

Public comment to Weldon Brook Plan received prior to March 22, 2013

Source	Comment	Response
Natural Heritage Committee	<p>The Natural Heritage Committee would first like to say that we were heartened to see the amount of detail included in this Plan and that the many concerns raised during the discussions surrounding the Forest Stewardship Bill (S1085) have been addressed, including rare plants, invasive species, deer management, regeneration, monitoring, and landscape-scale perspective.</p>	<p>We agree we addressed all of these issues.</p>
o, Co-Chair, NJ Highlands Coalition	<p>Overall, the Weldon Brook Wildlife Management Area Forest Stewardship Plan (FSP) is one of the more thorough and complete FSPs developed for an NJDEP holding that several members of the NJ Highlands Coalition can recall reviewing. The plan gives ample consideration to rare and declining species including Golden-winged Warbler and Indiana Bat. The plan does a good job of outlining and considering the relevant conservation actions and strategies described in the NJ State Wildlife Action Plan and Forest Action Plan. The plan appears to adhere to the inclusion of many Forest Stewardship Council (FSC) recommended management plan elements. Considering how closely the plan follows FSC guidelines, we encourage the NJDEP to get the plan FSC approved and certified.</p>	<p>We followed FSC principles in the event that it becomes feasible to obtain FSC certification in the future.</p>

Cinny MacGonagle, Chair and Emile DeVit

The emphasis on rare and declining species, particularly Golden-winged Warbler (GWWA) is an important component of the Plan and an essential element of habitat management at Weldon Brook WMA. At the same time the Plan should, and to a degree does, recognize the benefits provided to other early successional species (e.g., Ruffed Grouse, Prairie Warbler, Yellow-breasted Chat, foraging Wood Thrush, Wild Turkey, etc.) as well as species that benefit from the management of old growth habitat (e.g., Cerulean Warbler, Barred Owl, Northern Goshawk, etc.). The Plan includes a goal of creating early successional habitat on up to 20% of the forested area; however this percentage of early successional habitat may be too high. The Committee suggests reducing the percentage to 10-15%. Additionally, more emphasis could be placed on benefits to other species with specific connections made to the goals and objectives of the plan.

You provide no justification for your assertion that "20% of the forested area as early successional habitat" is too high. As a proportion of stand age in the region, 20% of Weldon Brook is a small amount of acreage that is in young forest. According to this plan, the creation of 30.7 acres of new young forest every five years for 80 years will provide a mosaic of age classes and sustain about 150 acres of young forest (age 0-20 years) in Weldon Brook WMA. This will also provide about 90 acres of young forest aged 5-15 years in perpetuity - enough to perhaps double the current breeding golden-winged warbler population of 25 pairs in NJ. This acreage of young forest will also provide breeding habitat for about 25 additional prairie warblers and many eastern towhees, nesting habitat for turkeys and ruffed grouse, singing grounds and roost sites for American woodcock, and foraging habitat for cerulean warblers, wood thrush, and other interior forest species. Golden-winged warbler habitat accommodates many additional species that require early successional habitat, but their needs may be more precise than those of other species. If the target goal is 20% **of the WMA in** early successional habitat, and that includes the ROW and emergent wetland, then the actual acreage of forest impacted is indeed much less.

The plan rightfully tethers the Endangered and Nongame Species Act as an impetus to guide land use managers to "accord special protection in order to maintain, and to the extent possible, enhance their numbers." Targeting GWWA for some enhanced management is proper for Weldon Brook WMA. However, scrutiny of the NJ Wildlife Action Plan reveals a litany of additional species that can benefit from alternative management, or no active management. These species are not subject to an equal vetting as that provided for GWWA. Thus, the consensus of the Committee was that early successional habitat development for GWWA should be restricted to the power line ROW and immediately adjacent forest, until success is demonstrated.

The golden-winged warbler is the focal species of this plan because it is one of the more particular species with regards to needing older forest surrounding the shrubby/young forest habitat, as well as one of the rarest species that breed in shrubby/young forest habitat. It has a narrow range of potential habitat in NJ, and Weldon Brook is in the heart of this range. The creation of openings in the forest that are allowed to regenerate into young forest will also provide breeding habitat for a suite of bird species (ruffed grouse, prairie warbler, wild turkey, eastern towhee, cerulean warbler) and insects (northern metalmark, Arogos skipper, Leonard's skipper, bronze copper) as well as foraging habitat for many forest species (wood thrush, black-throated green warbler, bobcat, barred owl, red-shouldered hawk, and a variety of dragonflies). The sites selected for work in this plan were chosen because of stand characteristics and likelihood of success of regeneration to oak.

Creating early successional habitat where forest now exists along the ROW for GWWA is appropriate, with a diligent follow-up treatment and monitoring program to evaluate success. In these areas, an amorphous configuration that increases the surface interface with the ROW should be considered, to increase mosaic structure and ecotonal area. Per the literature and Sharon's Petzinger's findings, a specific method should be proposed to guide management away from "hard-edges" at the interface of the forest and the ROW or other early successional habitat.

GWWA monitoring will be done. Suitable habitat can be created within .5 mile of existing habitat to be considered contiguous. The exact configuration of the cuts will be layed out in the field.

There were general concerns among some committee members that the Plan was based on a false premise - GWWA populations are declining solely because of a lack of habitat. Committee members assert that there are plenty of potential nesting sites, and many sites had nesting GWWA populations 5-10 years ago. While the need for additional suitable habitat has been recognized, GWWA populations may be declining due to other factors such as climate change, hybridization, and competition by Blue-winged and Prairie Warblers for resources. Blue winged and Prairie Warblers are still abundant. If GWWA habitat is developed, Blue-winged Warblers and other competitors may utilize the habitat.

It is widely recognized that loss of breeding habitat through development and succession is only one of the many factors contributing to the decline of GWWA in the Northeast. Other factors include loss of wintering habitat, competition/hybridization with blue-winged warblers, and climate change, and these factors are not being ignored. Through the initiatives of the Golden-winged Warbler Working Group and the Appalachian Mountain Joint Venture, conservation groups in Central and South America are researching, targeting and acquiring critical wintering habitat for golden-winged warblers. Groups in Mexico are monitoring and acquiring important migratory stopover locations. Groups in the US, particularly in the Northeast, are researching, targeting, and implementing best management practices for golden-winged warbler breeding habitat. Given the rate of loss of golden-winged warblers in the Northeast, with some of the steepest declines in NJ, coupled with the limitations of what the Division can do for its rare and declining species, and the probability of utility companies managing most of their lines every few years to not compromise reliability, habitat management is one of few options.

We recognize that blue-winged warblers and prairie warblers will also breed in young forest habitat. Part of the regional golden-winged warbler research includes differences in habitat preferences between blue-winged and golden-winged warblers. The Division is using this information to create this plan and intends to continue with the treatments necessary in order to optimize the likelihood of attracting breeding golden-winged warblers while excluding blue-winged warblers. Prairie warblers can occupy the same habitat and eat similar food items as golden-winged warblers, and antagonistic behavior has been observed between golden-winged warblers and prairie warblers, although not as often as blue-winged warblers and prairie warblers. However, they do not compete for nest sites and prairie warblers are more versatile than golden-winged warblers with regards to foraging, prey type, and breeding habitat.

The Plan shows certain areas are designated for Forest Stand Improvement as a treatment means to develop GWWA habitat. The committee does not support this method of management for GWWA habitat development because it does not appear to match GWWA habitat needs. We recognize its purpose in the plan and in general forest management, but want to be clear that we do not support its use for GWWA habitat development. Areas within the core of the forest may be managed with FSI methods in order to promote uneven-age stands of forest, but should not be converted to early successional habitat, especially if the attempts to establish GWWA habitat immediately adjacent to the power line prove to be unsuccessful.

Forest Stand Improvement is an intermediate treatment, not intended to provide habitat in the immediate future for GWWA. FSI is done for a variety of purposes including forest health and long-term wildlife habitat quality.

The Committee strongly urges that in addition to the creation of additional early successional habitat out of the forest immediately adjacent to the power line ROW, habitat also be developed in areas that are already closely suited for GWWA habitat – notably within and along the extensive field edge of the ROW. Rather than solely cutting adjacent mature forest, the low field edges along the power line ROW edges should be allowed to grow up into GWWA habitat. This would duplicate the habitat that was previously used by GWWA until the power companies heavily cut and remove the entire small tree-shrub component from the power line ROWs. The Division of Fish and Wildlife (NJDF&WS) should be coordinating their habitat creation efforts to develop GWWA habitat with PSE&G and JCP&L, power companies that have ROWs across state land. This could be a significant component of the mitigation required by the Department of Environmental Protection (NJDEP) to compensate for the impacts of transmission lines across public preserved lands.

Changes to FERC regulations require that utility companies maintain their lines so as to not compromise the reliability of the energy supply. This means woody vegetation over 3 feet tall is not allowed in the wire zone, and fast-growing trees under the wire zone are targeted for treatment before they reach this height. Taller woody vegetation can grow in the border zone, but in NJ the border zone along the 240 KV line tends to be only about 15 feet on each side of the wire zone, not wide enough for much habitat development. Furthermore, fast-growing trees will be targeted for treatment prior to reaching the threshold height allowed in the border zone. While the DFW and other conservation groups have been working with the utility companies to manage spans for golden-winged warblers and other species, and while progress has been made, it is unlikely that all the lines in northwest New Jersey will be managed in a way that will benefit golden-winged warblers (allowing tall woody vegetation in border zone, staggering management of spans, etc.). Furthermore, for those few spans that are managed in a way to benefit golden-winged warblers, sustaining this management regime cannot be guaranteed because when the time comes to upgrade lines, change towers, etc., or regulations on reliability become more strict, the lines will be cleared regardless of species present. Given that about half the NJ breeding population breeds along these ROWs, the Division is not willing to rely

solely on utility companies to manage for one of its endangered bird species.

The public strongly supported preservation efforts in the early 1990's in the Sparta Mountain Greenway area, which includes the Sparta Mountain and Hamburg Mountain WMA's to the north, Morris County's Mahlon Dickerson Reservation to the east, and Allamuchy State Park to the south. A major, consistently-stated purpose of public acquisition was to prevent development and to protect un-fragmented, contiguous forest in an area of "near wilderness," in as large blocks as possible. Much of the rationale for this was to protect interior forest species, especially forest interior bird species. The proposed management plan does not support protection of enough old-growth character forest, and the geometric shape of the "core" forest zone is too narrow. Forest does not function ecologically as interior or core habitat if the distance to maintained, early successional edge habitat is too small. The areas targeted for permanent, early successional habitat management should be shifted to the extent possible to the areas along and to the east of the power line ROW; the core forest sector where uneven-age development is promoted should be enlarged into a more functional oval, convex polygon, and areas designated as old-growth should comprise a greater percentage of the site.

According to this plan, the creation of 30.7 acres of new young forest every five years for 80 years will provide a mosaic of age classes and sustain about 150 acres of young forest (age 0-20 years) in Weldon Brook WMA at a given time. The only early successional habitat that will be prevented from regenerating into a forest will be within the ROW. The definition of habitat fragmentation by Faaborg et al. (1995) is the process of converting a large, contiguous patch of a similar vegetation type into smaller patches of different vegetation types in a way that only scattered remnants of the original vegetation type remains. A large corn field, housing development, and even a double-wide ROW maintained every 2-3 years will fragment a forest and reduce the abundance and nesting success of many forest birds, but it is not fragmentation when creating a disturbance in small patches of forest to promote regeneration of young forest, or forest stand improvement (forest thinning). In this plan, we are proposing to create small patches of young forest, within the forest matrix,

in close enough proximity to each other to allow for the movement of early-successional species between patches, while maintaining the integrity of the forest patch as well as the connectivity between vernal pools and other wetlands within that forest patch.

Area-sensitive species require a minimum amount of interior, or "core", habitat for successful breeding, and this minimum can vary depending on the habitats in the surrounding matrix. For forest species, core habitat is the forest habitat at least 90 meters inward from the forest edge. The minimum core required to provide suitable breeding habitat for area-sensitive species is 10 ha for forest (Franklin 1993, Faaborg et al. 1995, Dawson et al. 1993, Dawson et al. 1998) and area-sensitive birds tend not to occur in forests (or grasslands) that lack core habitat (Forman et al. 2002, McCollin 1998). When assessing the impacts of forest fragmentation from a landscape perspective, we need to look at the size and number of habitat patches left in the area, how far apart these patches are from each other (degree of isolation), how different the surrounding area (matrix) is from the habitat type, the type and duration of disturbance, and whether there is any type of connectivity or corridor between patches to aid animals in moving from patch to patch (Wiens 1996, Marzluff & Ewing 2001).

Based on recent site visits, Weldon Brook WMA currently exhibits very little evidence of invasive species. We are concerned that cutting numerous areas of mature trees throughout the WMA, as proposed by the Plan, will increase the potential for invasive species. In addition, the entirely new forest roads, not even located on old forest cart ways, throughout the site will also create openings for invasive species. The Plan should reduce the number of roads through the WMA. To that end, the Committee would like to know if roads are being created to improve hunting access in the WMA. We request that the Plan include ways to avoid, minimize, and mitigate the advancement of invasive species along any roadways. The only methods noted in the Plan include mechanical mowers and herbicides. This is too limited and methods for protecting selected plants should also be included as well as a few more selective methods. Further, the Committee suggests more detail should be provided with respect to how damage causing agents (i.e., pests and disease) will be addressed. For example there is no strategy identified for dealing with Hemlock Woolly Adelgid.

There will be no new roads created. We may need to install gates at key access points. Invasives will be monitored and treated should they become an issue. Disease agents are addressed in plan.

Unfortunately, this plan does not address the dramatic losses to rare plants and the continued problem of managing herbivory adequately. The threat to forest understory is not even included as a major problem, as noted here:

Herbivory is minimal in our view based on abundant oak regeneration and the list of understory plants found which are preferred and often overbrowsed by deer.

"The three greatest threats to the sustainability of the WMA are (1) the extirpation of GWWA and other early successional species from the WMA through habitat loss, (2) the gradual decline of the oak component of the forest and its replacement with less desirable black birch, red maple, and sugar maple, and (3) continued proliferation of non-native invasive plants (page 75)."

So noted.

While there is much said about protecting vernal pools, the need for a shrub and understory layer in the surrounding forest is not mentioned at all. This concern is compounded by the persistent assumption that more light on the forest floor is beneficial to all plants - period. There is no acknowledgement at all of shade-loving plants that fail to compete in more open conditions.

All forestry activities are intended to benefit the understory and ground layer. Plants referenced in comment as "shade loving" (do you mean shade tolerant?) are typically found in the moist soil and cooler aspect slopes which will be designated as Old Growth Condition and will not be affected by management. See appendix for list of plant species found by stand.

We recognize that deer management is necessary under certain conditions. Our concern is that the assumptions about deer management appear too optimistic. The limited ground layer vegetation described in the actual plant lists suggests long term excess herbivory on all three sites referenced. It would be useful to include a test enclosure during the first few years to assess recovery potential with greater protection, at least during the reestablishment phases.

We disagree that deer herbivory is excessive, and do not believe we will learn more from another enclosure. There are 3 enclosures in the vicinity (2 at Berkshire Valley and 1 at Sparta Mt) that can illustrate herbivory. If regeneration is not adequate we will install fencing as needed.

Therefore, the Committee requests a complete baseline be conducted that includes all plant species present as well as continued monitoring of all species. It is clear that restricting plant concerns to rare, threatened, and endangered species that are already documented is not sufficient to assess the impact of forestry activities, herbivory, or anything else. The plant monitoring should, like the baseline, be done

by a professional botanist and should include all species present. And while it cannot be required, it would be nice if they would record the plant lists on the PSI website to provide optimal comparability with land trusts and a number of exclosure studies in this State. New Jersey is updating the Coefficients of Conservatism and the Floristic Quality Assessment model is being increasingly used by New Jersey and other states to assess naturalness and quality of the habitat. The Committee can offer to assist with an effort during the upcoming growing season to search for plant species of concern throughout the WMA, in order to reduce the chance for unintended consequences of implementation of the various management strategies.

Additional sampling will be done as part of Tier III data collection (see Sect. 4.4 Monitoring Program). We welcome additional searches for rare plants, and invite anyone to upload data for FQA. We don't believe the FQA will yield additional information useful for management decisions.

This plan specifically raises concerns that "the regional change from oak- to maple-dominated forests may strongly affect avian community structure and populations of some common bird species associated with eastern deciduous forests". However the plan does not appear to take any measures to ensure oak regeneration. Fire is mentioned but little effort seems to be going into evaluating the use of fire which has been demonstrated elsewhere both to favor oak and to discourage maple.

Activities proposed under FSI and Group Selection will result in an understory favorable to oak regeneration. Fire will be used when feasible.

The effects of naturally occurring disturbances that cause gaps in the canopy (i.e. Superstorm Sandy) should be considered before plans to create uneven age structure in the core forest areas are implemented via FSI. A number of large trees have, in fact, been blown down in the recent storms, and treatments may no longer be necessary. The plan emphasizes creation of early successional habitat and while natural disturbance is mentioned, the plan does not address how treatments will change in light of natural disturbances. Given the likelihood of future storms on the scale of Superstorm Sandy it would be good for the plan to include a provision for adjustment of treatment activities given significant natural disturbance.

While natural disturbances do occur and numerous trees have been blown down as a result of Hurricane Sandy, these scattered blow-downs are not large enough to provide sufficient breeding habitat for golden-winged warblers and many other early-successional species. Given the lack of controlled burns and prevention of wildfires in this area, it is unlikely that natural disturbances, by themselves, will create the breeding habitat for golden-winged warblers in time to prevent the extirpation of this species in NJ. Treatment activities will most certainly be fine-tuned based on conditions at the time (see Adaptive Management Section of the plan (Sect. 1.6).

The Plan repeatedly refers to “poor” or “inferior” tree species; however, ecologically speaking, there is no such thing as a poor or inferior tree species. Species considered “inferior” by board-foot measures, such as birches, poplar, cherry, elm, and willow, provide habitat and food for insect larvae, including butterflies and moths, birds and other wildlife. Such ecological diversity within a forest should be promoted. Language such as this could give the impression that this Plan is being driven by economics and not ecology. Where FSI practices are proposed to promote uneven age structure through the creation of gaps, it should be clear that the focus is not on leaving predominantly only economically valuable species.

"Desirable species" are those that would be the most beneficial for golden-winged warblers for nesting and foraging (grasses and forbes, deciduous shrubs and trees) with minimum risk of overtaking the site (Autumn olive).

This Plan should include more effort for identifying and documenting the existing cultural resources on site, which include at least three abandoned iron mines (as indicated by NJDEP’s GeoWeb data), as well as the features that would have been associated with these mines: houses, transportation facilities, as well as the stone rows mentioned in the report. We strongly suggest that the Division, in the preparation of is management plan has an affirmative duty to identify and protect cultural resources prior to conducting forestry activities or contracting with others to do so. A qualified cultural resources expert or experts, with particular knowledge of prehistoric occupation of the Highlands and industrial archaeology should be consulted to evaluate the significance of any cultural resources present.

Cultural resources were screened by consulting DEP databases. Additional searches will be conducted as part of the Tier III level of inventory (see plan section 4.4). There will be no change to stonerows, subsidence mines or other remnants of past workings by doing forest management.

With regard to possible prehistoric sites, many references exist to the presence of rock shelters used intermittently, but over long periods of time, by native peoples in the NJ Highlands. Human occupation is far older than the contact period discussed in the report and important research questions still remain unanswered or unasked about this c.12,000 year time span. Although the woodland native Americans, mentioned in the report as the Lenni Lenape, are without a doubt important, the prehistoric occupancy of New Jersey stretched much farther back in time to include cultures associated with the Paleo-Indian Cultural Period (10,000 B.C to 6,000 B.C.), the Archaic Period (8,000 B.C. to 1,000 BC), the Early /Middle Woodland Period (1,000 B.C. to 1,000 A.D. in addition to the Late Woodland and

We agree that archeological sites are important. While there are no sites identified as being present here, diligent searches will be conducted as part of Tier III monitoring (see plan section 4.4). In addition, there are no ground-disturbing activities proposed that would impact any such sites.

Contact Periods (A.D. 1,000 to the Colonial Era). Importantly, vegetation can provide important clues to archaeological investigations. Potential archeological resources are an important part of New Jersey’s heritage, particularly when sites are in public ownership.

Thus, the plan should entail a consideration of prehistoric sites and be modified to respect their potential on-site. An evaluation should be made of potential rock shelters present in the WMA and forestry operations, particularly those involving mechanized equipment should be prohibited from these areas. Results of such an evaluation should be kept confidential from the general public to avoid looting of sites. The cultural and historic resources are part of the public's experience of the property and should be recognized accordingly.

In 1982, the Office of New Jersey Heritage identified research into iron mines as an important need (New Jersey's Archeological Resources From the Paleo-Indian Period to the Present: A Review of Research Problems and Survey Priorities, Office of New Jersey Heritage, 1982., p. 7). Iron mining is a highly significant subject in the NJ Highlands having been practiced at an early date and continuing until the 1940's. The remains of this activity should be considered of heightened significance to the Highlands region. Mines were sometimes small in scope and operated intermittently. However, in some locations mines were large scale operations (Mt. Hope). Mines may also be associated with illegal dumping and toxic contamination. Subsidence may also be an issue as old workings collapse, especially in response to vegetation removal, increased run-off and redirected drainage. As such, iron mining has played a crucial role in the history of the Highlands and the evolution of the forests. Narrating the impact of these facilities should be an important objective on State owned properties in the Highlands, enhancing the visitor experience. The nature, location and history of the three mines known to be present on the site should be developed by a cultural resource expert in industrial archaeology prior to making a finding of "no significance."

As correctly mapped, the Ogden Mine Railroad forms the eastern boundary of the property. This railroad has considerable historic significance. The former right of way, largely State-owned, contains several cuts and fills, and at least one remaining bridge, carrying the railroad over Milton Rd. The right of way currently provides trail access, a valued recreational component of the WMA's inventory. The right of way of the Ogden Mine Railroad on the site should be surveyed by a qualified cultural resources expert and the historic, recreational and scenic qualities should be preserved by avoiding cutting near or use of the right of way for forestry activity access. Historic narration should be produced as part of plan execution. The Department should pursue listing of the Right of Way and its remaining features on the State and National Registers of Historic Places.

Several mines are known to exist on site. It is expected that forestry activities will have no impact to these sites. Nonetheless, Tier III screening will be done prior to any activity.

We agree. There will be no activity near the railroad.

We request to see a budget of incomes and expenses for the life of the project to ensure that funds will be allocated to monitor the site. The Plan should provide some clarity regarding how the activities will be paid for, including forest treatments, monitoring or other activities. The expected results are not quantified.

The DFW is committed to not only developing plans but to implementing them as well. There is no budget per se for this project though the DFW is confident that funds for habitat improvement work will be forthcoming for the foreseeable future. It is impossible to know what forest products markets will be in the future. Regarding expected results: This acreage of young forest will provide breeding habitat for not only GWWA but also about 25 additional prairie warblers and many eastern towhees, nesting habitat for turkeys and ruffed grouse, singing grounds and roost sites for American woodcock, and foraging habitat for cerulean warblers, wood thrush, and other interior forest species.

The Stakeholder process should have begun sooner and should have followed the Forest Stewardship Council's guidelines. A number of interested parties would have appreciated more time to go over all the details of the Plan. The plan should more clearly detail the process for stakeholder input, defining timeframes for input and methods used for outreach to the public.

Stakeholders were contacted at the beginning of the planning process to request input on known resources of concern. A draft of the plan was provided to anyone who wanted to review it with a 30-day timeline for comments. A description of the stakeholder process was added to the plan (see sect. 4.5).

The Plan lacks (or does not clearly state) any information about the individuals that prepared the document. The Plan also lacks clear dates for when studies were conducted. Some dates may be found in the Appendix, but should also be stated in the main text.

So noted.

This plan also relies heavily on the use of the forest and wetland Best Management Practice Manual which is not adequate, nor appropriate, for public lands. The existing BMPs include no mention of protection from herbivory, no monitoring, no discussion of invasives and the E&S requirements are suitable for temporary stabilization only. Additional BMPs are needed to meet the stated goals of this plan.

Forest and Wetland BMPs were written to protect water quality. We have met and exceeded the BMPs for activities near wetlands.

The Natural Heritage Committee appreciates the opportunity to submit these comments on the Weldon Brook Wildlife Management Forest Stewardship Plan and would like to arrange a follow-up meeting with members of the Division of Fish & Wildlife and perhaps the authors of this Plan. Representatives of the Committee will contact Ms. Dunne to arrange for a meeting or further discussion. Thank you for this opportunity to strengthen this thorough management plan.

We appreciate your review and comments and feel the plan is better as a result of your input.

Wade and Sharon Wander, Wander Ecological Consultants

The plan states "[b]y practicing forestry on this WMA, the Division seeks to mimic the natural disturbances that would cause early successional forest to be created, while generating income from forest products to offset the costs of creating habitat and other management activities suggested herein." So because the Division is too impatient to let natural disturbances—windstorms, ice storms, insect outbreaks, fire—occur on their own timescale, it is proposing what will obviously be a hugely expensive management plan simply to speed up the process. Superstorm Sandy has provided ample evidence that natural events are still having extensive disturbance impacts on NJ forests.

While natural disturbances do occur and numerous trees have been blown down as a result of Hurricane Sandy, these scattered blow-downs are not large enough to provide sufficient breeding habitat for golden-winged warblers and many other early-successional species. Given the lack of controlled burns and prevention of wildfires in this area, it is unlikely that natural disturbances, by themselves, will create the breeding habitat for golden-winged warblers in time to prevent the extirpation of this species in NJ. Our mandate to protect and conserve wildlife requires that we take action where we can, and not wait for nature to take its course.

Much of the justification for this expensive plan is tied to the creation of habitat for Golden-winged Warbler. However, the assumption that habitat loss is a major factor in the decline of GWWA in northwestern NJ is unjustified. Many areas of habitat formerly occupied by this species are still available, and still occupied by species of similar habitats such as Prairie Warbler, Chestnut-sided Warbler, Willow and Alder flycatchers and, of course, Blue-winged Warbler. GWWA's range in NJ has shrunk mainly to higher elevations, probably under competitive pressure from BWWA and possibly also owing to climate change. Neither of these impacts is likely to change soon. BWWA is already following GWWA to higher elevations (it has been observed along the powerline through Weldon Brook), and any habitat created for GWWA probably has an equal chance of attracting its competitor. Will BWWAs be "controlled" if they attempt to occupy this very expensive GWWA habitat?

The Division agrees that loss of breeding habitat through development and succession is only one of the many factors contributing to the decline of golden-winged warblers in the Northeast. Other factors include loss of wintering habitat, competition/hybridization with blue-winged warblers, and climate change, and these factors are not being ignored. Through the initiatives of the Golden-winged Warbler Working Group and the Appalachian Mountain Joint Venture, conservation groups in Central and South America are researching, targeting and acquiring critical wintering habitat for golden-winged warblers, groups in Mexico are monitoring and acquiring important migratory stopover locations, and groups in the US, particularly in the Northeast, are researching, targeting, and implementing best management practices for golden-winged warbler breeding habitat. Given the rate of loss of golden-winged warblers in the Northeast, with some of the steepest declines in NJ, coupled with the limitations of what the Division can do for its rare and declining species, and the probability of utility companies managing most of their lines every few years to not compromise reliability, Part of the regional golden-winged warbler research includes differences in habitat preferences between blue-winged and golden-winged warblers. The Division is using this information to create this plan and intends to continue with the treatments necessary in order to optimize the likelihood of attracting breeding golden-winged warblers while excluding blue-winged warblers. Therefore, the Division plans to "control" the presence of blue-winged warblers through this habitat exclusion. Destruction of eggs, chicks, and/or adults is the only known alternative to controlling their population. This kind of control is not an option for the Division because blue-winged populations are also in decline, listed as SGCN in the NJ WAP, and they are protected from harm through ENSCA and MBTA.

The proposed method of creating GWWA habitat—modified seed tree harvests (i.e., virtual clear-cuts) within currently intact maturing/mature forest—entails many adverse impacts that outweigh the benefits:

Most of the forest to be cut for GWWAs contains abundant understory and advance regeneration which will benefit not only GWWA but other forest songbirds and raptors when released by overstory removal. These cuts will regrow into young forest which does not fragment the forest but provides important foraging and post-fledging habitat for forest birds as well as breeding habitat for many young forest species.

Widespread soil disturbance and canopy opening that creates ideal conditions for the wholesale spread of alien invasive species, which are proposed to be controlled with herbicides. Invasion by Japanese Stilt Grass, for example, would be particularly undesirable in "Golden-winged Warbler management areas," as this species needs access to an area of natural grassy/herbaceous ground cover as part of its habitat mosaic.

Exotic invasions following harvest are partially a function of the condition of the site pre-harvest. At Sparta Mt, there were few invasives on site prior to activity, and few immediately after harvest. We will be diligent in monitoring and remediating at Weldon Brook.

Extensive herbicide spraying for "control of competing understory vegetation" (p. 47). In order to promote the regeneration of "desirable" tree species, not only exotic invasive plants, but also "...ferns, mountain laurel, and other [native] plants" would receive either "selective" or "broadcast" herbicide treatment (the latter on areas as large as 5 acres). Many plants other than the target species will of course be killed by such herbiciding. Native vegetation should not be sacrificed to achieve a forester's idea of perfect growth conditions for what a forester considers to be "desirable" tree species. The plan indicates (p. 48) that "[t]o the extent practical, the Division will utilize biological controls..." However, because no biological controls are currently available for any of the alien species mentioned as being present, this statement is highly misleading.

Desirable species are those that would be the most beneficial for golden-winged warblers for nesting and foraging (grasses and forbs, deciduous shrubs and trees) with minimum risk of overtaking the site (Autumn olive). As biocontrols become developed (some are in the process of gaining FDA approval) they will be deployed.

Widespread canopy opening both from harvesting and "forest stand improvement" (i.e., canopy thinning) will change microclimate conditions for rare (and not so rare) plant species of the forest floor, as well as for amphibians and many soil and litter invertebrates. And of course all of these could be severely impacted by heavy machinery.

Yes it will change microclimate conditions and the Division is willing to alter management in areas where it could negatively impact rare plants, amphibians, and invertebrates. Most of the harvesting will take place during the winter when there is the least disturbance and impact from machinery.

Although cursory surveys for rare plants were included in the initial forest inventory, any further surveys proposed under this plan should be conducted by qualified and experienced field botanists at appropriate dates during the growing season.

We agree. This was addressed in the plan as Tier III data collection (p. 85).

Removal of trees will greatly reduce the biomass of foliage-feeding lepidoptera (mostly moth) larvae (a critical food source for nesting forest songbirds).

This will be a temporary loss that will be recovered through regeneration, and the cuts will be inconsequential to many forest invertebrate populations given the areas to be cut in proportion to the amount of forest in the area. Forest thinning and creating forest gaps for regeneration is extremely beneficial to these early-successional invertebrates and will also create areas for nectar sources that did not previously exist.

Preferential removal of tree species that are considered "poor," "inferior," "undesirable," and "unacceptable" (in terms of commercial forestry, but not legitimate concepts ecologically except for alien species) will greatly reduce food sources for birds, small mammals, and hundreds of lepidoptera species that feed on their seeds and foliage.

Desirable species are those that would be the most beneficial for golden-winged warblers for nesting and foraging (grasses and forbes, deciduous shrubs and trees) with minimum risk of overtaking the site (Autumn olive). And again, each cut will be allowed to regenerate and likely greatly increase food sources.

The GWWA Management Area plan (p. 67) gives almost no emphasis to developing/maintaining the native shrub component that is a prominent feature of GWWA habitat, or to the desirability of including a wetland component. Most of the activities simply seem directed at perpetuating an uneven-aged upland oak forest, not at developing the complex mosaic of forest edge, shrubland, and grassy upland/emergent wetland that characterize GWWA habitat. The coarse woody debris recommended to be left at shoulder height may act as a deterrent to deer herbivory but is not a normal component of GWWA habitat.

The importance of native shrubs has been understated in the plan. We recognize the importance of a diversity of native shrubs for a variety of wildlife. The attention to the shrub component is implied in that section in which monitoring and adaptive management are discussed. Research on utility ROWS in NJ showed no difference between the amount of slash within sites occupied by golden-winged warblers and sites without golden-winged warblers. Therefore, while it is not a necessary component of golden-winged warbler breeding habitat, it is also not a hindrance as long as the slash piles are scattered to allow herbaceous vegetation to grow and may benefit regeneration by protecting young shoots from deer browse.

If the drive to create GWWA habitat is unstoppable, a much easier, cheaper, and less ecologically destructive method could be pursued: Plant trees—or simply allow natural succession to proceed—in the boundary areas of the powerline. The combination of the forest edge on one side, the maintained cleared area directly under the lines on the other, and this successional area in the middle, could provide the structural mosaic preferred by GWWA, especially in the vicinity of wetlands. By cutting the trees on an appropriate rotation, and with control of alien shrubs, this habitat could be perpetuated. It is important to note that GWWAs recently occupied such habitat until power companies began to implement total clearing of their ROWs. (Although Objective 1.1.1 [p. 9] mentions increasing scrub-shrub habitat along the powerline, it is to be done by destroying forest, not by planting or succession.)

Changes to FERC regulations require utility companies maintain their lines so as to not compromise the reliability of the energy supply. This means woody vegetation over 3 feet tall is not allowed in the wire zone, and fast-growing trees under the wire zone are targeted for treatment before they reach this height. Taller woody vegetation can grow in the border zone, but in NJ the border zone along 240 KV line tends to be only about 15 feet on each side of the wire zone. Furthermore, fast-growing trees will be targeted for treatment prior to reaching the threshold height allowed in the border zone. While the DFW and other conservation groups have been working with the utility companies to manage spans for golden-winged warblers and other species, and while progress has been made, it is unlikely that all the lines in northwest New Jersey will be managed in a way that will benefit golden-winged warblers (allowing tall woody vegetation in border zone, staggering management of spans, etc.). Furthermore, for those few spans that are managed in a way to benefit golden-winged warblers, sustaining this management regime cannot be guaranteed because when the time comes to upgrade lines, change towers, etc., or regulations on reliability become more strict, the lines will be cleared regardless of species present. Given that about half the NJ breeding population breeds along these ROWs, the Division is not willing to rely

solely on utility companies to manage for one of its endangered bird species.

Adequate buffer zones are not provided around vernal ponds. To cover the dispersal distance of the farthest-dispersing *Ambystoma* salamander (Jefferson's), a "protection zone" of at least 300 meters would be needed (within which no tree removal, herbicide use, insecticide spraying, heavy equipment traffic, or road development should be allowed).

Most of the vernal ponds are in the designated Old Growth areas which will not receive treatments. We agree and will endeavor to keep vernal pools connected.

The claim that "non-target Lepidoptera species could easily disperse" from areas sprayed for Gypsy Moth (p. 63) is simply ludicrous. They will be sprayed and killed, just like the Gypsy Moth larvae—probably millions of larvae of hundreds of species (mainly moths) that are critical to the ecology of the forest, particularly as food for forest songbirds and their nestlings.

The Division will not treat gypsy moth on WMAs. This section was removed from the plan.

No budget is provided to demonstrate that—throughout its lifetime—the project would generate adequate income to fund the advance studies, pre-harvest planning, searches for protected species, access development, actual cutting/girdling/burning activities, aerial insecticide spraying, control of invasive species, deer exclusion fencing, tree planting, inventorying and monitoring, etc. If adequate income is NOT generated, will the plan, or certain elements of it, will be abandoned? At what point will this be evaluated?

The DFW is committed to not only developing plans but to implementing them as well.

The names of those who did the fieldwork and prepared the plan—and their qualifications—are not provided, nor are the dates on which fieldwork was conducted (which is relevant to surveys for rare plants).

See appendix

P. 1-- Wildlife dependent on early-successional forest habitat are in serious decline in New Jersey. No citation or evidence is provided to support this statement. Which species? Evidence of decline in Prairie Warbler, Blue-winged Warbler, White-eyed Vireo, Yellow-breasted Chat, both Cuckoos, Indigo Bunting, Alder/Willow Flycatchers?

See p. 29.

P. 3.—Woodland Vegetation Map 2012. The map has no legend, and is not related to the surrounding text. The "stand" labels are not explained until p. 28, and their description does not begin until p. 38.

The plan has been edited to accommodate this comment.

P. 10--Two reasons exist for this dramatic decline: loss of habitat on breeding grounds, and competition/hybridization with the blue-winged warbler. No citation is provided; ignores possible impact of climate change.

It is widely recognized that loss of breeding habitat through development and succession is only one of the many factors contributing to the decline of GWWA in the Northeast. Other factors include loss of wintering habitat, competition/hybridization with blue-winged warblers, and climate change, and these factors are not being ignored. Through the initiatives of the Golden-winged Warbler Working Group and the Appalachian Mountain Joint Venture, conservation groups in Central and South America are researching, targeting and acquiring critical wintering habitat for golden-winged warblers; groups in Mexico are monitoring and acquiring important migratory stopover locations; and groups in the US, particularly in the Northeast, are researching, targeting, and implementing best management practices for golden-winged warbler breeding habitat. Given the rate of loss of golden-winged warblers in the Northeast, with some of the steepest declines in NJ, coupled with the limitations of what the Division can do for its rare and declining species, and the probability of utility companies managing most of their lines every few years to not compromise reliability, habitat management is one of few options.

P. 2--By practicing forestry on this WMA, the Division seeks to mimic the natural disturbances that would cause early successional forest to be created, while generating income from forest products to offset the costs of creating habitat and other management activities suggested herein. Superstorm Sandy has created many natural disturbance areas in north Jersey forests, probably including Weldon Brook, that might reduce the need for such extensive management. What about openings created by past/recent Gypsy Moth outbreaks? Ice storms? Fires? Emerald Ash Borer and the disease ash yellows are likely to create more. This management plan becomes a self-perpetuating cycle, where income must constantly be generated to cover the costs of management that in most cases can/should be left to nature.

While natural disturbances do occur, these scattered blow-downs are not large enough to provide sufficient breeding habitat for golden-winged warblers and many other early-successional species. Given the lack of controlled burns and prevention of wildfires in this area, it is unlikely that natural disturbances, by themselves, will create the breeding habitat for golden-winged warblers in time to prevent the extirpation of this species in NJ.

<p>P. 6—Other forest age classes were created from later abandonment of agricultural lands, and from forest regeneration harvests, as well as from natural events such as severe wind events, fire, and severe insect infestation. That mosaic of different age classes and cover types supports the high species biodiversity of the region, according to the 2002 USDA Forest Service report on the NJ Highlands. This seems to be an admission that a mosaic of age classes and high biodiversity already exists on the WMA. The natural disturbance events are ongoing (see: Superstorm Sandy), therefore the need for artificial disturbance is questionable.</p>	<p>Stand age on the WMA is not diverse. See Forest Description and Findings section. Natural disturbance does occur but not on a significant enough scale to prevent the extirpation of GWWA in this area.</p>
<p>P. 10--GWWA needs early successional forests within forest-dominated landscapes at higher elevations (generally 950' and greater). GWWA habitat is more complex than that—it includes forest edge/young forest with grassy/herbaceous openings and shrub cover. GWWA formerly used habitats, including fens and bogs, at lower elevations.</p>	<p>See Section 3.13.2 for a description of GWWA management area guidelines.</p>
<p>P. 20-- Since food and shelter requirements vary widely for different wildlife species, forest management practices should endeavor to enhance conditions which will improve habitat for a great many species, instead of focusing on one particular species. But this plan is focusing largely on a SINGLE species—GWWA.</p>	<p>The golden-winged warbler is the focal species of this plan because it is one of the more particular species in terms of nesting habitat needs, as well as one of the rarest species that breed in shrubby/young forest habitat. This region of the state contains the best potential habitat as a result of landscape composition and elevation. The creation of openings in the forest that are allowed to regenerate into young forest will also provide breeding habitat for a suite of bird species (ruffed grouse, prairie warbler, wild turkey, eastern towhee, cerulean warbler) and insects (northern metalmark, Arogos skipper, Leonard's skipper, bronze copper) as well as foraging habitat for many forest species (wood thrush, black-throated green warbler, bobcat, barred owl, red-shouldered hawk, a variety of dragonfly).</p>
<p>P. 20—Wildlife benefits....Does not mention birches, whose seeds are eaten by wintering birds. Or maples, whose seeds are eaten by small mammals. Completely ignores invertebrates, e.g., lepidoptera (especially moths), whose larvae feed on more species than mentioned here—e.g., maples.</p>	<p>We do not intend to eliminate birches and maples -- they are abundant. We only intend to favor oaks with the management that is done.</p>
<p>P. 21--...poor and inferior trees....There is no such thing ecologically, unless you are talking about alien invasive species.</p>	<p>Desirable species are those that would be the most beneficial for golden-winged warblers for nesting and foraging (grasses and forbes, deciduous shrubs and trees) with minimum risk of overtaking the site (Autumn olive).</p>

P. 25—The presence of oak-dominated forests today....Appears to suggest that this area now has an adequate diversity and abundance of oak cover that is not necessarily shifting to maple-dominated. No evidence of such a shift is discussed in the following pages.

The shift from oak to maple dominated forest is well documented throughout the northeast. We are concerned about the shift from oak to maple since it is so important to so many species of wildlife.

P. 25-- Thus, even-age regeneration techniques such as clearcuts, seed-tree harvests, and shelterwood harvests have dramatically decreased on private lands....This statement appears to be setting up for recommendation of these extreme techniques (implied in the next sentence to be necessary for promoting oak regeneration) on this public land.

Oaks will germinate but not thrive under a closed canopy. They need to have the canopy released in order to thrive.

P. 26-- However, many forests within the Highlands already contain multiple forest stands of varying ages, due to differing periods of forest establishment from clearing for charcoal, the abandonment of marginal agricultural lands, and past forest regeneration harvests. Another admission that Highlands forests are NOT necessarily even-aged.

Stand age on the WMA is not diverse. See Forest Description and Findings section.

P. 26-- For species that require unbroken canopy of a certain extent, this Plan recommends that forest planning for forest area birds reflect a minimum requirement, not an absolute requirement that all forest somehow ceases development for the benefit of a small number of species, to the detriment of other species. Yet the main thrust of this Plan is management for a single species—GWWA. This is a very grudging accommodation to the needs of area-dependent forest species (what has happened to the imperative to avoid forest fragmentation?). Plus, different forest-dependent species require different minimum areas. The requirements for the largest areas—e.g., many hundreds of acres for raptors—would have to be met. Even for bird species requiring smaller areas, leaving the minimum requirement means that the area can hold only an insignificant population.

Area-sensitive species require a minimum amount of interior, or "core", habitat for successful breeding, and this minimum can vary depending on the habitats in the surrounding matrix. For forest species, core habitat is the forest habitat at least 90 meters inward from the forest edge. The minimum core required to provide suitable breeding habitat for area-sensitive species is 10 ha for forest (Franklin 1993, Faaborg et al. 1995, Dawson et al. 1993, Dawson et al. 1998) and area-sensitive birds tend not to occur in forests (or grasslands) that lack core habitat (Forman et al. 2002, McCollin 1998). When assessing the impacts of forest fragmentation from a landscape perspective, we need to look at the size and number of habitat patches left in the area, how far apart these patches are from each other (degree of isolation), how different the surrounding area (matrix) is from the habitat type, the type and duration of disturbance, and whether there is any type of connectivity or corridor between patches to aid animals in moving from patch to patch (Wiens 1996, Marzluff & Ewing 2001).

The definition of habitat fragmentation by Faaborg et al. (1995) is the process of converting a large, continuous patch of a similar vegetation type into smaller patches of different vegetation types in a way that only scattered remnants of the original vegetation type remains. While it can be argued that a large corn field, housing development, and even a double-wide ROW maintained every 2-3 years will fragment a forest and reduce the abundance and nesting success of many forest birds, the argument doesn't stand when talking about creating a disturbance in small patches of forest to promote regeneration of young forest, or forest stand improvement (forest thinning). In this plan, we are simply proposing to create small patches of young forest, within a forest matrix, in close enough proximity to each other to allow for the movement of early-successional species between patches, while maintaining the integrity of the forest patch as well as the connectivity between vernal pools and other wetlands within that forest patch.

P. 27-- Competing vegetation such as exotic invasive species within harvest sites will be controlled before and/or after harvest. The specific species of concern should be addressed and examples given of successful control projects. Control is labor-, time-, and money-intensive, and basically unending. In addition to harvest areas, new logging roads will inevitably result in the introduction and spread of invasives.

Attention will be paid to control of invasives in specific areas scheduled for harvest. This is a much smaller area to treat but should help prevent unwanted release of exotics within the harvest areas. There won't be any new roads created.

P. 27--...the problem of deer browse...Discusses a "predictive model of regeneration success," but does not discuss what the response would be if the model predicts success to be unlikely. Deer browse is likely to be a huge problem but gets only the most cursory acknowledgement here. The only methods of deer control discussed anywhere in the document are exclusion fences and leaving shoulder-high woody debris in harvest areas. On a WMA, shouldn't significantly increasing the deer harvest be an option?

Deer density in this zone is low, 31 deer/sq mi on average. Recreational hunting has been effective at keeping deer numbers at a reasonable level as evidenced by the understory present. Exclusion fencing will be used only if regeneration is not adequate.

P. 28—The inventory included a tally of both acceptable and unacceptable growing stock....Again, from an ecological, not economic, perspective, there is no "unacceptable growing stock" other than alien invasive species.

Acceptable and unacceptable growing stock are terms widely used to describe forest stands, and though they have an economic context, the terms also relate to forest health.

P. 33—A search was made for these plants... Since the field personnel had to be provided with pictures of the plants in question, it would have been better to have qualified botanists conduct these searches.

In our experience, botanists use field guides to check identification. Plants were inventoried at the time of year when floral parts and leaves were present for identification.

<p>P. 47--For areas with minor (<15% cover) non-native and native non-fern understory competition problems, selective herbicide treatment would be appropriate. The proposal to remove native understory "competitors" of trees focuses only on the goal of producing trees that are economically desirable, altering the natural structure of the forest and ignoring the value of understory vegetation for wildlife food, shelter, and nest sites.</p>	<p>For the most part this section refers to invasive exotic shrubs. Eliminating native shrubs is not the desire of this plan.</p>
<p>P. 48-- To the extent practical, the Division will utilize biological controls for competing vegetation so long as such controls can be expected to reliably control such vegetation within the schedule provided within this Plan. The Southeast Exotic Pest Plant Council Invasive Plant Manual (referenced on p. 27) does not indicate the availability of biological controls for any of the invasive species mentioned on p. 47, nor does an Overview of Nonindigenous Plant Species in New Jersey (NJDEP 2004) These manuals do not include Phragmites or Mugwort, but we are unaware of any biological controls for these species either. It is misleading to claim that such controls will be used.</p>	<p>Biocontrol of some of the problem invasives is on the horizon and will be utilized when available.</p>
<p>P. 48-- Portions of this WMA currently support maturing to overmature upland hardwoods that are fully stocked, where higher-quality, more desirable trees are competing with inferior trees [identified on p. 49 as "red maple, black birch, and other poor trees"]....Ecologically, there is no such thing as "overmature," or an "inferior" tree, and trees are not [later in the same paragraph] "undesirable" because they are "dying, deformed, or diseased." All these are value judgments based on economic, not ecological, considerations.</p>	<p>Desirable species are those that would be the most beneficial for golden-winged warblers for nesting and foraging (grasses and forbes, deciduous shrubs and trees) with minimum risk of overtaking the site (Autumn olive).</p>
<p>P. 49-- Girdling, instead of felling, is an acceptable form of forest stand improvement. Girdling appears to be much more desirable than felling, as it would avoid the problem of too much structure in GWWA habitat, would avoid damage to forest soils and vegetation by heavy machinery, and eliminate the need for logging roads. Also, standing dead trees provide more habitat for cavity-nesting birds, perching raptors, etc., than felled trees. The reduced soil disturbance may limit opportunities for invasive species to take hold.</p>	<p>We agree that girdled trees have great wildlife value. The practice of girdling has to be done with an eye toward not creating hazard trees in areas where they could fall across a trail.</p>
<p>P. 50--...as a one-time harvest within areas designated for old-growth habitat in order to create the necessary forest structure. Areas designated as old-growth habitat should be contiguous, not in small, scattered parcels.</p>	<p>Forest within the entire WMA will remain contiguous except where the ROW bisects it.</p>
<p>P. 50—Group selection harvest. The clearcut areas produced by group selection harvest would open up ideal patches for invasion by alien species.</p>	<p>We disagree and will monitor and treat as needed.</p>

P. 51—Modified seed tree harvest. The extensive opening of the forest would invite invasion by alien species. Invasion by Japanese Stilt Grass, for example, would be particularly undesirable in "Golden-winged Warbler management areas," as this species needs access to an area of natural grassy/herbaceous ground cover as part of its habitat mosaic.

We don't agree that opening of the forest canopy will result in invasion by stiltgrass.

P. 52—Vernal pools. The "protection zone" should be considerably larger, perhaps 300 meters, to cover a good proportion of the dispersal distance of *Ambystoma* salamanders, especially *jeffersonianum*, which may disperse farther from breeding pools than other species, and should have zero, not "minimal" tree cutting and no heavy wheeled or tracked equipment allowed. The "amphibian life zone" should extend at least another 100 meters and likewise should have no heavy equipment allowed.

We agree. In this plan, we are proposing to create small patches of young forest, within a forest matrix, in close enough proximity to each other to allow for the movement of early-successional species between patches, while maintaining the integrity of the forest patch as well as the connectivity between vernal pools and other wetlands within that forest patch. In this plan, forest corridors between vernal pools and other wetlands will be maintained.

P. 59—Forest interior bird considerations. Although it is difficult to understand from this poorly worded paragraph, the plan appears to allot only 71.25 acres (25% of 285 ac. of Future Old Growth Forest) to forest-interior habitat (at least 300 feet from an edge). This is not nearly adequate to support viable populations of forest-interior species, especially raptors. Concern for forest-interior birds seems to have evaporated in the drive to create GWWA habitat. The map that is referenced on p. 83 shows something labeled "Core Forest," which totals 761 acres and is obviously not the 71.25 acres calculated above; it is not clear how this map "illustrate[s] forest interior bird habitat."

We disagree that this plan proposes to eliminate forest-interior habitat adequate to support viable populations of forest-interior species (including raptors). According to this plan, the creation of 30.7 acres of new young forest every five years for 80 years will provide a mosaic of age classes and sustain about 150 acres of young forest (age 0-20 years) in Weldon Brook WMA at a given time. See also comment about "core forest" under P. 26 comments above.

We have edited this section to remove any confusion, however, we stand behind the text. As stated in the objectives, at least 285 acres was to be dedicated to the Future Old Growth Forest Management Area. The chapter on which you are commenting lays out the various considerations for deciding where the various management areas would be placed within the WMA and how much area to dedicate to each. As is shown in Chapter 3.13, the area dedicated to Future Old Growth Forest Management Area was 514 acres (therefore, at least 285 acres). This Plan describes forest interior bird resources in considerable detail.

P. 63—but not any lands [would be sprayed for gypsy moth] within these areas that are within 150 feet of vernal pools, wetlands, or open water. Given the interspersion of wetlands, ponds, vernal pools, and streams on this WMA, a very large proportion of the site meets these criteria. It is unrealistic to think that aerial spraying could be accomplished on such a fine scale in this setting, and even if it could, some insecticide would inevitably drift onto nontarget areas. It is also not realistic to think that a pilot could pick out only the "oak-dominated stands" for spraying.

Gypsy moth will not be treated on this WMA under any circumstances. The plan has been edited accordingly.

P. 63--In this way, non-target Lepidoptera species could easily disperse into treatment areas from non-treated areas in the event that spraying affects said species within treatment areas. A. this statement appears to state the reverse of what it intends to state—presumably, if Lepidopteran larvae were to disperse it would be from treated to non-treated areas. B. However, it is extremely unrealistic to think that larvae of nontarget species (of which there are likely hundreds of species on this site) would "know" where nontreated areas were, and that (presumably after being sprayed) they could travel the distances necessary to reach them. And if such dispersal were actually possible, wouldn't the gypsy moth larvae also disperse away from treatment areas?

P. 64--an emerging threat also exists for white ash trees within this WMA. If numerous ash trees are killed by ash yellows, this will provide a natural disturbance that will mimic some of the management (group selection?) proposed here, thus lessening the need for that type of management.

If this does occur, it is not likely to create large enough openings sufficient to create the habitat necessary for species like GWWA. In either case, we will monitor the changes and respond via adaptive management.

P. 69--Sec. 3.13.3 Future Old Growth Forest Management Area. Confusion as to acreage/names! Here: FOGMA=514 acres, of which 432 will remain unmanaged and 82 will receive uneven-age management for forest-interior birds (FIB). On p. 59 is mentioned 285 acres of FIB habitat, and also that FIB habitat would comprise at least 25% of the FOGMA. $25\% \text{ of } 514 = 128.5$, not 82. To add to confusion, map on p. 83 has areas labeled "Core Forest," totaling 761 acres. Core Forest is never defined anywhere. How does it relate to FOGMA and FIB habitat? Group selection cuts are also allowed within the 432 acre section at a maximum size of 1/4 acre...This contradicts the statement 3 paragraphs earlier that the 432 acres "will not receive further forestry activities." Somewhere you need a table quantifying what is to be cut where for what purpose.

To clarify: the total area of the Future Old Growth Forest Management Area is 514 acres, of which 432 acres will receive no further tree cutting activities. The remaining 82 acres will be managed using uneven-aged management techniques to enhance old growth forest characteristics.

<p>P. 70—Riparian Buffer Management Area. Are both this and 70-foot Streamside Management Zone (p. 53) necessary? Given that the area gained by managing the additional width between 70 feet (SMZ) and 150 feet (RBMA) is only 10 acres, it would seem logical to let it ALL remain unmanaged and save the cost of pre-harvest planning, field verification of SMZs, competing understory vegetation control, the actual harvesting, deer enclosure fencing, monitoring, etc. In the 4th paragraph, last sentence: "inconsistent" should probably be "consistent."</p>	<p>The Division retains the right to cancel planning for any group selection cut in the Riparian Buffer Management Area or Future Old Growth Forest Management Area if it determines that the benefits to wildlife resources are not worth the cost of implementation. Regarding "inconsistent," we have made the correction.</p>
<p>P. 72—pre-activity protected flora and fauna searches shall be incorporated...It should be specified that these searches will be conducted by qualified botanists and biologists, not by persons lacking specific expertise in these areas.</p>	<p>These searches are addressed in the plan as Tier III stand/WMA inventory (Section 4.4 Monitoring Program).</p>
<p>P. 75—The three greatest threats to the sustainability of the WMA are (1) the extirpation of GWWA and other early successional species from the WMA through habitat loss, (2) the gradual decline of the oak component of the forest and its replacement with less desirable black birch, red maple, and sugar maple, and (3) continued proliferation of non-native invasive plants. No evidence has been introduced to support the idea that oak is declining on the WMA and that "less desirable" species are replacing it. The idea of "less desirable" species is not ecologically valid. This is a distinction mainly related to economic forestry.</p>	<p>Desirable species are those that would be the most beneficial for golden-winged warblers for nesting and foraging (grasses and forbes, deciduous shrubs and trees) with minimum risk of overtaking the site (Autumn olive).</p>
<p>P. 76—The goal of controlling alien, invasive species is laudable, providing care is taken to avoid impacts to native forest plants. ...regeneration areas should be treated several years post-harvest. These areas will be overrun with Japanese Stilt Grass in a year or two, to the detriment of native forest herbs and tree seedlings. Control should begin in year 1.</p>	<p>We agree and plan to monitor and treat as soon as is needed.</p>
<p>P. 77—Forest Stand improvement...Some oak-dominated areas...It is not made clear until p. 80 where these areas are—this represents additional cutting within the GWWA, RBMA and FOGMA.</p>	<p>As stated in that paragraph, this represents activity within the Golden-Winged Warbler Management Area, General Forest Management Area, and non-SMZ portions of the Riparian Buffer Management Area.</p>
<p>P. 82—Activity Schedule Map. It is unclear when MST, FSI and GS activities will occur. Is this just one year's cutting, or are these the areas that over the life of the Plan will be subjected to these activities?</p>	<p>The activity schedule is clearly explained in Chapter 4.3. A legend exists on the map you refer to showing where and when each of the Modified Seed Tree Harvests and Group Selections will occur. The area shown on the map as recommended for Forest Stand Improvement will be accomplished over the life of the plan according to the activity schedule in Chapter 4.3.</p>

<p>P. 83—Edge Effects Map. This map could use a legend or further explanation. What is "Core Forest"? That has never been defined in the text. It can't be areas that will remain uncut, because some of the activities on the previous map overlap with Core Forest on this map (e.g., FSI at the upper left).</p>	<p>This map has been eliminated. By definition, none of the harvesting activities will create permanent edge, so the amount of edge at the beginning of the plan will be the same as at the plan's conclusion barring no additional development on the WMA's borders.</p>	
<p>P. 84—Monitoring Program. One of the goals of this Plan is to demonstrate that public forests can be sustained on an economic and environmental basis. The incredibly extensive monitoring proposed is certainly laudable, but—as conceded—it is unlikely that the cost (including additional staff) could be covered by the income generated from forestry on this site. "External funding" is mentioned—what are the possible sources? What is a realistic estimate of the likelihood of anything resembling this monitoring program ever being implemented? Sustainability includes...no loss or decline of species.... The monitoring should therefore extend to other than rare, threatened, or endangered species. At the very least, forest-interior birds (including raptors) should be surveyed, prior to the initiation of the Plan, and periodically during its course. Other groups that should be monitored include obligate vernal-pool species, small mammals, lepidoptera, and forest odonates.</p>	<p>Forest bird surveys have been done by ENSP staff (see comment above) and will continue to be done. Bat monitoring will be undertaken. Monitoring for invasives will undertaken. We agree that comprehensive inventories of plants and wildlife should occur here and on all public land, but it will likely be done in a piecemeal approach as funding permits.</p>	
<p>P. 84—The monitoring plan supports the needs of Chesapeake Forest Lands using a multi-tiered approach: Oops, your boilerplate is showing.</p>	<p>So noted, plan edited.</p>	
<p>sen, National Wild Turkey Federation Conservation Field Supervisor</p>	<p>I have reviewed the plan prepared for the Weldon Brook Wildlife Management Area. The plan is extremely detailed, comprehensive and well written. The prescriptions for the timber stands are well suited for each of the individual stands and the treatments should produce the desired results. Understandably the golden-winged warbler is the featured species for this plan as the species is in trouble throughout its range in the Appalachian region. Given that much of the golden-winged warbler focus area in New Jersey is in public ownership the responsibility for much of the land management designed to benefit the species will be on public land managers. Young forest has declined markedly in recent decades due to poor timber management, public sentiment regarding timber harvest and forest maturation. As the Appalachian forests matured the oak component declined. Shading issues, deer browsing, lack of fire and other factors will work to continue this trend unless steps are taken to actively manage good oak sites. This plan outlines reasonable steps to accomplish management that will encourage the oak component as well as provide habitat for disturbance dependent species. While the focus is on disturbance spread out over a period of time the plan also provides adequate provision for forest interior species.</p>	<p>We agree that public land may be the only place that management can be undertaken on a significant scale to be able to achieve desired results.</p>

Bob Eriks

I did not find any issues in my review of the plan that caused me concern. One suggestion I have is that a little more emphasis might be placed on game species within the text, especially on ruffed grouse and American woodcock. Grouse and woodcock are two other species of special conservation concern. The work planned for golden-winged warblers will have a positive impact on grouse and woodcock habitat. That fact should be a bit more prominent in the plan. We need to remember that hunters have long been the voice for conservation and that management actions benefitting nongame species can have a positive impact on this group of outdoor enthusiasts.

We believe that the plan will benefit both game and nongame species through sound forest management practices, and the plan will be edited to reflect this goal. We are appreciative of the support from all of our constituencies and recognize the significant contributions hunters and anglers have made to conservation for more than a century.

While deer exclusion fencing might be required to accomplish regeneration of desired plant species, this is an expensive proposition. Prescribed fire can be a management option that will help to overcome the results of selective browsing by targeting less desirable tree and shrub species that compete with oak seedlings for a place in the canopy. Even within deer exclosures prescribed fire should be a tool that receives increased attention in order to influence plant species composition. As the plan mentioned judicious herbicide application and mechanical treatments will be required on a regular basis to discourage non-native invasive plant species. The plan lists this as a priority and I would agree whole-heartedly.

Fire will be used when and where feasible and only with the support and oversight of the NJ Forest Fire Service.

This plan is quite complex and will require attention to detail and monitoring to gauge success at reaching the objectives. The objectives are clearly spelled out and monitoring needs to be done to document accomplishments and provide data for continued good management of our forest and wildlife resources. On behalf of the volunteers members and Board of Directors of the New Jersey Chapter of the National Wild Turkey Federation I endorse the concepts and procedures outlined in the plan.

We welcome your participation in monitoring in any capacity.

John Cecil, NJ Audubon Society

Overall the Weldon Brook Wildlife Management Area Forest Stewardship Plan (FSP) is one of the most thorough and complete FSPs in NJ that NJ Audubon staff can recall reviewing. The plan is quite thorough in many aspects of its content particularly the consideration to rare and declining species including Golden-winged Warbler and Indiana Bat.

The plan does a good job of outlining the relevant conservation actions and strategies described in the NJ State Wildlife Action Plan and Forest Action Plan. Further the plan authors have done a good job of considering those actions and strategies through its goals and objectives and in the overall treatment of the natural resources found within the WMA.

The plan appears to adhere to the inclusion of all Forest Stewardship Council recommended management plan elements. Considering how closely the plan follows FSC guidelines we encourage NJ DEP to go the remaining distance and get the plan FSC approved and certified.

We followed FSC principles in the event that it becomes feasible to obtain FSC certification in the future.

The plan does a good job of laying out historical landuse in the area and the history of the property specifically. Regarding cultural resources the plan author has indicated (via personal communication) that the Sparta Historical Society was consulted and provided input informing how cultural resources on the property would be addressed.

The emphasis on rare and declining species, particularly Golden-winged Warbler is an important component of the plan and an essential element of habitat management at Weldon Brook WMA. At the same time the plan should, and to a degree does, recognize the benefits provided to other early successional species (*e.g.*, Ruffed Grouse, Prairie Warbler, Yellow-breasted Chat, foraging Wood Thrush, Wild Turkey, etc.) as well as species benefiting from the management of old growth habitat (*e.g.*, Cerulean Warbler, Barred Owl, Northern Goshawk, etc.). More emphasis could be placed on benefits to other species with specific connections made to the goals and objectives of the plan. This emphasis could include noting other species that will benefit from specific treatments or stand improvements, simply referencing additional species at appropriate locations in the plan.

The plan will be edited to reflect our intention to provide habitat benefits for a number of species.

Additional clarity regarding the management and rotation schedule would be helpful. Consider providing a table detailing harvest schedule by stand. It's not clear within particular stands that are slated for multiple treatments whether those treatments will occur in the same areas or different areas. Is there an intention to hold habitat in a somewhat permanent early-successional state at some locations or to continually rotate the early successional habitat throughout the WMA? This seems to be an important aspect of ensuring long-term habitat availability for Golden-winged Warbler and other species.

The term of this Plan is 10 years per stewardship plan guidelines/requirements. Habitat created as a result of modified seed tree harvests should provide habitat to GWWA and other early successional species for 15-20 years. The Division will use adaptive management in ensuing years as the plan unfolds. The intent of this Plan is not to create permanent upland shrub-scrub habitat, as permanent upland shrub-scrub habitat does not currently exist except on the ROW.

The plan includes a goal of creating early successional habitat on up to 20% of the forested area. This percentage of early successional habitat may be too high, consider revising to 10-15%.

We disagree that a target of 20% of the WMA in early successional forest is too high. The landscape within the region of this WMA is predominately middle to older age forest. The relatively small amount of young forest we create on Weldon Brook is small on the landscape scale. Even so, the acreage targets for young forest take into account the existing ROW as well as emergent wetland which effectively creates young forest on less than 20% of the operable forest stands.

The plan should more clearly detail the process for stakeholder input, defining timeframes for input and methods used to outreach to the public.

The plan will be edited to include the stakeholder input process (see sect.4.5).

While the plan provides some detail on the landscape context for management actions more detail would be ideal. In particular how do this plan's actions improve or guard against planned or potential actions on lands found within the larger landscape. For example while Eastern Hemlock is noted in association with several stands and the condition is determined to be beyond repair due to the Hemlock Woolly Adelgid no mention is made of the need to restore or manage for Hemlock or a suitable alternate species. Is there landscape scale context that would account for this or should Hemlock or similar species management be included in this plan? This could be characterized in a simple statement as was explained by the plan's author to NJ Audubon staff.

See new section 2.11 Landscape Description and Findings on p. 50.

If easily characterized it would be helpful to include some brief description of the connectivity or not between habitat patches that will be created for rare, threatened and endangered species.

For habitat specialists or species with limited dispersal capabilities, the presence of corridors may provide an effective means to enhance dispersal, thus reducing the effects of isolation and fragmentation on a population (Collinge 1996, Beier & Noss 1998, Simberloff & Cox 1987, Haddad 1999). Habitat corridors are defined as "a linear landscape element that provides for movement between habitat patches" (Rosenberg & Noon 1997) and are predicted to be more beneficial to populations when connecting large patches of habitat (Haas 1995, Desrochers & Hannon 1997, Haddad 2000, Hudgens & Haddad 2003). In this plan, none of the proposed treatment areas will separate one patch of forest from another, and forest corridors between vernal pools and other wetlands will be maintained.

The plan should provide some clarity regarding how the activities will be paid for, whether that's forest treatments, monitoring or other activities. This could be a paragraph or two indicating state funds will be used, grants will be sought and/or revenue derived from the sale of timber will be reapplied to the implementation of the plan.

The DFW is committed to not only developing plans but to implementing them as well. We disagree that funding sources need to be included in this document.

The plan emphasizes creation of early successional habitat and while natural disturbance is mentioned the plan does not address how treatments will change in light of natural disturbance. Given the likelihood of future storms on the scale of Hurricane Sandy it would be good for the plan to include a provision for adjustment of treatment activities given significant natural disturbance.

While natural disturbances do occur and numerous trees have been blown down as a result of Hurricane Sandy, these scattered blow-downs are not large enough to provide sufficient breeding habitat for golden-winged warblers and many other early-successional species. Given the lack of controlled burns and prevention of wildfires in this area, it is unlikely that natural disturbances, by themselves, will create the breeding habitat for golden-winged warblers in time to prevent the extirpation of this species in NJ.