DWSP appreciates the time spent by members of the public, including QWAC, WSCAC, and Bruce Spencer to submit thoughtful comments regarding DWSP's proposed forestry lot proposals for Fiscal Year 2016 (July 2015-June 2016).

Summaries of public comments and DWSP Responses:

1. Both an Executive Summary and a 20-30 page plain language summary of our management plan need to be written and disseminated. *DWSP Response*: DWSP has not forgotten this requirement of the STAC report. DWSP is currently drafting a Comprehensive Land Management Plan (CLMP), and the Executive Summary from this plan will be readily available to the public. The CLMP final draft (including the Executive Summary) is likely to be ready for public comment by early fall 2015.

For the longer 20-30 page summary, DWSP is considering hiring a private company to work with the agency on its development. While the *From Here Forward* document provides a good summary of the changes DWSP made to its forest management program, it does not provide a detailed description of all of DWSP's land management activities. When the CLMP is completed, it will be used as the basis for developing this summary.

2. Better public communication; more detailed lot descriptions; better publicizing of plans and tours; better on-the-ground examples of planned lot activities when tours occur. DWSP Response: As discussed in the From Here Forward document, DWSP is committed to following STAC's recommendation for more transparency and public input in the harvest planning process. Summaries of all lot proposals are presented at annual meetings by the Chief Foresters for immediate comment. In addition, these proposals are then posted on DWSP's website for public comment during the defined public comment period. All Forest Cutting Plans and more detailed lot descriptions are posted online once the cutting plan has been approved and the project awarded to a licensed logger. However, given the modest attendance at this year's annual meetings, DWSP can take additional steps to notify the general public. DWSP will consider using press releases, listserve emails, targeted letters, etc. to ensure our public process reaches a wider audience. Proposed lot tour dates will be scheduled for each lot at least two weeks in advance, and more convenient times will be chosen (e.g., evenings and weekends).

DWSP recognizes that the lot proposal summaries contain a varying level of detail. Further, some of the information on the lot proposal form is ambiguous and hard to interpret. In addition, some commenters highlighted how difficult it was to visualize what the proposals were describing. To address these concerns, DWSP will make the following changes immediately:

- Remove or clarify the "yes", "no" questions on the lot proposal forms that relate to "adequate regeneration" and "regeneration diversity". These questions as currently written are ambiguous and difficult to answer and interpret.
- For each lot proposal, DWSP will provide an illustrated example based on results from past harvests. These example lots will be similar to the proposed lot in terms of existing conditions, proposed silviculture and management goals. The examples will be actual harvest plans DWSP has done in the past and will provide an illustrated example of typical opening sizes, shapes, and distributions, photos taken before, during, and after the harvest, and detailed descriptions of the proposed silviculture. The same illustrated example may be used for multiple proposed lots that are similar.

• Provide DWSP Foresters with specific guidelines on how to fill out the lot proposal form and what information is required. This should help make the proposals more consistent.

DWSP uses a concurrent internal and external forestry lot review process, and proposals submitted for public comment are simultaneously undergoing an internal review. Consequently, either process may result in changes that would be incorporated into the final proposal before any tree marking begins. While some commenters expressed a desire to view lots after trees had been marked, the details of exactly where openings are to be placed and which trees may be cut is not known until long after the this annual review process has completed. However, our Comprehensive Land Management Plan serves as our guiding document for silvicultural work, and the public is encouraged to read those sections of the plans containing recommendations and policies regarding wildlife trees, dens, snags, coarse woody debris, live tree retention, filter strips, and cultural resource protection. Understanding these principles, coupled with the example lots described above, should give the public a better understanding of how forest management decisions are made in the field. Finally, DWSP will work with QWAC, WSCAC, and the general public to develop educational tours of our silviculture. These tours will help explain and demonstrate the forest management process from the unmarked proposed lot stage through marking and harvesting trees.

- 3. <u>WSCAC strongly supports Green certification</u>. *DWSP Response*: Green Certification can be a controversial topic and can elicit strong public opinions (both negative and positive). DWSP recognizes this dichotomy and is evaluating whether or not to pursue Certification. While DWSP remains proud of its early success with the FSC program, the most recent audit was disappointing. To help clarify the benefits and potential pitfalls of Certification, DWSP will seek the help of a professional consultant and will present results of those discussions to appropriate advisory groups for comment before a final decision is made.
- 4. Harvest planning mechanistic approach to reaching treatment goals; are we following STAC. DWSP Response: It should be noted that the STAC recommendation for restarting silviculture on DWSP forests referenced not just Quabbin forestry (e.g., Pelham and Hardwick Compartments) but also Wachusett forestry, where for many years a system of irregular group shelterwood with reserves has been implemented. DWSP feels the approach used at Wachusett provides a good example of watershed forestry. DWSP has set a goal of maintaining a healthy forest, diverse in species and age structure, capable of being resistant to and resilient in the event of large scale disturbances. There are many ways to achieve age diversity but inherent in each approach is a reasonably accurate measure of age structure. Openings in the canopy must be discernible and large enough so that they can be mapped and tracked through time in order to ensure a new age class has been created. DWSP has determined that all openings one quarter of an acre and larger must be mapped.

Opening sizes and locations are subject to a variety of competing interests, requirements, and restrictions, and many possible layouts would end up meeting DWSP's land management goals. In *From Here Forward*, DWSP recognized the importance of aesthetics when creating openings and committed to more irregular boundaries and less geometric shapes. This philosophy is now incorporated in opening design, however, there may be situations where openings are bounded by straight lines. For example, our forests are laced with relatively straight stone walls, and in some cases it makes sense to make an opening that follows a wall or a set of intersecting walls to minimize or avoid disturbance to the wall. Further, stone

walls can provide a practical approach to delineating a lot and often include a plan to work the forest from the other side at a later entry and from another direction. In these situations, openings may be bounded by one or more straight lines.

5. Regeneration diversity, increased monitoring and reporting. *DWSP Response*: One of the STAC recommendations was to monitor changes over time in silvicultural openings through the use of fixed post photographs and regeneration sampling data, and regularly post information to the public. DWSP has posted before and after photos of all harvesting operations undertaken since the resumption of regular management. In addition, DWSP foresters also collect photo points of all proposed lots to document preharvest conditions. DWSP has been collecting annual regeneration data at Quabbin and Ware River for many years. Internal reports summarizing these data have not been posted to our internet site. In the future, DWSP will be provide the reports or a summary of the information to the public.

Specifically, the issue of regeneration diversity has been raised, and our Quabbin data does indicate that white pine and black birch continue to dominate the understory, despite over two decades of active deer management. Additional shade tolerant species such as hemlock, beech, and red maple make up a lesser percentage, while oaks exist in only small amounts at Quabbin. Ware River data shows greater species diversity and significant oak regeneration. Fuller descriptions of regeneration sampling results will be included in the posted reports.

- 6. QWAC requests a report on implementation of invasive plants plan. DWSP Response: Terrestrial invasive plants (TIPs) are a growing cause for concern throughout Massachusetts' forests. Though not specifically addressed by the STAC report, DWSP made some specific comments regarding TIPs in the From Here Forward document, mainly in reference to the completion of the Terrestrial and Invasive Plants Management Strategy (TIPMS). QWAC has requested an update regarding implementation of the TIPMS. Progress thus far includes:
 - Timber Harvest Permits have been modified to direct foresters to require cleaning and inspection of vehicles and equipment before being delivered to harvesting sites on DWSP lands in order to minimize the transportation of TIPs.
 - Foresters are now routinely inspecting for the presence of TIPs when drafting lot proposals. Until such time as effective control means have been authorized for widespread watershed use, foresters have (when possible and practical) avoided harvest layouts that would require cutting in or travelling through areas of well-established TIPs.
 - Two ecological restoration projects have been undertaken, one at Riis Hill in Barre, and one on Beaman Road in Sterling. Both have involved the reclamation of open field habitat in areas that had been overgrown and heavily populated with TIPs. Mechanical and chemical controls have been used, and multi-year contracts (to allow for re-treatments as necessary to ensure success) have been funded with NRCS grant money.
 - Rare plant populations have been visited and documented annually by NR staff; any invasive plants that pose an immediate threat are mechanically removed.
 - Using EEA Grant money, DWSP purchased a track steer with a deck mower and a mulching drum attachment. The machine is already being used to restore a field in Holden overgrown with

autumn olive and other invasive shrubs. It is expected to be used at all the watersheds as projects are identified.

The TIPMS sets out five priority conditions for initiating invasive plant control, one of which states that our objective will be to control known TIP populations, prior to harvest, to levels that will allow the establishment and growth of regeneration in silvicultural openings. There are sound reasons for taking this approach, but we recognize that some people may have concerns about initiating large scale TIP control measures on water supply forests. It is likely DWSP will need to continue dialogue with our advisory committees and the public on the benefits and potential risks of using chemicals to control invasive species. At this time, DWSP has no plans to use chemicals to control invasive plants prior to a timber harvest but will continue working to meet the five priority objectives spelled out in the TIPMS.

7. Lack of diverse advance regeneration, esp. oak, where openings are proposed. DWSP Response: All Quabbin forestry lot proposals are guided by the same planning documents (i.e., From Here Forward, Land Management Plans). However, each individual lot is designed to account for a variety of factors including current forest conditions, topography, and soils, and these differences dictate the specific approach used by individual foresters. It is important to note that the lot description narratives of 4 of the 5 lots mentioned above (NS-16-23, NS -16-17, NS-16-6, and PR-16-25) indicate that advance regeneration is present, and harvesting will focus in these areas to release young trees. The confusion may stem from the "yes" or "no" questions in the lot proposal form related to "adequate" and "diverse" regeneration. DWSP agrees that these ambiguous questions can be interpreted (and answered) in different ways by different people. DWSP has committed to immediately modifying the lot proposal forms to make information more clear (see response to comment 2). While releasing advance regeneration will always be an important component of our forest management program, DWSP recognizes that the amount of advance regeneration is highly variable, even within a proposed lot. The STAC report does not discuss advance regeneration and makes no specific recommendations on whether it should be present prior to a harvest or in what quantity. Past regeneration harvests using variable size openings have resulted in exceptional regeneration of a variety of tree species even when the amount of advance regeneration varied widely. In contrast, many of our recent shelterwood establishment cuts have resulted in black birch and white pine regeneration.

With much of the Quabbin forest having previously received one or more silvicultural treatments, residual stocking is of good quality, regeneration is generally widespread, and little additional partial overstory removal is prescribed. By planning to harvest mainly in groups and patches, and minimizing the amount of additional thinning and shelterwood style harvesting, we also minimize the overall machinery 'footprint' for any harvest area. Skid and forwarder roads represent the biggest potential threat to water quality from any timber harvest operation, and although we require effective BMPs to prevent erosion and water quality degradation, it is prudent to limit travel to what is necessary to achieve structural diversity goals.

The proposed opening sizes in the lots referenced above are intentionally conservative. As the forest management program continues, DWSP will move towards a wider range of opening sizes to ensure a full diversity of tree species regeneration with a continued commitment to releasing on-site advance regeneration where it is desirable, vigorous, and diverse.

8. <u>Lack of equipment restrictions on some lots</u>. *DWSP Response*: In areas where DWSP hopes to protect and release as much of the advance regeneration as possible, especially non-sprouting conifers, hand felling or careful boom-type mechanical felling and forwarding can be very successful and aesthetically pleasing. However, that same system may fall short when regeneration is lacking and some scarification is preferred to help stimulate new tree germination, as is the case in several proposals where failing hemlock stands are being treated. Forwarders do allow some additional flexibility in road layout, but also tend to compact soils more due to their size and weight.

Two of the cited proposals - NS-16-15 and PR-16-26B - do not limit equipment to forwarders, but neither do they state that whole tree removal will be allowed. DWSP does not consider skidding to mean whole tree harvesting, unless specifically stated in the lot proposal as it is for PR-16-11 ("biomass" is stated as the method preferred to deal with substantial quantities of low quality material). DWSP recognizes the importance of retaining slash and coarse woody debris and our BMPs require that at least 2 cords per acre be present following whole tree removals.

Skidders (especially cable skidders) can be used successfully in heavy regeneration, assuming an operator has the necessary skills and patience and is willing to work with the forester to achieve a favorable outcome. DWSP has recently modified the harvesting permit to require operators to meet with the forester on site prior to harvest, and submit a Plan of Operation that satisfies the forester.

- 9. There is inadequate protection of large sapling regeneration in some proposals. *DWSP Response*: As a whole, much of the advance regeneration on active forestry lots is as carefully protected as possible during harvesting operations. However, on specific lots where situations described above exist, regeneration may be intentionally removed or damaged. Harvesting trees with mechanized equipment will always put young trees in the understory at risk. However, the quality and diversity of regeneration is highly variable. Some existing advance regeneration may be dominated by a single species (i.e. thick white pine), or be in poor health (i.e. growing in shade for many years). This type of regeneration may prevent other species from germinating and developing, die soon after the harvest, or persist and slowly develop into poorly formed, low vigor mature trees. In these situations, protecting this type of regeneration during the harvest may actually hinder DWSP's ability to regenerate a healthy, diverse forest. In some cases, a more prudent approach is to intentionally remove or damage a portion of this low quality regeneration in order to favor the establishment of new regeneration that is healthier and more diverse.
- 10. Is the moose study finished? What do we know about moose and regeneration? DWSP Response: DWSP has been collaborating with the University of Massachusetts, Amherst and the U.S.G.S Cooperative Fish and Wildlife Unit for the last several years studying the effects of herbivore browsing on forest regeneration and growth. The results from this exclosure study will be available soon; the dedicated PhD student recently completed his dissertation. Beyond this exclosure study, DWSP is very interested in moose populations on watershed lands and has been collecting data (the only quantitative data in Massachusetts) on moose for many years. For the last 9 years, DWSP has collected moose sighting information during the annual Quabbin controlled deer hunt. This annual survey allows us to identify moose population trends on Reservation lands, and it will continue. Results from this study suggest that moose populations on Quabbin Reservation have remained relatively stable over the last 9 years, and moose densities tend to be highest in the Prescott, Pelham, and Petersham zones. In addition,

DWSP has been conducting a moose sign (i.e. droppings, tracks, bark stripping) survey at the Ware River for many years. Again, this annual survey allows DWSP to track broad changes in moose populations. Finally, this spring DWSP initiated a pellet-group research project to estimate deer and moose densities on Quabbin and the Ware River. Initial results from this study are promising, and DWSP will continue this research in future years.

From: Bruce Spencer [mailto:treeworks1@yahoo.com]

Sent: Tuesday, July 14, 2015 5:17 PM

To: Updates, DCR (DCR)

Subject: Re: Watershed Forestry - Quabbin Watershed

A few general comments on the Lot Reviews. The Science and Technical Advisory Committee (STAC) in its final report recommend that when the DWSP restarted active forest management the silvicultural methods, harvest planning and marking and layout techniques employed on the Hardwick and Pelham block be used as the primary approach to diversifying stand structure and species composition. Unfortunately this recommendation was not used on proposed lots: NS-16-23; NS-16-17; NS-16-6; PR-16-5; and PR-16-25. In all these lots the forester indicated that no advance regeneration was present and yet only openings averaging 1/2 acre would be made. No shelterwood cuts to create advance regeneration were proposed consequently only a small portion of the proposed harvest area is being treated. This proposed harvesting has little relationship to irregular shelterwood practices and will not meet the Quabbin Land Management Plans goals of new age classes of diverse species suited to the site. White pine and black birch are the likely species and not any oak species. When advance regeneration of desired species is not present it is a slow process to bring about, the opposite of which is being proposed.

Proposed lots PR-16-26B, PR-16-11, and NS-16-15 do not have any equipment restrictions. This means that these lots have to be marked in a way that accommodates the largest equipment allowed, namely feller bunchers and grapple skidders. Wide straight skid roads and all other roads have to be wish-boned into the main skid roads. Flexibility in skid road layout is lost and many trees not needing cutting in logging systems of smaller size and flexibility will require cutting. Forest aesthetics is lost and when uphill skids are necessary such as in lot NS-16-15 soils will be compacted. It's unfortunate by my perspective that grapple skidders that remove the entire tree are allowed, since tree slash protects the soils from logging equipment, the sun, and hard rains, while providing habitats for many borrowing mammals and numerous other creatures. The slash is composed of carbon, organic matter, and calcium, all important to ecosystem biodiversity and forest health.

Public comments to the STAC report suggested improved public communication via more detailed lot descriptions (on line). I support detailed lot descriptions but this does not always occur, especially lots NS-16-23 and NS-16-6. Many important features were missed and the proposed cutting practices did not meet the specifics of those spelled out in the land management plan. There is a lack of consistency in the narratives.

No mention was made of protecting regeneration of sapling or pole size and in some cases it was suggested that this regeneration would be destroyed and the process restarted. This lack of concern of established saplings and poles was supported by the DWSP forester at the QWAC meeting by saying losing 50% of this regeneration was acceptable. On public lands I expect more protection up to 2/3.

These comments do not pertain to all lot proposals. The lot reviews in the Pelham block were excellent.

Thank you for allowing these concerns of mine.

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July 20, 2015

Department of Conservation and Recreation Office of Public Outreach 251 Causeway Street, Suite 600 Boston, MA 02114

Subject: DCR Division of Water Supply Protection's FY16 watershed forestry lots

To Whom It May Concern,

WSCAC is the Water Supply Citizens Advisory Committee. As a formally contracted advisory committee to the MWRA Board of Directors and staff, WSCAC appreciates this opportunity to comment on the DCR Division of Water Supply Protection's proposed FY 16 watershed forestry lots in the Quabbin, Ware River and Wachusett watersheds.

Our ongoing attention to DCR's forestry program is based on the belief that MWRA's unfiltered public water supply system requires the highest standards of forest management. The primary purpose of the watershed forestry program, therefore, is to create a sustainable and resilient watershed forest through a diversity of age classes and tree species.

WSCAC supports the recent restart of the forestry program, as long as the program positively contributes to forest complexity and diversity, which thereby enables the watershed forests to withstand natural stresses. WSCAC appreciates DCR's commitment- as stated in the report titled, *From Here Forward: Proposed Changes to the Department of Conservation & Recreation – Division of Water Supply Protection's Watershed Forest Management Program*, dated February 5, 2013 - to increased transparency, accountability, and additional improvements to public information through scheduled forestry tours and posting of proposed forestry lots with maps and lot descriptions on the DCR website.

To continue the process of improving public understanding of the forestry program and maintaining public trust, we recommend the following:

- After forestry lots have been marked, schedule and announce public tours to improve public understanding of the process and invite public feedback on actual cutting plans. Simply reading plans for proposed lots does not provide the public with the scope of information necessary for informed comments. Accurate, informed, and thoughtful feedback is best cultivated when harvesting plans include details such as which trees will be cut, which trees will be saved as legacy and wildlife habitat trees, the identification of existing regeneration, where the landings and roads will be located, and where vernal pools and historic sites exist. Consideration should be given to posting a relatively short online video that describes the aforementioned watershed "best practices."
- Begin the process of recertifying the watershed forests. WSCAC strongly favors green recertification
 because it can provide additional review, oversight, and the opportunity for improving practices through
 interaction with outside experts. Recertification can also serve to increase public trust and provide
 strong assurance that forestry done in the watersheds is held to the highest standards.

• Adopt and post the following Executive Summary as recommended on page 3 of the STAC report:

"Develop a 20 to 30 page illustrated plain-language summary of the DWSP system and management plans for a "Scientific American" audience in collaboration with the DCR, EEOEA, and MWRA Public Affairs offices. Develop a 4-page system and plan overview document for the same audience; it also should serve as a briefing document for visitors. Both documents should be readily accessible on the DCR website. The 4-page overview should be small enough to disseminate as an email attachment."

WSCAC looks forward to providing detailed comments after the proposed lots have been marked.

Thank you for the opportunity to comment.

Sincerely,

Lexi Dewey

Executive Director

Comments by Elisa Campbell of the Quabbin Watershed Advisory Committee (QWAC) about the proposed forestry lots for Quabbin watershed management as shown at the QWAC meeting in June 2015

I have expressed concern in the past about the effects of moose on regeneration in the forest and about the overall approach to forestry operations on the watershed, both the aesthetics (especially arbitrary abstract geometrical shapes with straight edges that do not follow natural boundaries or topography) and the overemphasis, in my opinion, on measureable amounts of cutting. In the period leading up to the moratorium, the focus on being able to quantify exactly how much forest was "treated" led in many places to a mechanistic approach that didn't take into account the state of the forest stands and the long-term health and diversity of the forest throughout the watershed. The Scientific and Technical Advisory Committee report recommended that forestry on the watershed resume with the kind of forestry that had been done in the Hardwick and Pelham blocks. Is that in fact what is being done now? It's clear that cutting plans developed post-STAC no longer make hard edges, which is certainly an improvement; other changes in the way forestry is practiced are less obvious to members of the public, even those of us who, like me, have done our best to stay involved and learn.

Specifically, I remain concerned that species diversity in the regeneration is not being given enough attention. Forestry can – and should – be done in a way that improves the forest over time, especially paying attention to species diversity. Given the number and variety of stressors and threats to forests, we should be doing all we can to avoid creating conditions that reduce the variety of species in the forest. Those stressors include the effects of climate change, such as the increased variability of rainfall amounts and timing, and the potential for the spread of forest pests. The myriad of introduced pests we are already dealing with includes but is not limited to Hemlock Wooly Adelgid, Emerald Ash Borer, scale on Red Pines and Hemlocks, Beech bark disease, approaching Winter Moth, and a recent upsurge in Gypsy Moth; all of these reduce the variety of species that can be expected to do well. Add to this the spread of invasive plants, and the task of forest management has become more difficult than in the past.

I believe the foresters at Quabbin are capable of responding to these challenges – if the overall policy is to improve the forest, not just take whatever happens to sprout when an opening is created. While it is clear that trees will grow in the openings, I think we should have monitoring reports on what species are growing, and how that fits in with the overall prevalence of species in the Quabbin forest. If everything comes up Black Birch – is that a success?

I recognize that much of the work proposed in these plans is in areas where insects (especially HWA and the Red Pine scale) are killing and weakening trees. I applaud that approach. There are many places in Quabbin where trees have been damaged by insects, ice, heavy snow, wind, etc.; future work should concentrate in those areas.

I have doubts about the concept of working intensively in small areas within a "lot" (even though I am glad those areas no longer have straight edges), versus working lightly over a larger part of the lot, removing weaker trees so as to both give more vigorous trees a larger share of the resources and to create opportunities for regeneration over more of the lot. It may be that with modern large logging equipment it is harder to do that kind of work, but I don't think Quabbin's forestry should be determined by commercial logging equipment (or the ease of measuring the area treated).

Quabbin needs to implement a plan to deal with invasive plants. I would like to see a report to QWAC on this implementation.

7/20/15

It is my understanding that moose tend to concentrate their browsing in openings. Has the study of the effects of moose on the forest and regeneration been finished? What does it say about regeneration and how should this new information guide forestry plans?

I also remember that the STAC report recommended the creation of documents that are understandable to the interested citizen about the watershed and the forestry program. Specifically, it recommended "a 20-30 page illustrated plain-language summary of the DWSP system and management plans for a "S_c_i_e_n_t_i_f_i_c__A_m_e_r_i_c_a_n_" audience in collaboration with the DCR, EEOEA, and MWRA Public Affairs offices. Develop a 4-page system and plan overview document for the same audience; it also should serve as a briefing document for visitors. Both documents should be readily accessible on the DCR website. The 4-page overview should be small enough to disseminate as an email attachment." Those documents have not been written.

The level of public involvement in commenting on forestry plans and attending the forestry walks has been very disappointing. Part of the problem is the difficulty for people not directly connected to Quabbin through QWAC, WSCAC or MWRA to learn about the proposals and the walks. To improve public accessibility, I recommend:

- 1. Put cutting plans at least the maps and narratives on a publicly available website, and publicize the fact they are there and the timeline.
- 2. Schedule forestry walks in conjunction with the cutting plans widely available and announced at least several weeks in advance and encourage the public to look at the cutting plans and bring copies with them, so they can ask informed questions.
- 3. The area to be walked should be described, and some form of showing the participants what is planned should be there, on the ground, for people to see. For example, if a patch cut is planned, the area to be cut should be flagged, so people can see its size. Given that not all trees in a proposed patch cut are to be removed, I suggest marking those that will be left. I recognize that the effort is to get general public reactions before lots of time is invested in marking trees etc. and I support that effort; however, there has to be some way for members of the public to see and understand what is proposed.

7/20/15