



## Protocols for Harvest Following Natural Disturbance

### General Protocols

- The disturbance threshold necessary to trigger an unscheduled harvest will be determined by operational considerations such as economics and adjacency. At a minimum, the Resource Manager and SFMA staff will evaluate disturbed areas to determine if harvest entry is warranted.
- As with SFMA management generally, silvicultural considerations will guide the development of operational specifications for any harvest after disturbance. *(Note: this was previously connected to bullet statement above.)*
- Excepting rare and unanticipated situations, all harvesting will be carried out with the same considerations of site sensitivity and regeneration protection, as are all SFMA harvests. Maintaining our FSC certification will be an integral part of any post-disturbance operations, just as it is on a regular basis. *(Note: this was previously the second para.)*
- In the event that regeneration is significantly damaged (or eliminated to below contemporary MFS standards) all available means of regeneration will be considered. Natural regeneration from residual overstory trees, suckering or coppicing, will be preferred. If it is deemed that the overstory will be unproductive or that any given site is in danger of colonization by non-tree species, planting will be considered. Artificial regeneration will be with native species and, whenever possible, with seedlings of local provenance. Establishing reasonable species diversity in the developing stand, including existing regeneration and a reasonable expectation of ensuing natural regeneration, will be considered.
- In the event that a disturbance is widespread enough to warrant post-disturbance harvest priorities, they will be developed based on the following considerations:
  - areas where responsive action may prevent additional damage to the Park or loss of timber or other resources
  - highest quality / most valuable timber
  - areas within the timber classification
  - areas of highest damage intensity, accessibility or harvest productivity.

### Retention Thresholds

The following matrices outline *minimum* retention targets based on management classification and disturbance agent. Areas will not be entered automatically after every natural disturbance. Should a post-disturbance harvest take place, these targets are intended to maintain certain attributes that will contribute to the structural - and hence ecological - diversity of the developing stand.

**MANAGEMENT DESIGNATION: TIMBER**

**Management focus: long-term timber management**

These areas are under active timber management. Retention targets for standing dead and down dead stems are identified as part of the management process.

DISTURBANCE TYPE	MINIMUM RETENTION TARGETS*			DAMAGE CRITERIA	NOTES
	< 25% merchantable BA damaged	25%-50% merchantable BA damaged	>50% merchantable BA damaged		
WIND	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	Standing live: 50%, as long as residual stand can be reasonably expected to be windfirm; otherwise 5%. Use care in determining survivability of stems with damaged crowns/boles. Retain all cull.	Standing live: 5% of prior stocking. Retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Retain all cull.	tipped > 45°; top broken > 10%; bole split or cracked; obvious root-rack	Landform considerations will influence decisions to harvest as well as season of operations.
	Standing dead & cull: 100%, except in trails or where cutting necessary for safety reasons.	Standing dead: 4% of prior live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible. All cull.			
	Down green: whatever portions of down dead targets unavailable and all cull.	Down green: whatever portions of down dead targets unavailable and all cull.			
	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			
FIRE	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	Standing live: 5% of prior stocking. Retention based on appropriate silvicultural treatment determined at time of harvest. Use care in determining survivability of slightly damaged crowns/boles.	Standing live: 5% of prior stocking. Retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Retain all cull.	bole scorched/ crown green; bole scorched / crown <25% brown; bole scorched / crown >25% brown; bark burned through / crown brown;	Moderate to severe burns may increase erosion probability significantly. Any post-fire harvest must include extra measures to maintain soil stability, including reductions in harvest intensity, if appropriate.
	Standing dead & cull: 100%, except in trails or where cutting necessary for safety reasons.	Standing dead: 4% of prior live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible. All cull.			
	Down green: whatever portions of down dead targets unavailable and all cull.	Down green: whatever portions of down dead targets unavailable and all cull.			
	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			
INSECT & DISEASE	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	Standing live: 50%, as long as residual stand is not at imminent risk of mortality from disease agent and can be reasonably expected to be windfirm; otherwise 5%. Retain all cull.	Standing live: 5% of prior stocking. Retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Retain all cull.	crown <25% defoliated; crown 25% - 75% defoliated; crown >25% brown; pitch tubes; fruiting bodies;	Post-disturbance harvests will be strongly influenced by stand type, structure and age, as well as extent of disturbance. Our protection-forest approach may help reduce I&D calamities.
	Standing dead: 4% of original live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible.	Standing dead: 4% of original live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible.			
	Down green: whatever portions of down dead targets unavailable and all cull.	Down green: whatever portions of down dead targets unavailable.			
	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			

\*Reference: Biodiversity in the Forests of Maine - Guidelines for Land Management, Flatebo, Foss, Pelletier, p 31

**MANAGEMENT DESIGNATION: RIPARIAN**

**Management focus: protection of water quality, stream bank and streamside structure, wildlife corridors, late successional habitat**

These areas border lakes, ponds, streams, bogs, and swamps within the SFMA. SFMA management does not include these areas in timber harvest calculations, but salvage harvests are appropriate when such activity does not impede the development of a multi-layered forest structure.

DISTURBANCE TYPE	MINIMUM RETENTION TARGETS*		DAMAGE CRITERIA	NOTES
	25%-50% merchantable BA damaged	>50% merchantable BA damaged		
WIND	Standing live: 50%. Use care in determining survivability of slightly damaged crowns/boles.	Standing live: retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Use care in determining survivability of slightly damaged crowns/boles. Retain all cull.	tipped > 45°; top broken > 10%; split or cracked; root-rack bole obvious	Landform considerations will influence decisions to harvest as well as season of operations.
	Standing dead: 4% of prior live stocking; 1 tpa >24" dbh and 3 tpa >14" dbh, if possible. All cull.			
	Down green: whatever portions of down dead targets unavailable and all cull.			
	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			
FIRE	Standing live: 50%. Use care in determining survivability of slightly damaged crowns/boles.	Standing live: retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Use care in determining survivability of slightly damaged crowns/boles. Retain all cull.	bole scorched/ crown green; bole scorched / crown <25% brown; bole scorched / crown >25% brown; bark burned through / crown brown; crown >50% dead	Moderate to severe burns may increase erosion probability significantly. Any post-fire harvest must include extra measures to maintain soil stability, including reductions in harvest intensity, if appropriate.
	Standing dead: 4% of prior live stocking; 1 tpa >24" dbh and 3 tpa >14" dbh, if possible. All cull.			
	Down green: whatever portions of down dead targets unavailable and all cull.			
	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			
INSECT & DISEASE	Standing live: 4% of prior live stocking. Retain large, potentially wind firm stems of unsusceptible species. Retain all cull.	Standing live: retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Retain all cull.	crown <25% defoliated; crown 25% - 75% defoliated; crown >25% brown; pitch tubes; fruiting bodies;	Post-disturbance harvests will be strongly influenced by stand type, structure and age, as well as extent of disturbance. Our protection-forest approach may help reduce I&D calamities.
	Standing dead: 4% of original live stocking; 1 tpa >24" dbh and 3 tpa >14" dbh, if possible.			
	Down green: whatever portions of down dead targets unavailable.			
	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			

\*Reference: Biodiversity in the Forests of Maine - Guidelines for Land Management, Flatebo, Foss, Pelletier, p 31

**MANAGEMENT DESIGNATION: ECOLOGICAL RESERVE**

**MANAGEMENT FOCUS: retain landscape or watershed scale area with intact ecosystem(s).**  
 These areas represent features, sites, structures that collectively form distinctive and/or rare ecosystems.

DISTURBANCE TYPE	MINIMUM RETENTION TARGETS						DAMAGE CRITERIA	NOTES
	PRIMARY RESERVE	SECONDARY RESERVE		TERTIARY RESERVE				
		25%-50% merchantable BA damaged	>50% merchantable BA damaged	< 25% merchantable BA damaged	25%-50% merchantable BA damaged	>50% merchantable BA damaged		
WIND	Standing live: 100%	Standing live: 50%. Use care in determining survivability of slightly damaged crowns/boles.	Standing live: retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Use care in determining survivability of slightly damaged crowns/boles. Retain all cull.	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	Standing live: 50%, as long as residual stand can be reasonably expected to be windfirm. Use care in determining survivability of stems with damaged crowns/boles. Retain all cull.	Standing live: 5% of prior stocking. Retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Retain all cull.	tipped > 45°; top broken > 10%; bole split or cracked; obvious root-rack	Landform considerations will influence decisions to harvest as well as season of operations.
	Standing dead: 100%	Standing dead: 4% of prior live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible. All cull.		Standing dead & cull: 100%, except in trails or where cutting necessary for safety reasons.	Standing dead: 4% of prior live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible. All cull.			
	Down green: 100%	Down green: whatever portions of down dead targets unavailable and all cull.		Down green: whatever portions of down dead targets unavailable and all cull.	Down green: whatever portions of down dead targets unavailable and all cull.			
	Down dead: 100%	Down dead: 3 logs >12" dib and >6' length per acre as class 1&2 decay logs. All cull.		Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			
FIRE	Standing live: 100%	Standing live: 50%. Use care in determining survivability of slightly damaged crowns/boles.	Standing live: retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Use care in determining survivability of slightly damaged crowns/boles. Retain all cull.	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	Standing live: 5% of prior stocking. Retention based on appropriate silvicultural treatment determined at time of harvest. Use care in determining survivability of slightly damaged crowns/boles.	Standing live: 5% of prior stocking. Retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Retain all cull.	bole scorched/ crown green; bole scorched / crown <25% brown; bole scorched / crown >25% brown; bark burned through / crown brown;	Moderate to severe burns may increase erosion probability significantly. Any post-fire harvest must include extra measures to maintain soil stability, including reductions in harvest intensity, if appropriate.
	Standing dead: 100%	Standing dead: 4% of prior live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible. All cull.		Standing dead & cull: 100%, except in trails or where cutting necessary for safety reasons.	Standing dead: 4% of prior live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible. All cull.			
	Down green: 100%	Down green: whatever portions of down dead targets unavailable and all cull.		Down green: whatever portions of down dead targets unavailable and all cull.	Down green: whatever portions of down dead targets unavailable and all cull.			
	Down dead: 100%	Down dead: 3 logs >12" dib and >6' length as class 1&2 decay logs. All cull.		Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			
INSECT & DISEASE	Standing live: 100%	Standing live: 4% of prior live stocking. Retain large, potentially wind firm stems of unsusceptible species. Retain all cull.	Standing live: retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Retain all cull.	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	Standing live: 50%, as long as residual stand is not at imminent risk of mortality from disease agent and can be reasonably expected to be windfirm. Retain all cull.	Standing live: 5% of prior stocking. Retain large, potentially wind firm stems; or others only if standing dead targets are unavailable. Retain all cull.	crown <25% defoliated; crown 25% - 75% defoliated; crown >25% brown; pitch tubes; fruiting bodies;	Post-disturbance harvests will be strongly influenced by stand type, structure and age, as well as extent of disturbance. Our protection-forest approach may help reduce I&D calamities.
	Standing dead: 100%	Standing dead: 4% of original live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible.		Standing dead: 4% of original live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible.	Standing dead: 4% of original live stocking; 1 tpa >24"dbh and 3 tpa >14" dbh, if possible.			
	Down green: 100%	Down green: whatever portions of down dead targets unavailable.		Down green: whatever portions of down dead targets unavailable and all cull.	Down green: whatever portions of down dead targets unavailable.			
	Down dead: 100%	Down dead: 3 logs >12" dib and >6' length as class 1&2 decay logs. All cull.		Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.	Down dead: 3 logs/ac >12" dib and >6' length as class 1&2 decay logs. All cull.			

**MANAGEMENT DESIGNATION: BENCHMARK RESERVE**

**MANAGEMENT FOCUS: retain unmanaged representative forest types.**

These areas are designated from the timber management designation and set aside to represent forest cover types and structures typical to the SFMA.

DISTURBANCE TYPE	MINIMUM RETENTION TARGETS		DAMAGE CRITERIA	NOTES
	< 50% merchantable BA damaged	>50%% merchantable BA damaged		
WIND	Standing live: 100%.		NA	If adjacent blocks are being harvested, every attempt will be made to avoid removing trees that have fallen from the benchmark block.
	Standing dead: 100%			
	Down green: 100%			
	Down dead: 100%			
FIRE	Standing live: 100%.		NA	Moderate to severe burns may increase erosion probability significantly. Any post-fire erosion potential should be monitored and corrected where necessary to prevent downstream sedimentation.
	Standing dead: 100%			
	Down green: 100%			
	Down dead: 100%			
INSECT & DISEASE	Standing live: 100%.		NA	Harvesting would take place only if disturbance is severe enough to compromise substantially the original stand stocking and if it will not threaten the underlying attributes.
	Standing dead: 100%			
	Down green: 100%			
	Down dead: 100%			

**MANAGEMENT DESIGNATION: REPRESENTATIVE SITE**

**MANAGEMENT FOCUS: protection of unusual forest features.**

These areas represent unusual sites and/or stand structures on the SFMA, predicated by soil or topographic conditions. They are typified by enriched hardwood sites, hardwood seepage forests, cedar swamps and vernal pools. Harvesting would take place only if the disturbance were severe enough to compromise substantially the original stand stocking and if it does not threaten the underlying attributes. Down volume retained, should be as large as possible, preferably >12" dbh.

DISTURBANCE TYPE	MINIMUM RETENTION TARGETS		DAMAGE CRITERIA	NOTES
	< 50% merchantable BA damaged	>50% merchantable BA damaged		
WIND	Standing live: 100%.	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	tipped > 45°; top broken > 10%; bole split or cracked; obvious root-rack	Harvesting would take place only if disturbance is severe enough to compromise substantially the original stand stocking and if it will not threaten the underlying attributes. Trees that fall into adjacent blocks may be harvested, even if the representative site is not being harvested.
	Standing dead: 100%	Standing dead & cull: 100%, except in trails or where cutting necessary for safety reasons.		
	Down green: 100%	Down green: whatever portions of down dead targets unavailable and all cull.		
	Down dead: 100%	Down dead: 3 logs/ac >12" dbh and >6' length as class 1&2 decay logs. All cull.		
FIRE	Standing live: 100%.	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	bole scorched/ crown green; bole scorched / crown <25% brown; bole scorched / crown >25% brown; bark burned through / crown brown;	Harvesting would take place only if disturbance is severe enough to compromise substantially the original stand stocking and if it will not threaten the underlying attributes.
	Standing dead: 100%	Standing dead & cull: 100%, except in trails or where cutting necessary for safety reasons.		
	Down green: 100%	Down green: whatever portions of down dead targets unavailable and all cull.		
	Down dead: 100%	Down dead: 3 logs/ac >12" dbh and >6' length as class 1&2 decay logs. All cull.		
INSECT & DISEASE	Standing live: 100%.	Standing live: retention based on appropriate silvicultural treatment, determined at time of harvest. These situations will be treated as normal operating procedure.	crown <25% defoliated; crown 25% - 75% defoliated; crown >25% brown; pitch tubes; fruiting bodies;	Harvesting would take place only if disturbance is severe enough to compromise substantially the original stand stocking and if it will not threaten the underlying attributes. Trees that fall into adjacent blocks may be harvested, even if the representative site is not being harvested.
	Standing dead: 100%	Standing dead: 4% of original live stocking; 1 tpa >24" dbh and 3 tpa >14" dbh, if possible.		
	Down green: 100%	Down green: whatever portions of down dead targets unavailable and all cull.		
	Down dead: 100%	Down dead: 3 logs/ac >12" dbh and >6' length as class 1&2 decay logs. All cull.		

MANAGEMENT DESIGNATION: **TIMBER**

DISTURBANCE TYPE: **WIND**

Management focus: **long-term timber management**

These areas are under active timber management. Retention targets for standing dead and down dead stems are identified as part of the management process.

DISTURBANCE SCALE	DESCRIPTION	HARVEST ENTRY?	MAXIMUM VOLUME HARVESTED	MINIMUM VOLUME RETAINED	EQUIPMENT	SEASONAL RESTRICTIONS
LIGHT	10% or less merchantable BA damaged	YES	standing: 100% of non-recoverable down: 100%	standing: 4 TPA w/ 2 TPA > 10" diameter down: 0% salvage volume	hand crew or processor - all wood forwarded, exc. possibly during winter months	Landform dependent
MODERATE	11-25% merchantable BA damaged	YES	standing: 100% of non-recoverable down: 70%	standing: 4 TPA w/ 2 TPA > 10" diameter down: 0% salvage volume	hand crew or processor - all wood forwarded, exc. possibly during winter months	Landform dependent
HEAVY	25 - 50% merchantable BA damaged	YES	standing: 95% of non-recoverable down: 95%	standing: 4 TPA > 12" standing dead down: 5% orig stocking (>12")	hand crew or processor - all wood forwarded, exc. possibly during winter months	Landform dependent
SEVERE	> 50% merchantable BA damaged	YES	standing: 95% of non-recoverable down: 95%	standing: 4 TPA > 12" standing dead down: 5% orig stocking (>12")	hand crew or processor - all wood forwarded, exc. possibly during winter months	Landform dependent

Damage criteria: tipped >45 degrees;  
broken > 10% from top  
bole split or cracked  
obvious root-rack  
crown > 50% dead

These areas are under active timber management. Targets for retention of dead standing and dead down stems are identified as part of the management process.

DISTURBANCE TYPE: INSECTS & DISEASE  
MANAGEMENT DESIGNATION: TIMBER

Management focus:

These areas are under active timber management and provide the primary acres for timber and wood fiber production. Targets for retention of standing and down stems are determined during the prescription narrative process and targets( particularly down dead specified below may already been met during pre-disturbance harvest activities

DISTURBANCE DESCRIPTION

Individual Tree Damage:  
Can be infinite mixtures of damage (see damage criteria below) based on intensity of event.  
Spatial Variation:  
Damage likely to vary over the landscape based on stand type, soils, season and topography  
Temporal Variation:  
Limited temporal variation - wind events likely to occur within a 12 hour period.

Damage criteria: : Crown <25% dead  
Crown > 25 and <75% dead  
Crown > 75% dead  
Regeneration dead or dying  
Bole defect: conk, canker  
split, crack etc.

HARVEST SPECIFICATIONS

Harvest? Yes. Disturbance threshold necessary to trigger salvage determined by operating considerations such as economic thresholds, adjacency and targets listed below  
Retention Targets:  
Standing Live- Whatever portions of Standing Dead targets are unavailable.  
Reasonable species representation  
  
Standing Dead- 4% of original stand stocking as cavity structure with 1 tpa > 24" and 3 tpa > 14" dbh (if possible)  
Down Green- Whatever portions of Down Dead targets are unavailable.  
  
Down Dead- 3 logs > 12" diameter and > 6" length as class 1 and 2 decay logs.

MANAGEMENT DESIGNATION: **RIPARIAN**

DISTURBANCE TYPE: **WIND**

**Management focus: protection of water quality, streambank and streamside structure, wildlife corridors, late successional habitat**

These areas border lakes, ponds, streams, bogs, and swamps within the SFMA. SFMA management does not include these areas in timber harvest calculations, but salvage harvests are appropriate when such activity does not impede the development of multi-layered forest structure.

DISTURBANCE SCALE	DESCRIPTION	HARVEST ENTRY?	MINIMUM RETENTION TARGETs	EQUIPMENT	SEASONAL RESTRICTIONS
LIGHT	10% or less merchantable BA damaged	Situation dependent	standing: 100% down: 4 TPA > 10" dbh	hand crew or processor - all wood forwarded, exc. possibly during winter months	Landform dependent
MODERATE	11-25% merchantable BA damaged	Situation dependent	standing: 100% down: 6 TPA > 10" dbh	hand crew or processor - all wood forwarded, exc. possibly during winter months	Landform dependent
HEAVY	25 - 50% merchantable BA damaged	YES	standing: 100% down: 6 TPA > 10" dbh	hand crew or processor - all wood forwarded, exc. possibly during winter months	Landform dependent
SEVERE	> 50% merchantable BA damaged	YES	standing: 100% down: 6 TPA > 10" dbh	hand crew or processor - all wood forwarded, exc. possibly during winter months	Landform dependent

Damage criteria: tipped >45 degrees;  
broken > 10% from top  
bole split or cracked  
obvious root-rack  
crown >50% dead

♣ Except as needed for trails and access.

**MANAGEMENT DESIGNATION:** RIPARIAN

**DISTURBANCE TYPE:** FIRE

**Management focus:** protection of water quality, streambank and streamside structure, wildlife corridors, late successional habitat.

These areas border lakes, ponds, streams, bogs, and swamps within the SFMA. SFMA management does not include these areas in timber harvest calculations, but salvage harvests are appropriate when such activity does not impede the development of uneven forest structure.

DISTURBANCE SCALE	DESCRIPTION	HARVEST ENTRY?	MINIMUM RETENTION TARGETS	EQUIPMENT	SEASONAL RESTRICTIONS
LIGHT	10% or less merchantable BA damaged	NO	NA	NA	NA
MODERATE	11-25% merchantable BA damaged	NO	NA	NA	NA
HEAVY	25 - 50% merchantable BA damaged	YES	Standing live: 50%. Use care in determining survivability of slightly damaged crowns/boles. Standing dead: 4% of original stocking; 1tpa >24"dbh and 3 tpa >14" dbh, if possible. Down green: whatever portions of down dead targets unavailable. Down dead: 3 logs >12" dib and >6' length as class 1&2 decay logs.	Hand crew or processor - all wood forwarded, except possibly during winter months.	Landform dependent
SEVERE	> 50% merchantable BA damaged	YES	Standing live: retain only if standing dead targets are unavailable. Use care in determining survivability of slightly damaged crowns/boles. Standing dead: 4% of original stocking; 1tpa >24"dbh and 3 tpa >14" dbh, if possible. Down green: whatever portions of down dead targets unavailable. Down dead: 3 logs >12" dib and >6' length as class 1&2 decay logs.	Hand crew or processor - all wood forwarded, except possibly during winter months.	Landform dependent

Damage criteria: tipped >45 degrees;  
 broken > 10% from top  
 bole split or cracked  
 obvious root-rack  
 crown >50% dead

**MANAGEMENT DESIGNATION:**

**ECOLOGICAL RESERVE**

**DISTURBANCE TYPE:**

*WIND*

**Management focus: retain landscape or watershed scale area with intact ecosystem(s).**

DISTURBANCE SCALE	DESCRIPTION	HARVEST ENTRY?	MAXIMUM VOLUME HARVESTED	MINIMUM VOLUME RETAINED	EQUIPMENT	SEASONAL RESTRICTIONS
LIGHT	10% or less merchantable BA damaged	NO	standing: 0 down: 0	standing: 100 down: 100		
MODERATE	11-25% merchantable BA damaged	NO	standing: 0 down: 0	standing: 100 down: 100		
HEAVY	25 - 50% merchantable BA damaged	NO	standing: 0 down: 0	standing: 100 down: 100		
SEVERE	> 50% merchantable BA damaged	NO	standing: 0% down: 0	standing: 100 down: 100		

Damage criteria: : tipped >45 degrees;  
broken > 10% from top  
bole split or cracked  
obvious root-rack

These areas represent features, sites, structures that collectively form distinctive and/or rare ecosystems.

DISTURBANCE TYPE:  
MANAGEMENT DESIGNATION:

FIRE  
REPRESENTATIVE RESERVE

Management focus:

These areas represent unusual stand structures, soils and/or topography. Currently, there are six representative reserves on the SFMA, including enriched hardwood sites and vernal pools. These are relatively small areas, currently ranging in size from 1.6 acres to 38 acres with an average of 12 acres.

#### DISTURBANCE

#### DESCRIPTION

Individual Tree Damage:

Can be infinite mixtures of damage (see damage criteria below) based on intensity of event.

Spatial Variation:

These are relatively small areas and spatial variation, while very possible, is less likely than with larger landscape settings.

Temporal Variation:

Limited temporal variation - fire events likely to occur within a 7day period.

Damage criteria: : bole scorch/crown green  
bole scorch/crown <25% brown  
bark burned through/crown brown  
bole scorch/crown brown

#### HARVEST SPECIFICATIONS

Harvest?  
(see below)

Retention Targets:

Possibly. These areas have unusual stand structures predicated by soil or topographic conditions. If salvage does not threaten the underlying unusual attributes, then damaged timber may be salvaged

Standing Live-	Retain only if standing dead targets are unavailable. Consider reasonable species representation
Standing Dead-	Use care in determining survivability of slightly damaged crowns/boles 4% of original stand stocking as cavity structure with 1 tpa > 24" and 3 tpa > 14" dbh (if possible)
Down Green-	Whatever portions of Down Dead targets are unavailable.
Down Dead-	3 logs > 12" diameter and > 6" length as class 1 and 2 decay logs.

Moderate to severe burns may significantly increase erosion probabilities.  
Any timber harvest after a fire should consider the threat of erosion and include measures to maintain soil stability including reductions in salvage intensities, delaying harvest until soils are snow covered or frozen, and/or seeding and installation of erosion reduction structures such as waterbars.