

Chapter 2: Alternatives

2.1 Introduction

This chapter describes the No Action Alternative and the Proposed Action Alternative studied in detail. A discussion of project design features, and monitoring is included. Based on information and analysis presented in Chapter 3, Affected Environment and Environmental Consequences, a comparative summary is provided responding to the purpose and need, identified issues and issue-related effects.

2.2 History and Process to Formulate the Alternatives

The Proposed Action Alternative responds to the Purpose and Need stated in Chapter 1, which is based on conditions created by the Robert and Wedge Canyon fires. This alternative is the initial formulation of the project that was subject to internal review and public comment. The results of the collaborative efforts as directed by the Flathead and Kootenai National Forest Rehabilitation Act, provided additional objectives that were included in the Proposed Action:

- Coordinate salvage entries with other rehabilitation treatments
- Protect sites as necessary with horizontal placement and retention of wood debris
- Complete salvage harvest in a timely manner to maximize economic return
- Use best management practices to minimize soil erosion and protect water quality
- Where Inland Native Fish Strategy rules can be met in riparian areas, allow salvage, restoration, rehabilitation, and reforestation

Under the Rehabilitation Act, the Flathead National Forest was not required to study, or develop, or describe any alternative to the Proposed Action Alternative, thus no other action alternatives were identified. The No Action Alternative is required by regulation and provides a baseline of data for analysis.

2.3 Alternatives Considered In Detail

2.3.1 Alternative 1 – No Action

This alternative represents the existing condition against which the Proposed Action alternative is compared. Under this alternative, none of the specific activities proposed would occur. No salvage and associated activities, road management changes, planting and site restoration activities to aid in vegetation recovery, and pheromone-based beetle management treatments would occur. Ongoing activities such as recreation, public firewood gathering, fire suppression, and normal road maintenance would continue. Activities identified in Chapter 3 as ongoing and foreseeable actions would occur (see Section 3.18).

2.3.2 Alternative 2 – Proposed Action

The proposed action (developed specifically to respond to the purpose and need for action) originally provided to the public for review in January of 2004 was modified in the following ways.

- Salvage harvest activities originally proposed in Management Area 11 (Lands capable of providing grizzly bear habitat) were dropped. A high level of concern regarding potential short term, long term and cumulative effects on grizzly bear was identified by both the public and the interdisciplinary team. In addition, no information or monitoring data is available to determine effects of salvage and associated road activities on Management Area 11.
- Identification and location of new temporary road construction to access proposed salvage units was modified as a result of more in depth analysis. Approximately 2.0 miles of new temporary road (7 segments), and 3.7 miles of existing road templates (5 segments) are proposed to access salvage units in the Robert and Wedge Canyon Project Areas.
- Road proposals to address Amendment 19 standards were reduced in the Lower Whale Grizzly Bear Subunit due to duplication with a past NEPA decision accounting for five roads proposed under this proposal.

Salvage Harvest

Robert Fire

(Note Figure 3 and Table 14 display management activities and are located at the end of this Chapter)

Salvage of burned and beetle infested trees would occur on approximately 3,090 acres. An estimated 20 million board feet would be generated.

Less than 1% (24 acres) of salvage is proposed in Management Area 12 and Inland Native Fish (INFISH) stream buffers, where salvage is allowed if riparian wildlife and fish values can be maintained or improved. This proposal addresses an objective agreed upon during the collaborative process in January 2004 as directed by the Flathead and Kootenai National Forest Rehabilitation Act (Refer to Chapter 1). Proposed salvage is not located within a priority bull trout watershed as identified in the Inland Native Fish Strategy of 1995, but is located within an INFISH stream buffer area on the upslope side of the currently yearlong open McGinnis Creek Road #803. Only upslope vegetation is proposed for salvage since the riparian buffer is bisected by the road.

Salvage proposals are emphasized within the areas of high burn severity (69% of the area proposed is in high burn severity). Salvage is proposed to remove dead and dying trees that have been killed and damaged directly by the fire or infested with bark beetles (refer to Post Mortality Guidelines in Appendix B). Individual live trees may need to be designated for cutting to develop safe log landing areas, or for other safety considerations. These trees would be left on site as downed wood material except in landing areas. Snag and down wood retention prescriptions are identified in the following section (Management Practices-Project Design Features).

Harvest would be accomplished with helicopter yarding on 1,576 acres, cable yarding on 720 acres, and tractor yarding on 794 acres. To access harvest units approximately 0.8 miles (3 segments) of new temporary road would be constructed. Approximately 1.4 miles (2

segments) of existing road templates would be reopened and used as a temporary road. All of these roads would be stabilized and rehabilitated post harvest (e.g. water bars, reseeded with grass, scattered slash on surface, or recontoured to their original slope).

Approximately 30 helicopter landings covering from about ½ to 2 acres in size would be constructed and rehabilitated. Landings would not be located on problematic soils, in riparian habitat conservation areas, or other areas determined as “sensitive” by interdisciplinary review. In addition, they would be located in generally level areas. In some cases, roads may be used as landing areas. Landings would avoid areas with concentrations of live trees.

Salvage units proposed for tractor yarding may include whole tree yarding where tops would be piled and burned at the log landing sites. Salvage units proposed for cable and helicopter yarding would not involve whole tree yarding to the log landing sites.

Following salvage activities, regeneration surveys would occur for each harvest unit to verify possible reforestation needs. If natural regeneration is inadequate, planting of native conifer seedlings (western larch, western white pine and Engelmann spruce) would occur. The best available information for the DEIS anticipates approximately 800 acres would be planted within salvage units.

Wedge Canyon Fire

(Note Figure 4 and Table 15 display management activities and are located at the end of this Chapter)

Salvage of burned and beetle infested trees would occur on approximately 2,732 acres. An estimated 22 million board feet would be generated.

Less than 1% (18 acres) of salvage is proposed in Management Area 12 and Inland Native Fish (INFISH) stream buffers, where salvage is allowed if riparian wildlife and fish values can be maintained or improved. This proposal addresses an objective agreed upon during the collaborative process in January 2004 as directed by the Flathead and Kootenai National Forest Rehabilitation Act (Refer to Chapter 1). Proposed salvage is not located within a priority bull trout watershed as identified in the Inland Native Fish Strategy of 1995 and is located within an INFISH stream buffer area on the upland side of the Teepee Creek Road #907. Only upland vegetation is proposed for salvage since the riparian buffer is bisected by the road.

Salvage proposals are emphasized within areas of high burn severity (60% of the area proposed is in high burn severity). Salvage is proposed to remove dead and dying trees that have been killed and damaged directly by the fire or infested with bark beetles (refer to Post Mortality Guidelines in Appendix B). Individual live trees may need to be designated for cutting to develop safe log landing areas, or for other safety considerations. These trees would be left on site as downed wood material except in landing areas. Snag and down wood retention prescriptions are identified in the following section (Management Practices – Project Design Features for the Proposed Action). Winter logging is proposed for approximately 810 acres to address wildlife and soils concerns (Refer to Management Practices-Project Design Features).

Harvest would be accomplished with helicopter yarding on 1,108 acres, cable yarding on 243 acres, and tractor yarding on 1,380 acres. To access harvest units approximately 1.2 miles (3 segments) of new temporary road would be constructed. Approximately 2.2 miles (4 segments) of existing road templates would be reopened and used as a temporary road. All of

these roads would be stabilized and rehabilitated post harvest (e.g. water bars, reseeded with grass, scattered slash on surface, or recontoured to their original slope).

Approximately 15 helicopter landings (covering from about ½ to 2 acres in size would be constructed and rehabilitated. Landings would not be located on problematic soils, in riparian habitat conservation areas, or other areas determined as “sensitive” by interdisciplinary review. In addition, they would be located in generally level areas. In some cases, roads may be used as landing areas. Landings would avoid areas with concentrations of live trees

Salvage units proposed for tractor yarding may include whole tree yarding where tops would be piled and burned at the log landing sites. Salvage units proposed for cable and helicopter yarding would not involve whole tree yarding to the log landing sites.

Following salvage activities, regeneration surveys would occur for each harvest unit to verify possible reforestation needs. If natural regeneration is inadequate, planting of native conifer seedlings (western larch, western white pine and Engelmann spruce) would occur. The best available information for the DEIS anticipates approximately 550 acres would be planted within salvage units.

Rehabilitation

Robert Fire

Outside of proposed salvage units, planting of western larch is proposed on approximately 98 acres, a combination of western larch and Engelmann spruce is proposed on approximately 118 acres, whitebark pine is proposed on 48 acres, and a combination of western white pine, Engelmann spruce and native hardwoods/shrubs which could include willow, alder, cottonwood, buffalo-berry, and serviceberry is proposed on 232 acres (see Table 3).

Table 3. Proposed Planting Acres Within the Robert Fire Project Area.

Planting Unit	Acres	MA
R1	48	2A,3,15
R2	98	9,18
R3	117	18
R4	169	3,12,15,18
R5	63	3,15,18

Small scale studies to test the effects of vegetation recovery and huckleberry production would occur on proposed tractor salvage units during and after harvest activities. Proposed specific areas will be determined during the field season of 2004 and disclosed in the FEIS, but it is anticipated that from 30 to 100 acres in both fire areas may be selected to conduct this test.

Depending upon the need, as determined by monitoring of beetle infestation levels, pheromone-baited spruce beetle funnel traps and trap trees would be applied across on an estimated seven sites to protect about 483 acres of beetle susceptible Engelmann spruce stands within the fire area. This treatment would also reduce the spread of beetles to spruce stands outside the fire area. Beetle funnel traps contain an attractant pheromone which attracts both male and female beetles to mass attack the tree. Beetle traps draw in, capture and kill emerging beetles before they have a chance to spread and attack adjacent live spruce trees within the fire area.

The salvage of approximately 1090 acres of moderate to high spruce beetle susceptible stands would also help reduce potential increases in spruce beetle populations. These stands are areas where beetles will find live or fire damaged trees that are highly suitable for breeding habitat. Beetle populations have the potential to build substantially in these stands.

Wedge Canyon Fire

Outside of the proposed salvage units, planting of Douglas-fir is proposed on approximately 292 acres, western larch is proposed on approximately 724 acres, a combination of western larch and Engelmann spruce and native hardwoods/shrubs which could include willow, alder, cottonwood, buffalo-berry, and serviceberry is proposed on 108 acres, and whitebark pine is proposed on 533 acres (see Table 4).

Table 4. Proposed Planting Acres Within the Wedge Fire Project Area.

Planting Units	Acres	MA
W1	81	7,
W2	208	11,15
W3	44	7,15,18
W4	107	15
W5	200	15
W6	84	12,15
W7	108	12,15
W8	292	15,3
W9	533	2A,2B,3,15

Small scale studies to test the effects of vegetation recovery and huckleberry production would occur on proposed tractor salvage units during and after harvest activities. Proposed specific areas will be determined during the field season of 2004 and disclosed in the FEIS but it is anticipated that from 30 to 100 acres in both fire areas may be selected to conduct this test.

Depending upon the need, as determined by monitoring of beetle infestation levels, pheromone-baited spruce beetle funnel traps and trap trees would be applied on an estimated seven sites to protect about 331 acres of Engelmann spruce stands.

The salvage of approximately 811 acres of moderate to high spruce beetle susceptible stands would also help reduce potential increases in spruce beetle populations. These stands are areas where beetles will find live or fire damaged trees that are highly suitable for breeding habitat. Beetle populations have the potential to build substantially in these stands. In addition, the salvage of approximately 445 acres of moderate to high Douglas-fir beetle stands would also help reduce potential increases in Douglas-fir bark beetle populations.

Use of MCH, a pheromone-based beetle attractant, may also be used in site-specific, localized areas to protect identified high value live Douglas-fir trees from beetle infestation. These areas will be identified by field reconnaissance in the summer of 2004.

Other Design Features of Alternative 2 – Road Management

In 1995, Amendment 19 to the Forest Plan established new forest-wide objectives and standards for grizzly bear security to meet long-term conservation needs of this threatened species. Amendment 19 established short-term (5 years) and long-term (10 years) standards for open motorized access density, total motorized access density and security core area in

grizzly bear subunits. The five year period has passed and the ten year period is effective in 2005. Currently, the Forest Plan standards for open motorized access density, total motorized access density, and security core standards are 19%, 19%, and 68%, respectively.

The Canyon McGinnis Grizzly Bear Subunit in the Robert Fire area does not currently comply with any of the ten-year access density or security core standards. The Lower Whale Grizzly Bear Subunit in the Wedge Canyon Fire area does not currently comply with the ten-year access density standards for open motorized access density and security core.

A project specific amendment to the Forest Plan is proposed to temporarily amend total motorized access density and security core standards in the Canyon McGinnis grizzly bear subunit to 33% and 53% respectively. Another project specific amendment to the Forest Plan is also proposed to temporarily amend open motorized access density and security core standards in the Lower Whale grizzly bear subunit to 37% and 47% respectively (see Table 5 below). Road closures and decommissioning included in this alternative would meet the Forest Plan standards for grizzly bears, as amended (*Note Figures 5 and 6 display existing access management condition and proposed access management condition for the Canyon-McGinnis Grizzly Bear Subunit. Figures 7 and 8 display existing access management condition and proposed access management condition for the Lower Whale Grizzly Bear Subunit. These figures are located at the end of Chapter 2.*).

These project specific amendments would remain in place pending revision of the Forest Plan which is targeted for completion in 2006. The revision process is currently ongoing and grizzly bear standards are being reviewed and potentially may be modified as a result of ongoing population studies.

Table 5. Comparison of Existing A19 Standards, the Proposed Action, and the Forest Plan.

Canyon McGinnis Grizzly Bear Subunit	Current Condition	Forest Plan Standard	Proposed Action *Forest Plan Amendment
Open Motorized Access Density	22%	19%	19%
Total Motorized Access Density	41%	19%	33% *
Security Core	38%	68%	53% *
Lower Whale Grizzly Bear Subunit	Current Condition	Forest Plan Standard	Proposed Action *Forest Plan Amendment
Open Motorized Access Density	43%	19%	37% *
Total Motorized Access Density	16%	19%	16%
Security Core	45%	68%	47%*

The specific road management activities displayed in Table 6 are proposed for the Canyon McGinnis Grizzly Bear Subunit.

Table 6. Road Management Activities Proposed in the Canyon McGinnis Grizzly bear Subunit.

Road #	# miles	Existing Management	Proposed Management
1679	2.9	closed yr long gate	closed yr long berm

Road #	# miles	Existing Management	Proposed Management
1688	1.9	closed yr long gate	closed yr long berm
1688A	1.1	closed yr long gate	closed yr long berm
1688B	0.7	closed yr long berm	closed yr long gate
10755	1.8	closed yr long berm	decommission
10756	0.7	closed yr long berm	decommission
1670	0.4	closed yr long gate	closed yr long berm
316 B	1.6	open seasonally	closed yr long berm
5225	0.8	closed yr long berm	decommission
5225	4.2	closed yr long gate	decommission
5274	0.1	open yr long	closed seasonally
5295	2.6	closed yr long gate	decommission
5295A	1.5	closed yr long nat rev.	decommission
5295B	1.7	closed yr long gate	decommission
5295C	0.6	closed yr long gate	decommission
648A	0.6	closed yr long berm	decommission
803	3.6	open yr long	open seasonally
803G	0.3	closed yr long berm	decommission
9898	0.7	open yr long	closed yr long gate
9898A	0.1	open yr long	closed yr long gate
9898B	0.4	open yr long	closed yr long gate
9898C	0.1	open yr long	closed yr long gate

The specific road management activities displayed in Table 7 are proposed for the Lower Whale Grizzly Bear Subunit:

Table 7. Road Management Activities Proposed for the Lower Whale Grizzly Bear Subunit.

Road #	#Miles	Existing Management	Proposed Management
70701	2.4	closed year long signed	closed yearlong gate
9805 ¹	1.4	open yr long	closed yr long berm
5399	2.0	closed yearlong gate	closed yearlong berm
907	0.8	open year long	closed yearlong berm

¹Road 9805 (Hornet Lookout Road) occurs in both the Lower Whale (0.4 miles) and Upper Trail (about 1 mile) grizzly bear subunits. The portion of this road in the Upper Trail subunit is being added to the above table.

Yearlong road restrictions, using gates, road berms, and road decommissioning would reduce road densities, increasing grizzly bear habitat security. Road decommissioning would include actions to minimize the potential for future sedimentation of streams or noxious weed development. These actions would include placement of waterbars, culvert removals, grass seeding, slash or debris placement on roads, planting of shrubs and/or physical alteration of the road template.

Culvert removals and stream restoration would occur where roads to be decommissioned intersect streams. To reduce the amount of ground disturbance, cross-drain culverts would typically not be removed but waterbars would be placed nearby to ensure adequate drainage. The degree of physical alteration to the road template from culvert removal or waterbar creation would vary according to the sites involved. Berms would be placed at the beginning of decommissioned roads to effectively restrict wheeled motorized vehicle access.

All road mileages displayed in the following table are estimated from computer analysis. Actual miles affected during implementation may be more or less than shown in the tables. However, road changes displayed on the maps in the EIS would be implemented.

Table 8. Comparison (in miles) of Existing and Proposed Travel Management in the Canyon McGinnis and Lower Whale Grizzly Bear Subunits.

Travel Management Status	Existing Estimated Miles (w/ Previous Decisions Implemented)	Proposed Action (w/ Previous Decisions Implemented)
CANYON MCGINNIS GRIZZLY BEAR SUBUNIT		
Open Yearlong	16 miles	9 miles
Open Seasonally	10 miles	14 miles
Closed Yearlong/Berm	36 miles	42 miles
Closed Yearlong/Gate	32 miles	16 miles
Closed Yearlong/Nat. reveg	12 miles	11 miles
To be decommissioned	0 miles	15 miles
County/city/hwys	8 miles	8 miles
Small private	4 miles	4 miles
TOTAL	118 miles	119 miles
LOWER WHALE GRIZZLY BEAR SUBUNIT		
Open Yearlong ¹	20 miles	18 miles
Open Seasonally	2 miles	2 miles
Closed Yearlong/Berm	8 miles	11 miles
Closed Yearlong/Gate	3 miles	3 miles
Closed Yearlong/Nat. reveg.	0.5 miles	0.5 miles
Closed Yearlong Sign	2 miles	0 miles
To be decommissioned	7 miles	7 miles
County/city/hwys	6 miles	6 miles
Small private	5 miles	5 miles
TOTAL	53 miles	53 miles

¹ Road 9805 (Hornet Lookout Road) occurs in both the Lower Whale and Upper Trail grizzly bear subunits. Approximately 1 mile of the road occurs in the Upper Trail subunit. Since this is the only road proposed for closure to wheeled motorized access in this subunit, the 1 mile portion of the road is being added to the open yearlong miles in the Lower Whale subunit.

Approximately 5 miles of open yearlong/seasonally open road would be closed yearlong to wheeled motorized vehicles within these two grizzly bear subunits.

One of the more prominent open road changes in the Lower Whale grizzly bear subunit would be a closure to wheeled motorized vehicles by a berm on Road #9805, located just past

the trailhead to the Hornet Lookout. In addition, an open road that accesses state land would be closed yearlong with a gate.

Changes to open roads in the Canyon McGinnis subunit include a seasonal restriction to wheeled motorized vehicles on the McGinnis Creek Road #803 (would be open to wheeled motorized vehicles from July 1 to November 30), a yearlong closure to a portion of the Kimmerly Creek Road #316B, and a yearlong closure to a small access road to a former post and pole area adjacent to the North Fork Flathead River.

Roads proposed to be bermed on designated snowmobile routes would be designed to accommodate over-the-snow use that is authorized by a winter motorized settlement agreement in 2002. The Flathead National Forest has recently published a final EIS that would amend the Forest Plan to address winter-motorized recreation. A decision on this EIS (Amendment 24) is expected sometime during the summer/fall of 2004.

In addition to changes to open roads, approximately 15 miles of road would be decommissioned within the Canyon McGinnis subunit.

2.4 Management Practices – Project Design Features for the Proposed Action

Wildlife

To address downed wood and snags – refer to the Deadwood Habitat Prescription Matrix found in Appendix F. Table 9 and Table 10 include excerpts from the matrix addressing harvest units.

Table 9. Prescriptions Applicable to all Harvest Units.

Element	Prescription for all parts of all units.	Rationale
Live trees of all species	Leave all standing, wherever feasible. Design unit layout to avoid taking live trees for safety concerns, landings, and trails. The definition of “live trees” varies by species, size, and condition. This will be detailed in an appendix to the EIS.	Live trees provide many ecological functions, as well as the recruitment of future snags.
Green trees and snags that would have been retained but were felled due to hazards.	Retain felled hazard trees on-site, with as little bucking as possible. Within 200 feet of an open road, only merchantable portions may be removed.	Retain for down wood. The larger the log the more valuable it is to wildlife as well as other resources, and the less of a fire hazard.

Element	Prescription for all parts of all units.	Rationale
Wildlife Snags over 18" DBH with nest holes, broken top, conks, or pre-fire decay	Leave all standing wherever safe to do so. Western larch snags with nest cavities may be safely retained dispersed in a unit, due to the solid and durable nature of its sapwood. Wildlife snags will be protected to the extent possible when designing units on the ground.	Snags \geq 18 with broken tops, cavities and/or decay prior to the fire are strongly selected for by cavity using wildlife.
Unmerchantable snags, all species and sizes	Leave all standing, wherever safe to do so, unless they are in the wildland urban interface.	To allow for the natural recruitment of down wood over time, and to help retain security for wildlife.
Black Cottonwood, aspen, paper birch, and ponderosa pine snags	Leave all standing, wherever safe to do so. Design unit layout to avoid felling these for safety concerns, landings, and trails. Extremely few, if any, of these species are expected in these fire areas.	These tree species are highly preferred by wildlife.
Coarse Woody Debris	Default A21 course woody debris standards for Moist PVG will be retained in treatment areas where it is available. This is provided by unmerchantable pre-fire downed wood, un-merchantable material left standing, later windfall of leave trees and leave snags, and felled hazard or un-merchantable trees. Standards: Retain coarse woody debris (woody pieces > 6 feet in length) in treatment areas at these densities: 32 pieces average per acre 9 to 20 inches diameter and 15 pieces average per acre \geq 20 inches diameter	Hydrologists and soil scientists determined these standards were appropriate for these fire areas. It also retains adequate numbers and distribution of large downed logs for wildlife.

Table 10. Prescriptions Based on Snag Emphasis Level.

Element	Prescription by Snag Emphasis Level			Rationale
	1 ("High")	2 ("Moderate")	3 ("Low")	
Western Larch Snags ¹	Wherever safe, leave standing all $\geq 20''$ DBH and ≥ 10 feet tall.	Wherever safe, leave standing all ≥ 22 DBH and ≥ 10 feet tall.	Leave only if have holes or decay (wildlife snags). Paint and sign snags if within 200 feet of an open road.	Western larch is highly preferred by cavity users and for foraging. $\geq 20''$ DBH nest trees are very important for pileated woodpecker nesting. Many secondary cavity users are dependent of pileated woodpecker holes.
Douglas-fir Snags ¹	Wherever safe, leave standing all ≥ 23 DBH and ≥ 10 feet tall.	Wherever safe, leave standing all ≥ 23 DBH and ≥ 10 feet tall.	Leave only if have holes or decay (wildlife snags). Paint and sign snags if within 200 feet of an open road.	Douglas fir is preferred by cavity users and for foraging.
Severely or moderately burned units smaller than or equal to 20 acres. ²	Leave irregularly shaped reserve patches to bring the total to at least a minimum 10% of the unit acreage located around the largest snags where feasible. ¹	Additional reserve patches not required.	Reserve patches not required.	Due to the small size of these units, the retention of reserve patches was less valuable to wildlife than larger units.

Element	Prescription by Snag Emphasis Level			Rationale
	1 ("High")	2 ("Moderate")	3 ("Low")	
Units larger than 20 acres that were: a) severely or moderately burned OR b) spruce dominated stands that burned at low intensity. ²	Leave irregularly shaped reserve patches to bring the total to at least a minimum 25% of the unit acreage, located around the largest snags where feasible. ¹	Leave irregularly shaped reserve patches to bring the total to at least a minimum 15% of the unit acreage, located around the largest wildlife snags where feasible. ¹	Reserve patches not required.	Research has shown much higher use and nest success in post-fire salvage reserve patches as opposed to individual snags left scattered across the units. Low intensity burns in western larch and Douglas fir stands should have enough green trees to provide for natural snag recruitment.

¹ Snag emphasis Level is based on the criteria described in the Deadwood Habitat Prescription Matrix in Appendix F.

² Fire severity is defined in Chapter 3, Section 3.2.3 – Fire Severity.

Wildlife (continued)

- To minimize disturbance to the common loon, winter log Wedge Canyon Units 124 and 128.
- Timber sale contracts include a provision that prohibits the hunting or transportation of big game animals by the purchaser in closed areas and for protection of habitat for endangered species
- If wolves are detected and it is determined that denning is occurring, no logging activities would be allowed within a one-mile radius of the den and/or rendezvous sites between March 15 and July 1 (Forest Plan, p. II-44).
- There will be no motorized activities in both the Robert and Wedge Canyon units that are located in grizzly security core habitat during the non-denning period with the exception of helicopter use.
- Roads 1679, 5224, 5271, 5274, 5295, 5295A, 803C, 803F and 803G in the Robert Fire have been identified as accessing high spring value grizzly habitat (BMP Biological Assessment, 2004). Activities off of these road systems will be restricted between April 1 and July 1.
- A buffer would be retained within 100' on both sides of all avalanche chutes that are within or adjacent to salvage units in the Wedge Canyon Fire. (All units located west of Unit #115 along road 907). The standing dead trees would provide some visual

screening, and the downed logs would provide bedding cover adjacent to an important foraging habitat.

- Roads 10335, 907, and 9827 in the Wedge Canyon Fire have been identified as accessing high spring value grizzly habitat (BMP Biological Assessment, 2004). Activities off of these road systems will be restricted between April 1 and July 1.

Silviculture-Vegetation

- Refer to the Post Fire Mortality Analysis and Guidelines in Appendix B

Fisheries

- To reduce potential impacts to soils, water quality, wetland, and riparian areas, requirements of the Montana Streamside Management Zone (SMZ) Law and the Inland Native Fish Strategy (INFISH) would be followed for all treatments within or adjacent to wetland or riparian areas.

Soils- Hydrology

- All slopes greater than 40% with low/unburned mosaic of burn severity are to be skyline logged.
- All slopes greater than 40% with moderate or high burn severity are to be skyline logged.
- Slopes between 0 and 40% on moderate or high burn severity with enough fine materials to make a slash mat (low or moderate fire severity) will be logged with a ground based forwarder operating on said slash mat.
- Slopes of 0 to 10% with low or low/unburned mosaic of burn severity will be logged with a Ground based forwarder without a slash mat.

Visuals

- Salvage units should be shaped to mimic natural patterns found in the landscape. Minimize straight lines or geometric shapes for unit design.
- If individual tree marking is utilized, tree marking will be visually sensitive along North Folk Road and the Flathead Wild and Scenic River Corridor. Paint will be on the side away from roads and trails for a reasonable distance. Butt marks may be on the visible side. Mark cut trees instead of leave trees where reasonable. The objective is to reduce marking paint visibility to the casual observer.
- Stumps that are pulled up as a part of road work will be buried, scattered or removed unless needed for other purposes.
- Disturbed areas, including but not limited to exposed soil from timber salvaging, road, and landing construction, log skidding, etc. will be revegetated if needed. Planting should be dispersed to mimic existing patterns of the vegetative mosaic.
- Stockpiled slash, consisting of trees and limbs, will be randomly lopped and scattered over the disturbed areas to a depth no higher than 18". The effect of scattering the slash should mimic the adjacent environment.

- Temporary road construction will be designed to meet the scenic integrity objective. The location of the road should fit the landscape with a minimum degree of landform alteration limiting the amount of earthwork. Planning the design of alignments and reseeded of cut and fill slopes needs to consider minimizing impacts to scenic resources. Avoid excessive cut and fill slopes for road construction.
- Amount and size of cut and fill slopes from along road beds shall be reduced and graded to conform to adjacent terrain. This can be accomplished by the use of slope rounding and warping slopes. Disturbed sites will be prepared to provide a seedbed for reestablishment of desirable vegetation. Practices may include contouring, terracing, ripping, and scarifying.
- Cut the ends of culverts to conform to the terrain, or bury the culverts to blend with the adjacent environment in order to minimize visual impact.

2.5 Mitigation Measures for the Proposed Action

Wildlife

- If a fisher den is found within ¼ mile of any project activities associated with the Action Alternative, a limited operating period (LOP), from March 1 to August 31 within ¼ mile of any known fisher den would be implemented. This means that no project activities should occur within ¼ mile of a known fisher denning site from March 1 through August 31.
- If a goshawk nest is found within ¼ mile of any project activities associated with the Action Alternative, a limited operating period (LOP), from March 1 to August 31 within ¼ mile of any known goshawk nest would be implemented.

Fisheries

- No large woody debris would be removed from stream networks. Additional mitigation measures may be identified through consultation with US Fish and Wildlife Service.

Soils – Hydrology

Refer to Best Management Practices located in Appendix D.

Visuals

In order to move the project area towards the various VQOs, additional field verification needs to be conducted to determine if some units are within the foreground and immediate foreground of the Flathead Wild and Scenic River which fall within Management Area 7. Paying special attention to increase the removal of additional slash, within the confines of wildlife and watershed needs, would bring that management area towards its desired futures condition while accomplishing the pertinent VQO goals for that area. The units of interest to apply special mitigation measures include 126, 125, 127 and 129.

In order to reduce the short-term visual impacts of slash residue in units in close proximity to “foreground viewing areas” or “middle-ground viewing areas”, the following actions should be taken if needed:

- Dispose of burn piles along open roads within two years.
- Where appropriate, low cut or angle cut stumps (maximum stump height 6”) in the immediate foreground (100’) along the following road and private lands with homes. The North Fork (FDR 486) and the open portions of the McGinnis Creek Road (FDR 803), Kimmerly Creek Road (FDR 316B), Whale Creek Road (FDR 318), and the Teepee Creek Road (FDR 907).
- Rehabilitate landing areas next to open roads. Dispose of slash and scarify as necessary to establish new vegetation.
- In units along the North Fork road, slash should not exceed 1.5 feet deep.
- Landings and skid trails should not be located along the North Fork Road where practical. This will reduce the probability of recreational users utilizing corridors as recreational trails. Skid trails, log landings, skyline corridors, and temporary roads will be closed and rehabbed upon project completion.
- Any line skidding visible from key viewpoints should be considered for skidding over snow. This will minimize soil color contrasts created by disturbing soils resulting in lighter colored soils to appear.
- Planting within the Wild and Scenic River corridor should protect the values for which the river was classified.

2.6 Monitoring of Project Activities

The following monitoring activities are to ensure that project activities are completed, consistent within design standards and management practices, and that the intent of the effectiveness of project design features and mitigation measures are met.

Silviculture/Vegetation

Timber Sale Contract activities will be closely monitored by a qualified Timber Sale Contract Administration team, including Contracting Officer, Forest Service Representative, Timber Sale Administrator and Harvest Inspectors. This team will inspect all aspects and provisions of the timber sale contract. Specifically for forest vegetation protections, they will monitor for compliance with green tree retention and snag retention requirements, and merchantability specifications (harvest tree size limits). They will monitor for proper timing of operations, including specific provisions for spruce trap tree timing of felling and removal. In addition to contract requirements, timber sale administration personnel will assist in monitoring for bark beetle attacks and possible outbreak locations, and they will monitor timber quality deterioration over time.

Forest Service personnel will monitor for Douglas-fir beetle attacks to live standing Douglas-fir. While this is not expected to be a problem, monitoring will either confirm this, or provide ample early warning that Douglas-fir beetles are increasing in number. Foresters will monitor for evidence of increasing spruce beetle populations. They will monitor for extent of the new attacks, locations, surrounding suitable habitat and the numbers of attacked trees. This will begin in 2004, and continue until the threat subsides (suitable host for outbreaks is no longer available to the beetles) or outbreak populations are confirmed. This monitoring will aid in locating effective funnel trap and trap tree locations. Funnel trap maintenance is a form of monitoring and can provide an idea of the relative abundance of beetles from station to station. Trap trees, when deployed, will be monitored for successful attacks; which will

determine timing of disposal or other treatments. Monitoring will be done outside the fire perimeters as well, to determine if outbreaks appear in neighboring areas.

Areas identified for prescribed natural tree seedling establishment will be monitored closely over the next three years to determine whether or not seedlings are becoming established in acceptable numbers and by desired species. Areas outside those prescribed for natural regeneration will also be monitored for species that are becoming established, numbers per acre and extent.

Planted seedlings will be monitored for survival and growth following standard procedures outlined in Forest Service Handbooks.

The huckleberry scarification test area(s) will be monitored before and after treatment to determine how well this treatment performs in proliferating huckleberry.

Fisheries/Soils/Water

Refer to the monitoring plan for Fish, Soil, and Water found in Appendix E.

Noxious Weeds

Surveys would be conducted following vegetation and road activities to identify any spread of weeds caused by the fire of this proposal. Weed treatments would be prioritized and scheduled where ever appropriate.

2.7 Comparison of Alternative Components

Table 11. Comparison of Alternatives.

Features (Purpose and Need and associated Relevant Issues)	Alternative 1 No Action	Alternative 2 Proposed Action
Recover Wood Fiber	0	Robert Fire 3,090 acres – 20 MMBF
		Wedge Canyon 2,732 acres – 22 MMBF
Logging Systems	0	Robert Fire Helicopter- 1,576 acres Cable – 720 acres Tractor – 794 acres
		Wedge Canyon Fire Helicopter – 1,108 acres Cable – 243 acres Tractor – 1,380 acres
Associated Road Work	0	Robert Fire 2.2 miles temporary road
		Wedge Canyon Fire 3.4 miles temporary road
Effects on Job Growth/Year	0	626 jobs
Effects on Income	0	+\$10,991,811

Salvage Proposed in Uninventoried Unroaded Areas	0 Acres	Robert Fire – 0 Acres
		Wedge Canyon Fire – 940 Acres The Unroaded Areas are surrounded by existing roads, not adjacent or contiguous with existing Inventoried Roadless Areas, and have had past vegetation management activities. These areas would likely have a low probability for inclusion into the wilderness system due to low manageability and limited wilderness values
Dead Tree Retention In Salvage Units see Table 13 below		
Salvage Proposed in MA 2A, 2B, 3, and 12 (includes INFISH boundaries) which are Unsuitable for Long-Term Timber Production	0	Robert Fire– MA2A=123 acres helicopter MA3=333 acres helicopter, 30 acres cable, 22 acres tractor MA12=18 acres tractor
		Wedge Canyon Fire - MA2A= 73 acres helicopter MA2B=56 acres helicopter, 2 acres tractor MA3= 190 acres helicopter, 3 acres cable, 3 acres tractor MA12= 19 acres helicopter. 5 acres tractor 90% is to occur with helicopter systems, Project design Features described in Section 2.4 address maintaining resource amenity values including wildlife, hydrology, fish, dispersed recreation, visuals and soils.
Invasive Plants	Lower Risk due to less acres disturbed	Higher vulnerability to weed spread and colonization.
Fisheries –INFISH Habitat -Riparian Management Objectives include (large woody debris, water temperature, sediment)	NA	No large woody debris to be removed from stream networks. Compliant with INFISH Riparian Management Objectives

Hydrology/Soils- Potential Sediment Yield Increase	Robert Fire- 66,858 tons	Robert Fire – Increase of 1,382 Tons to 68,220 tons
	Wedge Canyon Fire- 85,646 tons	Wedge Canyon Fire - Increase of 264 tons to 85,910 tons
Hydrology/Soils – Potential Water Yield Increase	Existing Post Fire Condition	No Change
Hydrology/Soils – Potential Nutrient Yield Increase	Existing Post Fire Condition	Slight increase above Post Fire. No water quality effects to the North Fork River.
Soils- Total Acres and (% detrimental soil disturbance)	Robert Fire - 3,750 acres (13%)	Robert Fire - 4,108 acres (14%)
	Wedge Canyon Fire 6,148 acres (6.5%)	Wedge Canyon Fire 6,555 acres (8%)

Table 12. Comparison of Existing, Proposed, and A19 Travel Management.

Travel Management Status	Existing Estimated Miles ¹ Road Density (%)	Proposed Action ¹ Estimated Miles, Road Density (%)
CANYON MCGINNIS GRIZZLY BEAR SUBUNIT		
Open Yearlong	16 miles	9 miles
Open Seasonally	10 miles	14 miles
Closed Yearlong/Berm	36 miles	42 miles
Closed Yearlong/Gate	32 miles	16 miles
Closed Yearlong/Natural revegetation	12 miles	11 miles
To be decommissioned	0 miles	15 miles
County/city/highways	8 miles	8 miles
Small private	4 miles	4 miles
TOTAL	118 miles	119 miles
Open Motorized Access Density	22%	19%
Total Motorized Access Density	41%	33% ²
Grizzly Security Core	38%	53% ²
LOWER WHALE GRIZZLY BEAR SUBUNIT		
Open Yearlong ³	20 miles	18 miles

Travel Management Status	Existing Estimated Miles ¹ Road Density (%)	Proposed Action ¹ Estimated Miles, Road Density (%)
Open Seasonally	2 miles	2 miles
Closed Yearlong/Berm	8 miles	11 miles
Closed Yearlong/Gate	3 miles	3 miles
Closed Yearlong/Natural revegetation	0.5 miles	0.5 miles
Closed Yearlong Sign	2 miles	0 miles
To be decommissioned	7 miles	7 miles
County/city/highways	6 miles	6 miles
Small private	5 miles	5 miles
TOTAL	53 miles	53 miles
Open Motorized Access Density	43%	37% ²
Total Motorized Access Density	16%	16%
Grizzly Security Core	45%	47% ²
Amendment 19 Standards	5 year	10 year
Open Motorized Access Density (<1 mi/mi ²)	≤19%	≤19%
Total Motorized Access Density (<2 mi/mi ²)	≤24%	≤19%
Grizzly Security Core	≤64%	≤68%

¹ Includes other ongoing activities

² Forest Plan Amendment

³ Road 9805 (Hornet Lookout Road) occurs in both the Lower Whale and Upper Trail grizzly bear subunits. Approximately 1 mile of the road occurs in the Upper Trail subunit. Since this is the only road proposed for closure to wheeled motorized access in this subunit, the 1 mile portion of the road is being added to the open yearlong miles in the Lower Whale subunit.

Table 13. Fire Severity and Snag Retention.

	Robert		Wedge Canyon	
	Alternative 1	Alternative 2	Alternative 1	Alternative 2
Potential Habitat Burned at High or Moderate Severity	7,261 acres	7,261 acres	13,337 acres	13,337 acres
Snag Patches > 74 Acres¹				
Acres of Patches	7,054 acres	3,779 acres	12,557 acres	10,006 acres

	Robert		Wedge Canyon	
	Alternative 1	Alternative 2	Alternative 1	Alternative 2
Number of Patches	4	4	4	7
% Snag Patches Retained	100%	54%	100%	80%
Snag patches > 956 Acres²				
Acres of Patches	6,471 acres	3,367 acres	11,812 acres	8,204 acres
Number of Patches	1	2	2	2
% Snag Patches Retained	100%	52%	100%	69%

¹ (Saab 2002)

² (Wisdom 2000)

2.8 Identification of the Preferred Alternative

The agency preferred alternative is Alternative 2: Proposed Action.

Figure 3. Robert Fire Area Proposed Action.

Table 14. Salvage Unit Descriptions for Robert Fire Project Area.

Salvage Unit #	Acres	Logging System	Snag Emphasis Level	Vegetation Burn Severity	Estimated Net Volume MBF	Management Area	Located in Grizzly Bear Core Habitat
301	16	Helicopter	high	high	174	3	no
302	39	Helicopter	high	high	318	15	no
303	16	Helicopter	high	high	121	15	no
304	16	Helicopter	high	high	116	15	no
305	18	Helicopter	high	high	23	15,3	no
306	85	Helicopter	high	high	698	15,3	no
307	3	Helicopter	high	high	0	3,15	no
308	12	Helicopter	high	medium	50	3	no
309	9	Helicopter	high	medium	86	15	no
310	109	Helicopter	high	medium	491	15	no
311	13	Helicopter	high	medium	79	15	no
312	341	Helicopter	high	high	1,184	15	no
313	19	Helicopter	high	high	122	15	no
314	36	Helicopter	high	high	130	15	no
315	110	Helicopter	high	high	391	15	no
316	22	Helicopter	high	high	0	15	no
317	197	Helicopter	high	high	1,454	15,3	no
318	4	Helicopter	high	high	51	15	no
319	42	Helicopter	high	medium	249	15	no
320	20	Helicopter	high	high	247	15	yes
321	165	Helicopter	high	high	519	3,15,2A	yes
322	28	Helicopter	high	high	112	15	no
323	258	Helicopter	high	high	1,052	2A,15,3	yes
324	28	Tractor	high	medium	136	15	no
325	23	Tractor	high	medium	74	15	no
326	8	Tractor	high	medium	33	15	no
327	34	Tractor	high	medium	33	15	no
328	24	Tractor	high	high	86	15	no
329	45	Tractor	high	high	159	15	no
330	75	Tractor	high	high	0	15	no
331	38	Tractor	high	high	180	15	no
332	107	Tractor	high	high	975	15,12	no
333	25	Tractor	high	high	217	15	no
334	31	Tractor	high	high	56	15	no
335	28	Tractor	high	high	164	15	no
336	8	Tractor	high	high	15	15	no
337	16	Tractor	high	high	86	3	no
338	11	Tractor	high	high	59	15,3	no
339	6	Tractor	high	high	85	15	no

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Salvage Unit #	Acres	Logging System	Snag Emphasis Level	Vegetation Burn Severity	Estimated Net Volume MBF	Management Area	Located in Grizzly Bear Core Habitat
340	8	Tractor	high	medium	25	15	no
341	72	Tractor	high	high	0	15	no
342	28	Tractor	high	high	99	15	no
343	15	Tractor	high	high	14	15	no
344	24	Tractor	high	medium	31	15,12	no
345	127	Tractor	high	high	657	15	no
346	2	Tractor	high	high	7	15	no
347	10	Tractor	high	medium	138	15	no
348	16	Skyline	medium	medium	136	15	no
349	12	Skyline	high	high	52	15	no
350	7	Skyline	high	high	55	15	no
351	19	Skyline	high	medium	53	15	no
352	3	Skyline	high	medium	30	15	no
353	19	Skyline	high	medium	49	15	no
354	11	Skyline	high	medium	133	15	no
355	2	Skyline	low	medium	12	15	no
356	1	Skyline	low	medium	6	15	no
357	5	Skyline	low	medium	26	15	no
358	1	Skyline	low	medium	7	15	no
359	7	Skyline	low	medium	34	15	no
360	27	Skyline	high	high	182	15	no
361	7	Skyline	high	high	29	15	no
362	6	Skyline	high	high	0	15	no
363	7	Skyline	high	high	0	15	no
364	19	Skyline	medium	medium	112	15	no
365	1	Skyline	medium	medium	3	15	no
366	12	Skyline	high	high	134	3	no
367	50	Skyline	high	high	353	15,3	no
368	9	Skyline	high	high	80	15	no
369	16	Skyline	high	high	62	15	no
370	36	Skyline	medium	high	145	15	no
371	50	Skyline	high	high	438	15	no
372	27	Skyline	high	high	98	15	no
373	31	Skyline	high	high	109	15	no
374	51	Skyline	high	medium	402	15	no
375	12	Skyline	high	medium	70	15	no
376	7	Skyline	high	high	70	15	no
377	136	Skyline	high	high	344	15,3	no
378	38	Skyline	high	high	125	15	no
379	9	Skyline	high	high	28	15	no

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Salvage Unit #	Acres	Logging System	Snag Emphasis Level	Vegetation Burn Severity	Estimated Net Volume MBF	Management Area	Located in Grizzly Bear Core Habitat
380	3	Skyline	high	medium	7	15	no
381	13	Skyline	high	medium	31	15	no
382	9	Skyline	high	medium	30	15	no
383	3	Skyline	high	high	9	15	no
384	16	Skyline	high	medium	35	15	no
385	7	Skyline	high	medium	17	15	no
386	11	Skyline	high	medium	0	15	no
387	4	Skyline	low	low	0	15	no

Figure 4. Wedge Fire Area Proposed Action.

Table 15. Salvage Unit Descriptions for Wedge Fire Project Area.

Salvage Unit #	Acres	Logging System	Snag Emphasis Level	Fire Severity	Estimated Net Volume MBF	Management Area	Located in Grizzly Bear Core Habitat
101	92	Helicopter	medium	high	475	15	yes
102	24	Helicopter	high	high	229	15	yes
103	10	Helicopter	low	high	170	15	no
104	9	Helicopter	high	high	49	15	no
105	11	Helicopter	high	high	82	15	no
106	42	Helicopter	medium	moderate	318	15	no
107	18	Skyline	medium	high	78	15	yes
108	60	Helicopter	high	high	753	15	yes
109	8	Helicopter	high	high	173	15	yes
110	21	Helicopter	high	moderate	104	15	yes
111	12	Helicopter	high	moderate	96	15	yes
112	22	Helicopter	medium	moderate	17	15	yes
113	11	Helicopter	high	moderate	29	15	yes
114	12	Helicopter	high	low	65	15,2A	yes
115	61	Helicopter	high	moderate	292	15,2A	yes
116	9	Helicopter	high	high	70	15	yes
117	16	Tractor	high	moderate	154	15	yes
118	29	Tractor	high	high	334	15	yes
119	8	Skyline	high	high	124	15	yes
120	34	Tractor	high	high	399	15	yes
121	56	Tractor	low	high	43	15	yes
123	30	Tractor	high	moderate	342	15	yes
124	19	Tractor	high	high	516	15	no
125	65	Tractor	high	high	239	7	no
126	16	Tractor	high	moderate	82	7	no
127	53	Tractor	medium	high	214	15,7	no
128	226	Tractor	medium	high	622	15	no
129	25	Skyline	high	moderate	21	7	no
130	16	Tractor	high	high	69	15	no
131	32	Tractor	high	moderate	0	15	no
132	183	Tractor	high	moderate	1,604	15	no
133	64	Tractor	high	high	281	15	no
134	12	Tractor	high	high	134	15	no
135	27	Tractor	high	high	548	15	no
136	20	Skyline	medium	high	0	15	yes
137	16	Tractor	high	moderate	54	15	yes
138	22	Skyline	high	moderate	119	15	yes
139	28	Helicopter	medium	high	0	15	yes
140	19	Helicopter	high	high	85	15	yes

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Salvage Unit #	Acres	Logging System	Snag Emphasis Level	Fire Severity	Estimated Net Volume MBF	Management Area	Located in Grizzly Bear Core Habitat
141	50	Tractor	high	moderate	330	15	yes
142	6	Tractor	high	moderate	34	15	yes
143	5	Helicopter	low	high	24	15	yes
144	95	Tractor	medium	moderate	0	15	yes
145	39	Tractor	high	moderate	22	15	no
146	30	Tractor	high	high	257	15	no
147	30	Tractor	high	high	308	15	no
148	18	Tractor	high	high	325	15	no
149	106	Tractor	high	high	1,240	15	no
150	12	Tractor	high	high	206	15	no
151	18	Tractor	high	high	95	15	no
152	17	Tractor	high	high	431	15	no
153	8	Tractor	high	high	90	15	no
154	5	Tractor	high	high	29	15,2B	no
155	8	Tractor	high	high	125	15	no
156	3	Tractor	medium	moderate	9	3	no
157	18	Tractor	high	high	79	15	no
158	13	Tractor	high	moderate	112	15	no
159	3	Tractor	high	moderate	26	15	no
160	5	Skyline	low	high	64	15	no
161	7	Skyline	high	high	93	15	no
162	45	Skyline	high	high	388	15	no
163	13	Skyline	high	high	109	15	no
164	64	Skyline	high	moderate	270	15	no
165	7	Skyline	high	high	92	15	no
166	2	Skyline	high	high	27	15	no
167	6	Skyline	m	high	73	15	no
168	1	Skyline	high	high	22	15	no
169	8	Helicopter	medium	high	115	15	no
170	19	Helicopter	high	high	337	15	no
171	196	Helicopter	medium	high	386	3	no
172	19	Helicopter	high	high	187	15	no
173	52	Helicopter	high	moderate	369	15	no
174	130	Helicopter	medium	moderate	518	15,2B	no
175	30	Helicopter	high	moderate	227	15	no
176	49	Helicopter	high	high	198	15	no
177	143	Helicopter	high	moderate	706	15,2A	no
178	7	Helicopter	medium	low	29	2A,15	no
179	4	Helicopter	high	low	19	2A	no

Insert fig 5 here

Figure 5. Existing access management condition for the Canyon-McGinnis Grizzly Bear Subunit.

Insert fig. 5 here

Figure 6. Proposed access management condition for the Canyon-McGinnis Grizzly Bear Subunit

Figure 7. Existing access management condition for the Lower Whale Grizzly Bear Subunit.

Figure 8. Proposed access management condition for the Lower Whale Grizzly Bear Subunit