

Data Submitted (UTC 11): 10/24/2022 4:00:00 AM

First name: Kent

Last name: Bonar

Organization: Newton County Wildlife Association

Title:

Comments: To Ken Arney, Regional Supervisor

Southeastern Region, USFS

Objection to Plan Amendment F

OSFNF October 24,2022

From: Kent Bonar -Naturalist

Newton County Wildlife Assoc.

I am writing to object to Plan Amendment F on the Ozark St. Francis National Forest. All parts of my original comments were ignored in the final EIS and objections to the project itself eliminate public input or notification until after the fact by categorically eliminating whatever NEPA requires the project to process. The reason for the NEPA itself, the Multiple use sustainable Yield act, the Endangered Species Act, and other laws restricting agencies from destroying the world in incrementally is that they are in response to abusive mismanagement dumb down to comfort levels of the agency and contractors. The focus should be on the prescription process itself and its object not on a series of treatments in response to the contract needs to keep busy as the (corps of engineers motto). While Watch Dogs become lap dogs when they're special interests are served (Ozark Society Nature Conservation) oversight is needed beyond the planning team partners in crime and the responsible official responsible for his or her career. When has the agency found a significant impact if ever? What treatments without or with changing direction do is produce and ecological disclimax, with a series of unpredictable disturbances and disruption of patterns to produce chaotic responses. Disclimax ecological is best explained by you of Delphi , India (interject -ecological of disturbed ground El SEVIER) whenever agriculture replaces natural ecosystems, disasters happen. logging slash and arson caused the great lake fires plowing tall grass prairies after the civil war calls sinch book and Rocky Mountain locust plague, and plowing short grass prairies in the twenties caused the Dust Bowl. Destroying previously inaccessible and in add a desirable forests now will have ongoing impacts and changing forest standards despite attempts to preserve current ones makes consistency unlikely at best. Money and resources wasted on industrial forestry cut and run would be better spent on maintaining infrastructure elsewhere. Economic change is inevitable and can't go anywhere but down. The highest civilization climbs, the farther it will fall. Voluntary uncertainty is the only solution for both agency and individuals force that caused suffering and is doomed to fail. Set back while you can and leave a forest for the future, not a desert.

Definitions

multiple abuse - series of treatments

trick or Treatments- timely some motion of proposed amendments

eroding -what happens during and after road construction

Wreck- Creation- what the plan will do, the saddest playground

deforestation Service- A more honest title from servicing the industry

Significant Impacts- All incrementally or in events (Bearcat) such as landslides

Current Forest Standards - Need to be defined upfront, could be anything that sets changing?

Oak Decline - Caused by a decline in Foresters understanding of oak dynamics

Site prep is for pine, to eliminate competition. It also nearly eliminates oaks. Or any forest wildlife. It ignores succession by eliminating pioneer species which need to be established for oak in hickories to get planted and have no idea of the complex fungal connection in soil creating hardwood symbiosis.

Basal Area- Statistics are only relevant for pine monocultures. Hardwoods of the same species on the same stand will vary on DBH and basal areas independent of age; as stand conditions varied. Species composition is dependent on proximal seed source and wildlife dispersal and remnants.

Old Growth- Should be maintained a promise of 100 or 200 year rotation can be changed in the eventual new plan, if not sooner President Biden's recent Earth Day speech should put the priority on preservation of the stands instead of a rush to liquidate now and be dependent on Canadian lumber later. Old growth varies in size and competition. Basal area or DBH or irrelevant, storm damage can't open canopy in irregular patterns; drought in other patterns. Soil BIOTA is a better indicator of old growth more practical indicators or vertebrates and higher plants; observers should be completely timing should be relevant

Definitions Cont.

Old Growth- the best indicator of old growth is leatherwood which, lives for centuries. Fruits or the earliest inspiring so dispersal is north in spring migration several orchards are indicators of old growth soil and shade. Winter orchards (Adam and eve, crane fly) and Evergreen rattlesnake orchard or conspicuous in winter yellow Mandarin, blue Copbosh and partridgeberry knee deep shade and rich soil. Ginseng and golden seal or also good indicators but are frequently missing. Clubmoss or also this join it but certain indicators mammals in mesic habitats are golden mice in southeastern shrew is xeric desert shrew, Texas brush mouse, high elevation small footed bat, rocks & bluff lines - spotted skunk.

Birds include scarlet tanager (high elevation red eyed or yellow eyed throated Viero Hooded, Kentucky, Caruleant black and white warblers, blue- winged in gaps & edges. Ovenbird, Wood Thrust, Yellow-billed Cuckoo, Blue-gray gnatcatcher (breeding) Winter Wrens (bluffs, brush piles) Long- eared owls (crows timbers) Cedar glades) saw- where owls (cedar & locust grove) These are all migratory beyond our borders and so the Migratory Bird Treaty Act applies to habitat takings.

Reptiles include scarlet snake (in soil but comes up after soaking rain) amphibians include wood frogs pickle frogs, eastern narrow mounted toad cricket frog. Logs and down wood are often used as indicators of old growth but damage is infrequent and localized to form gaps, which fill with tight brush to run up the basal area. (regeneration) The logs go back to soil and keep carbon trapped. Meanwhile, their habitat for many other plants and animals. Tightly unwind branches and roots, and understory and canopy replacements on their way up create patches of sub canopy-some dance (magnolias, Paws paws) Leaf litter is thick until late summer when it breaks down before fall puts it back. Leaf litter seals under ice or snow and packs down with hard rain to prevent or minimize freezing soil or frost leaves it also provides habitat for bats probably phoebes, chipmunks, mice, shrews, Salamanders, Snakes, turtles, and counlegs insects, aracnids, and other invertabrates- bird & bat food.

The biological elevation and assessment is inadequate because it fails to consider forging habitats and availability of needed foods when they're needed. It also fails to consider recovery habitat needs to restore

population to sustainable levels, considering most of their original habitats have been destroyed elsewhere. Until there is definitive understanding of each species needs of food and foraging habitat areas with known potential habitats should remain undisturbed until impacts (significant to you or not) are understood information on life-history's of Species of concern is fragmentary or lacking. Known Current or historical occurrences should be evaluated for historical habitat and available foods in phenological order. (timing and sequences) Red Cedar is the only native species listed for eradication but it creates a distinct timber and ecological type. Cedar is a distinct species ask a food because it has ripe berries year round and provides foraging cover. Cedar Groves and ice storms as the only unfrozen ground soft enough for the bill tip to go deep enough to catch native earthworms or the worms to stay within reach this is only one of many animals dependent on cedar . in winter for both food and cover.

For reforesting abandoned farms this type of farming last don't determine the best-suited trees. Plagued cropland with burnt stubble was site-prepped for pine, while grazed fields and pastures do best recovering with cedar and locust. I planted trees for Peabody Coal on strip mines in 1971. We planed pines thick along the county roads as a screen, but in the interior locust had the best chance for survival. We used cottonwood cutting to jab into wet mud, but locust took a while to plant, and does better in dry ground. Cedar wasn't planted, but once the locusts got a start, birds plan cedar below them.

Where I grew up in Missouri (Johnson City) strip mines with mules from the 1870s made some of the thickness Cedar Grove I see open (Bear Creek).

Locust and cedar are pioneer species in new gaps and openings. Unlike the pioneers they can last through a succession to climax, at least as root sprouts if leaders die back. they're called cedar waxwing cherry bird, cherry ripens as young birds are just off the nest and learning to fly. The first few days of the nest flocks are staying local to get late arrivals and because young birds just off a down line nest needed airspace protect it from when (deep hollows) to roof at night hypothermia is a leading cause of death at that age since parent forge closed to the nest until young birds could fly flocks forge high ground locally until flocks are fully formed and Co originated. As local foods are eaten and replanted flocks forward out farther and disperse seeds along the way this pattern is showing shown in the Allegheny National Forest leading the country in cheer population due to an apparent bottleneck in wax wing nesting and movement. here waxwing have been found nesting on the Buffalo National River in Newton County. On the Sandy Springs project in 95, we observed a large flock of waxwings on a site near alum Cove eating surface Berry which ripens just before cherries there were two sizes and pattern details which led some of our members to think it was a mixed flock with bohemians period until their flight muscles tighten up many young birds are bigger than their parents so it shows that hadn't been off of the nest long or gone far I've seen flocks of vaccine wings in winter forge persimmons off the ground but the only berries produced throughout winter are red cedar. Soul groves cedar are needed wherever you want a cherry sustainable. This is one example of symbiosis and how short sighted decisions to convert even age pine monoculture as row crops (because it's all you know how to do) because ecosystems break down and unsustainability as a forest. What is desirable and what's significant and for how long? The inappropriate process forces consistent abuse. Experts transferred in from other regions learn as they go and meanwhile conform to expectations. Most of the prescribers aren't able to identify rare or endangered species on your list and don't care. Many don't get beyond the access: making crews only consider marketable or not.

When we surprise the Russellville office with a FOIA for relevant information On projects, the supervisor stalled us while staff cleaned out relevant files, so we found empty folders labeled for convenient refilling.

But while there, we looked through the remaining files and among other things found they directed from region to change stand information to credit a new computer model (no doubt obsolete by now). Prescribing to expectations becomes career-threatening if you're guess is wrong you could be replaced by a drone from Atlanta intimidation and scapegoats by assignment means they tell the boss what he wants to hear and ultimately contractors just write the prescriptions. Competencies of prescribers and contractors to identify rare and

endangered species is another issue I had a survey done by the Forest Service this summer while I was gone, I had several dozen chickens marked with red flagging on the farm where I live and adjacent there more hollow RNA. Apparently, they mistook some of the old line, put new flagging on them slash and painted them even clearer and inside the line other surveys (dear- 90s) slash and painted chicken pens a couple of feet around. If surveyors can't or won't identify or protect endangered species neither will other contractors for prescribers. Through biological inventory should be done over at least a year's time with endangered bats insect populations vary from year to year so it takes a minimum of three years of data to see trends and potential gaps in timing sequence, or to correct problems. When the first version of the original plan comes out, one of the timber types listed for considerable acres is in OS FNF was scarlet oak- chestnut oak. Scarlet oak is only known in a few countries counties in eastern Arkansas, and is probably in the Saint Francis National Forest. Chestnut oak is possibly known from one location in Arkansas although text Amanda me is uncertain. As a timber type it is frequent in the Daniel Boone National Forest, but a map of timber types showed scarlet chestnut oak stand to be inverted cones with their tip in the hollow by road and fanned out upward to a Ridge or knob. That show they were the result of arson. Scarlet oak was frequent around Washington State Park where I was a park naturalist in the 1970s chestnut oak wasn't there. That was near POTOSI, with French laid mines from the 1600s. Oak and other hardwood were cut from mines Timbers, corduroy road 100 miles to Saint Louis, cabins for miners Raywood and clear for agriculture to support miners, timber workers and farmers and their livestock. That is where Virginia pine forest of the 1800s came from out French farm, burnt over for row crops the fact that it made it through internal planning until I commented on it I which time it was taking out, shows local planners were using information from eastern forest to copy EA or EIS's after fires in the Ozark hardwood succession would be crop timber dash blackjack, post and black oaks, black Hickory, black locust, red cedar, winged Elm, hawthorros and plums: all glade species as well. Almost all with thorns or tough limbs on bark as defense against grazing herbs more than fires.

To show the inconsistency of basal area in natural stands, I'm sending the measurements and diagrams representative of positioning relative to each other from point - quadrant method, from a point tree in the canopy. Measures to the nearest canopy tree in each quadrant (Compass NW, NE, SE,S,W) measure CBH (easily converted to DBH but consistent with regular tape measures used for distance) of all five trees. CBH doesn't exactly relate to basal area with varying morphology between species, within species, and individuals from injuries.

Generally, older canopy trees have flare stumps which distort basal area, older trees have minimal taper once clear of the stump. The size and shape of the trunk indicates the potential canopy weight it is capable of supporting. Broken or dead branches or limbs keep the weight down below growth, so canopy gaps fill in with lateral growth that intertwines about the time advance regeneration reaches the gap. The quadrants were taking from Buffalo and little Buffalo headwaters in the mid night 90s on junction and sandy springs project in on cave mountain. Point trees were selected for representative of conditions in different parts of the stand and for different species can it be dominate midsize trees shaded by dominant associated species, scars are rare, etc?

Herbaceous species and prominent regeneration within a quadrant or listed for some of others we had to keep moving in got only basic point guard quadrant measures. They serve as indicators of habitat and conditions. Animal observations were limited by the group and constant movement. Most were bird calls when conditions were right. Hollow logs and standing dead trees showed good wildlife potential on most older stands. The diagram show relative spacing and inconsistent as would be basal area in forest conditions. Basal areas work in pine monocultures but doesn't for hardwoods or cedar. It also shows reciprocal replacement of dominance and associates (oak and Hickory replace each other, as do beach heart Maple Magnolia, black locust and cedar, red Maple, black gum, ash M, Burt oak, walnut etcetera.) only tools needed are compass and tape. The only skills are identification. Results can show patterns of planning 6 of acorns and nuts indicate likeliness planters. Burr oak and walnut fox squirrel, crawl bitternut Hickory, beach, hazelnut, chinkapin dash flying squirrel, J titmice, chickadees most oak and Hickory dash gray squirrel dash Maple ash, mice and ants.

Letter 2 submitted on 12-16-22

To Ken Arney, Reviewing Official

Southern Region Objections

Ozark- St, Francis National Forests

Appendix F Plan Amendment

From Kent Bonar- Naturalist

Newton County Wildlife Association

P.O Box 189 Jasper Arkansas 72641

Kent Bonar 12-16-22

I am writing to object further to Plan Amendment F to the current plan (long overdue for revision) Public oversight is required by NEPA to the extent of protecting species of concern and critical habitat under the Endangered Species Act, the Margaret Tory bird treaty act, and especially the Multiple Use- Sustained Yield Act. allowing constant change in methodology, timing, desirable species, scale of projects, conditions of PROXIMAL or landscape scale stand in abuse resulting in loss of biodiversity and topsoil sedimentation impacting both surface and groundwater landslides predicted in USDA is CS county soil maps and burnt bare ground that won't grow back in forest or pasture. deforestation is not suitable or desirable. The urge to constantly manage through contracts and overkill technology neglect the other multiple Uses. the heaviest recreation use in the forest last year was the hawkbill overlook, in a multi watershed plan that started just after trump's inauguration and then took comments 30 days before the next election. During the long scoping we met with district staff on the hawkbill site early on and asked specifically what sanitation was provided (none) for over 100 parked cars I count it with more coming and going consistently from mid morning until the late afternoon (district count 250 park) still no sanitation this last summer, but they did manage to expand parking, while neighbors complained about the toilet paper in their driveways.

Alum Cove, a trail to a Natural Bridge and beyond below a bluff line and back built by the CCC as a day use area is neglected by the district-5 miles of once paved roads from the deer work center (16 steel is, but the wade and road and especially the Forest Service road to the parking lot is full of potholes that are unavoidable) the pavilion was neglected, and while toilets were there they were so filthy and stunk so bad that many people went to the woods. This neglect is the district for recreation is also shown by the recent plan to allow ebikes on mountain bikes trails in the Buffalo headwaters. That allows physical less able people to get to the place where they need to be rescued with more technology demanding more disturbance and destruction budget for more search and rescue teams to rip the Indiana bat habitat. (using what frequency?) I'll refer to two classic references at length of on force sustainability and dynamics. Henry David wrote the depression of seed and the succession of forest trees shortly before his death they were published in 1993 by island press (Washington DC) title faith in a seed. The succession of forest trees was a compilation of literature referring to the subject from the library at Harvard as the basis for a longer essay. The depression of seeds is a full book of observation and logic which explains

succession in force development overtime period observations are from concord MA, so species and habitats don't always match Ozark (red squirrel, box in Gray squirrel but the basic process are the same and go from pioneer to old growth, which reciprocal replacement by canopy dominates. A point that through May is that cattle are the enemy of Pines and would straddle pine holes and walk them down and rub their heads in the tops singling out Pines in a field of seedlings and sprouts he also wrote of tar and pitch from tearing up Pines cones still green but didn't make the connection in the absence of rub bars, fresh pine tars and regions were the most effective fly repellent available to the cows from brushing bark or needles and rubbing were tails won't react. Hang rub bars away from the water.

This also means cattle and other lifestyle should be kept on permanent fence pastures rotated freely between pastures to stay within carrying capacity and kept out of wood is in deep water approaching to water should be limited by fencing to dry solid ground to avoid or minimize mud holes.

The best comment fence post species in the Ozarks is black locust faster growing and straighter than Mulberry or Osage orange, chicken pens and endangered from a then desirable introduction. The Forest Service should be planning locals for pioneer nurse tree to be selectively thin for post as oaks, hickories, and other four species are planted below them wow they fix nitrogen as lagoons, make good Hickory and make excellent firewood (splits easy) for sustainable grazing staying within the carrying capacity of the pastures, inspect whenever they are consistently and move them before damage is done. Rotations also keeps horses and deer flies from building up population.

The second classic reference is E for now's history of forest University Press Toronto, Ontario 1907 from a series of 25 lectures to the Yale school of forestry and written to be as a forestry textbooks worldwide. It is and honest assessment of each forest country and the forestry practice through its history and what the results were Germany had the longest history of forestry in Europe, with Australian and Switzerland developing variations. Ask for now pointed out history repeats itself. The generation didn't invent the wheel unless it's now square. Somebody or several have had the same thoughts and made the same observation put to the same test.

So study the results, broaden our judgment or avoid the mistakes of others this goes on to say that forestry is an art of burn necessity and it takes a crisis to force responsible and sustainable long-term forestry. (shortages)

force conditions in Germany in the 1700 gets a comparison. Virgin woods were part of their wealth (high graded) and then grew up to brush, as is usual in the United states.

Even forest ordinance begin with complaints regarding the increasingly forest devastation and predicted timber famine in view of the increasingly population increasingly industry and commerce and hence increase wood consumption. Especially along the water route which furnished the means of transportation, the available supplies were exploited. More serious enemies than the exploitation of the timber provided the pasturing of cattle the removal of the litter and above all fires.

In the mid 1800s the concept of mathematical and statistical tools of forest management with area spacing and growth rate for a given species was getting an optimal rotation age to harvest. Similar to many computer and theoretical models of today simplifying to get the desired results only makes those results unreliable for predicting future results. it the model works only under constant conditions so far even age monoculture plantations on level ground with predictable weather throughout the rotation age it might work another point Fornow makes is that there are differences in landscape that demands different methodology. In Germany, northern coastal plains (flatlands) had extensive conifer forest (pine, spruce fur) clearing or reclaiming farmland were restored by planting monocultures and a Dan rotation. Heartwoods predominated in the South and West oak, beach and chestnut were copy it with standards enough to maintain close canopy functions as seed trees for the openings and shade to retain soil moisture and biota. Firewood and leaf litter (for compost) where allotted when taken at all.

As Alexander von Humboldt long ago observed altitude equates with latitude, so southern Germany and Switzerland and northern Australia have conifer stands at high elevation up to timberline. In mountains clearing create landslides and flooding. In Switzerland extensive flood damage led to stopping Alpine clearing for pastures, then existing pastures were overgrazed into wastelands.

Austria Hungary had expensive forest of various types 82% conifers in Austria 75% deciduous and Hungary (oak and beech) similar to the Ozark Boston mountains.

Fornows comments on the United States of America (page 390) are accurate for the time page 392- 3 are the most relevant stability to allow sustainable yield can only be done in hardwoods by single trees on very small group selection. Leave canopy trees that are oldest as standards for seed trees and shelter for soil as well as fruits to hold a steep hill. The younger canopy trees after incremental harvest at salt timber size (minimizes canopy openings) leave understory shrubs ground cover leaf litter, advanced regeneration and soil don't burn hardwoods or cedar groves.

Don't burn hardwoods or cedar Groves don't do even age management on hardwoods or cedar. maintain biodiversity in a careful select system, when a tree is cut with, no advanced regeneration under it, Wilding within the stand from dominance or frequency associated with the canopy can be transplanted into the gaps. Oak have the deepest taproots-tree height and root depth potential are about the same. Russia measures roots on rocks cut in mountains in the early 1960 and found oak roots could reach water at 100 feet they also found muscledwood as an understory in Oakwood only in groundwater was within 20 feet of the surface. Otherwise the Oakwood outsourced them in a drought paw paws and magnolias are indicators of shallow surface water's here.

Fernow mention transport in northern you were largely by skidding on snow to minimize damage to soil and ground water. Some German foresters now use horses and rubber tire buggies to minimize damage from compaction. Low tech methodologist is damnable with minimal impacts. Constant disturbance with pensive meteorologist degrades the forest and overtaxed the budget and assures failure at the next recession. The old plan allow for a prescription base on ecological and successional type oak Hickory, Beech Maple Magnolia, cedar locust even though by sight prep for even age all roads lead to pine. These and others should be managed to protect biodiversity of late successional species. There is no current shortage of early successional brush on private land outside of the National Forest or on inholdings. What is disappearing are forests worldwide and old growth is especially rare.

The entire forest should have at least one year's inventory of biota by a team of scientists both state and federal. Competency should extend beyond agency employees otherwise don't expect results timing should be relevant to all seasons. Any unanticipated result should be checked by other experts in that field.

Assessing previously in operable areas (roads, fire lines, RV tracks) even for inventory or research causes fragmentation and disruption of forest dynamics until the situation demands it, impact should be minimized removal of cover rerouting water, compaction, noise, smells and toxic chemicals all altered behavior of wildlife and resulting forest dynamics animal awareness is ignored in the process animal cognition is a biological feature that has been modeled through natural selection. To understand recognition, study is ecological consequences and evolution disruption of dynamics through ongoing disturbance create a disk climax with chaotic response to extremes reducing biodiversity at first then settling into a more simplistic and unsustainable pattern. (not sustainable) even aged systems make a stand on long rotation at high risk of failure to eventually total harvest. Selection stay and stay that, yield is slow but steady and sustainable at minimal risk clear cuts eliminates other options and force even age management. Pretending to consider other options, or public input, is a critical way of improving predetermined plans. A temporary economic situation will change before approved actions are implemented. Ecological sustainability is more important than short-term profits. Prescription should be based on the sites conditions and potential not current contractors demands. When has the timber industry been satisfied?

What shapes are private forest in? The Forest Service has responsibilities to do better period learn from mistakes in the past instead of repeating them. As I said before, all forms of management requires extensive areas to operate restore the Buffalo Ranger district and operate it under careful selection, with watershed size natural areas and wilderness. if you insist on even age cropping restore the by you district, which is already committed to cropping and working through the rotation age if possible with likely economic. instead of amendment F change the overdue plan as well as regional direction while there's still time.

Kent Bonar

Letter 2 submitted on 12-16-22

To Ken Arney, Reviewing Official

Southern Region Objections

Ozark- St, Francis National Forests

Appendix F Plan Amendment

From Kent Bonar- Naturalist

Newton County Wildlife Association

P.O Box 189 Jasper Arkansas 72641

Kent Bonar 12-16-22

I am writing to object further to Plan Amendment F to the current plan (long overdue for revision) Public oversight is required by NEPA to the extent of protecting species of concern and critical habitat under the Endangered Species Act, the Margaret Tory bird treaty act, and especially the Multiple Use- Sustained Yield Act. allowing constant change in methodology, timing, desirable species, scale of projects, conditions of PROXIMAL or landscape scale stand in abuse resulting in loss of biodiversity and topsoil sedimentation impacting both surface and groundwater landslides predicted in USDA is CS county soil maps and burnt bare ground that won't grow back in forest or pasture. deforestation is not suitable or desirable. The urge to constantly manage through contracts and overkill technology neglect the other multiple Uses. the heaviest recreation use in the forest last year was the hawkbill overlook, in a multi watershed plan that started just after trump's inauguration and then took comments 30 days before the next election. During the long scoping we met with district staff on the hawkbill site early on and asked specifically what sanitation was provided (none) for over 100 parked cars I count it with more coming and going consistently from mid morning until the late afternoon (district count 250 park) still no sanitation this last summer, but they did manage to expand parking, while neighbors complained about the toilet paper in their driveways.

Alum Cove, a trail to a Natural Bridge and beyond below a bluff line and back built by the CCC as a day use area is neglected by the district-5 miles of once paved roads from the deer work center (16 steel is, but the wade and road and especially the Forest Service road to the parking lot is full of potholes that are unavoidable) the pavilion

was neglected, and while toilets were there they were so filthy and stunk so bad that many people went to the woods. This neglect is the district for recreation is also shown by the recent plan to allow ebikes on mountain bikes trails in the Buffalo headwaters. That allows physical less able people to get to the place where they need to be rescued with more technology demanding more disturbance and destruction budget for more search and rescue teams to rip the Indiana bat habitat. (using what frequency?) I'll refer to two classic references at length of on force sustainability and dynamics. Henry David wrote the depression of seed and the succession of forest trees shortly before his death they were published in 1993 by island press (Washington DC) title faith in a seed. The succession of forest trees was a compilation of literature referring to the subject from the library at Harvard as the basis for a longer essay. The depression of seeds is a full book of observation and logic which explains succession in force development overtime period observations are from concord MA, so species and habitats don't always match Ozark (red squirrel, box in Gray squirrel but the basic process are the same and go from pioneer to old growth, which reciprocal replacement by canopy dominates. A point that through May is that cattle are the enemy of Pines and would straddle pine holes and walk them down and rub their heads in the tops singling out Pines in a field of seedlings and sprouts he also wrote of tar and pitch from tearing up Pines cones still green but didn't make the connection in the absence of rub bars, fresh pine tars and regions were the most effective fly repellent available to the cows from brushing bark or needles and rubbing were tails won't react. Hang rub bars away from the water.

This also means cattle and other lifestyle should be kept on permanent fence pastures rotated freely between pastures to stay within carrying capacity and kept out of wood is in deep water approaching to water should be limited by fencing to dry solid ground to avoid or minimize mud holes.

The best comment fence post species in the Ozarks is black locust faster growing and straighter than Mulberry or Osage orange, chicken pens and endangered from a then desirable introduction. The Forest Service should be planning locals for pioneer nurse tree to be selectively thin for post as oaks, hickories, and other four species are planted below them wow they fix nitrogen as lagoons, make good Hickory and make excellent firewood (splits easy) for sustainable grazing staying within the carrying capacity of the pastures, inspect whenever they are consistently and move them before damage is done. Rotations also keeps horses and deer flies from building up population.

The second classic reference is E for now's history of forest University Press Toronto, Ontario 1907 from a series of 25 lectures to the Yale school of forestry and written to be as a forestry textbooks worldwide. It is and honest assessment of each forest country and the forestry practice through its history and what the results were Germany had the longest history of forestry in Europe, with Australian and Switzerland developing variations. Ask for now pointed out history repeats itself. The generation didn't invent the wheel unless it's now square. Somebody or several have had the same thoughts and made the same observation put to the same test.

So study the results, broaden our judgment or avoid the mistakes of others this goes on to say that forestry is an art of burn necessity and it takes a crisis to force responsible and sustainable long-term forestry. (shortages)

force conditions in Germany in the 1700 gets a comparison. Virgin woods were part of their wealth (high graded) and then grew up to brush, as is usual in the United states.

Even forest ordinance begin with complaints regarding the increasingly forest devastation and predicted timber famine in view of the increasingly population increasingly industry and commerce and hence increase wood consumption. Especially along the water route which furnished the means of transportation, the available supplies were exploited. More serious enemies than the exploitation of the timber provided the pasturing of cattle the removal of the litter and above all fires.

In the mid 1800s the concept of mathematical and statistical tools of forest management with area spacing and growth rate for a given species was getting an optimal rotation age to harvest. Similar to many computer and

theoretical models of today simplifying to get the desired results only makes those results unreliable for predicting future results. If the model works only under constant conditions so far even even age monoculture plantations on level ground with predictable weather throughout the rotation age it might work another point Fornow makes is that there are differences in landscape that demands different methodology. In Germany, northern coastal plains (flatlands) had extensive conifer forest (pine, spruce, fir) clearing or reclaiming farmland were restored by planting monocultures and a Dan rotation. Heartwoods predominated in the South and West oak, beech and chestnut were copy it with standards enough to maintain close canopy functions as seed trees for the openings and shade to retain soil moisture and biota. Firewood and leaf litter (for compost) were allotted when taken at all.

As Alexander von Humboldt long ago observed altitude equates with latitude, so southern Germany and Switzerland and northern Australia have conifer stands at high elevation up to timberline. In mountains clearing creates landslides and flooding. In Switzerland extensive flood damage led to stopping Alpine clearing for pastures, then existing pastures were overgrazed into wastelands.

Austria Hungary had expensive forest of various types 82% conifers in Austria 75% deciduous and Hungary (oak and beech) similar to the Ozark Boston mountains.

Fornow's comments on the United States of America (page 390) are accurate for the time page 392-3 are the most relevant stability to allow sustainable yield can only be done in hardwoods by single trees on very small group selection. Leave canopy trees that are oldest as standards for seed trees and shelter for soil as well as fruits to hold a steep hill. The younger canopy trees after incremental harvest at salt timber size (minimizes canopy openings) leave understory shrubs ground cover leaf litter, advanced regeneration and soil don't burn hardwoods or cedar groves.

Don't burn hardwoods or cedar Groves don't do even age management on hardwoods or cedar. maintain biodiversity in a careful select system, when a tree is cut with, no advanced regeneration under it, Wilding within the stand from dominance or frequency associated with the canopy can be transplanted into the gaps. Oak have the deepest taproots-tree height and root depth potential are about the same. Russia measures roots on rocks cut in mountains in the early 1960 and found oak roots could reach water at 100 feet they also found muskegwood as an understory in Oakwood only in groundwater was within 20 feet of the surface. Otherwise the Oakwood outsourced them in a drought paw paws and magnolias are indicators of shallow surface water's here.

Fornow mention transport in northern you were largely by skidding on snow to minimize damage to soil and ground water. Some German foresters now use horses and rubber tire buggies to minimize damage from compaction. Low tech methodologist is damnable with minimal impacts. Constant disturbance with pensive meteorologist degrades the forest and overtaxes the budget and assures failure at the next recession. The old plan allow for a prescription base on ecological and successional type oak Hickory, Beech Maple Magnolia, cedar locust even though by sight prep for even age all roads lead to pine. These and others should be managed to protect biodiversity of late successional species. There is no current shortage of early successional brush on private land outside of the National Forest or on inholdings. What is disappearing are forests worldwide and old growth is especially rare.

The entire forest should have at least one year's inventory of biota by a team of scientists both state and federal. Competency should extend beyond agency employees otherwise don't expect results timing should be relevant to all seasons. Any unanticipated result should be checked by other experts in that field.

Assessing previously in operable areas (roads, fire lines, RV tracks) even for inventory or research causes fragmentation and disruption of forest dynamics until the situation demands it, impact should be minimized removal of cover rerouting water, compaction, noise, smells and toxic chemicals all altered behavior of wildlife and resulting forest dynamics animal awareness is ignored in the process animal cognition is a biological feature

that has been modeled through natural selection. To understand recognition, study is ecological consequences and evolution disruption of dynamics through ongoing disturbance create a disk climax with chaotic response to extremes reducing biodiversity at first then settling into a more simplistic and unsustainable pattern. (not sustainable) even aged systems make a stand on long rotation at high risk of failure to eventually total harvest. Selection stay and stay that, yield is slow but steady and sustainable at minimal risk clear cuts eliminates other options and force even age management. Pretending to consider other options, or public input, is a critical way of improving predetermined plans. A temporary economic situation will change before approved actions are implemented. Ecological sustainability is more important than short-term profits. Prescription should be based on the sites conditions and potential not current contractors demands. When has the timber industry been satisfied? What shapes are private forest in? The Forest Service has responsibilities to do better period learn from mistakes in the past instead of repeating them. As I said before, all forms of management requires extensive areas to operate restore the Buffalo Ranger district and operate it under careful selection, with watershed size natural areas and wilderness. if you insist on even age cropping restore the by you district, which is already committed to cropping and working through the rotation age if possible with likely economic. instead of amendment F change the overdue plan as well as regional direction while there's still time.

Kent Bonar