizontal feet between the skid trail and the stream.
- s. Granny's Branch is an exception that was included in the initial analysis.
- t. We did include mitigation measures.

2. 10% Soil Exposure:

- a. Per Wes, his best estimate using NAIP and BING imagery, mapped roads and field measurements is 14-15% exposure (map).
- b. Wes used NAIP and Bing map; defensible number
- c. Widest areas are around landings and turns in skid roads; 25' turn radius in some areas
- d. Big equipment was used in this unit due to slopes

- e. Gavin and Wes: landings average 0.25 to 0.5 acres total; smaller than Greenwood's
- f. RB typically is harvested using tandem trucks on haul roads versus Freeman Fork was tractor-trailer, requiring larger landings
- g. Wes and Gavin: mean road width of skid roads (including cut banks) is 14' (top of cut to end of fill)

Lower Ulysses Branch (Unit 14, Bob's Fork Sale within the Group One Project)
Field Visit on 1/7/2020 with John Wayne Gilbert, Gavin Wilson, Bobby Claybrook, and Mac Cherry

- 1. Waterbars are vegetated and working properly (photo).
- 2. There is a 120' buffer between the lowest skid trail and the stream below
- 3. No signs of offsite sediment deposition.
- 4. There are full bench cuts for most of the roads. Full bench cut roads are necessary for this district due to the equipment needed to harvest the timber. Anecdotal and historic evidence indicates that full bench cut roads in the district eventually slump and revegetate.
- The landslide area mentioned by KYHW on p. 11 of their comment letter for SRB was vegetated photo). This was an old auger-mine bench that left a highwall, mined in the early 1960's. The highwalls slump over time.
- 6. There was water moving through the area but it was ultimately being arrested and directed into the riparian buffer via the waterbars.
- 7. Across the area we observed, the mean embankment height from the full bench cut roads was 4 feet.
- 8. There are sycamores and sumac trees growing in the skid trails (photo).

Mean slope in the SRB Project area is 23%. Use Wes' slope maps for all units.

From: Cotton, Claudia A -FS
To: Bonaccorso, Kimberly J -FS

Subject: FOIA

Date: Monday, March 16, 2020 11:54:06 AM

Attachments: image001.png image002.png

image002.png image003.png image004.png Field Notes.pdf

Kim.

Here is all the info I can find on Granny's Branch with regard to the information being requested by Heartwood. I have checked the dates with Kevin Beck and the District. Yellow is everything for the FOIA.

The events occurred as follows with regard to the Granny's Branch Unit (aka Group One Project Unit 18 or Granny's Branch Sale Unit 1). (This unit is referred to as Harvest Unit 18 of the Granny's Branch Sale within the Group One Project in the Soil and Water Report).

- 1. Purchasers seeded and mulched the unit in summer 2017 but the seed did not take due to lack of rain.
- 2. Jon Walker and I were informed of the excess and steep skid trails in Granny's Branch unit in July of 2017.
- 3. Jon Walker and I visited the site with Kevin Beck and District Personnel in July of 2017. At that time we saw exposed soil but no landslide.
- 4. At that field visit we decided to lay back the cut slopes and re-seed and re-straw the areas of exposed soil using NFVW funds (federally allocated funds for vegetation and watershed).
- 5. \$2,000 was allocated to the Redbird District out of NFVW in FY2018 (our FY runs from October through September). This money was for a gate, gate installation, and seed and straw for Granny's Branch.
- 6. The gate is currently being manufactured and has not been installed. There was a temporary gate in place during harvest operations.
- 7. NFVW was charged \$377 in FY19 by the Redbird District to lime, fertilize, seed, and mulch exposed soil.
- 8. District personnel limed, fertilized, seeded, and mulched all exposed soil in the unit in April 2019.
- 9. The Soil and Water Specialist Report for the South Redbird EA includes information about the Granny's Branch unit on p. 13, August 2019.
- 10. Received Heartwood comment letter, through which we became aware of the landslide in Granny's Branch unit, December 2019.
- 11. In January 2020 SO and District Personnel went to the field to investigate units and issues mentioned in the Heartwood Comment Letter. This is when FS personnel first saw the landslide in Granny's Branch.
- 12. Additional analysis was done via GIS and included as an addendum to the original South Redbird Soil and Water Report, January 2020.

I indicated the location of the landslide in the Addendum to the Soil and Water Report on p. 27.

Let me know if you have questions. I have also included a pdf of my field notes.

Claudia



Claudia Cotton, Ph.D. Forest Soil Scientist

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