

**Supplemental Information Report
to the
Routt National Forest Land and Resource Management Plan
Final Environmental Impact Statement
on the
Routt Divide Blowdown**

Introduction

On October 25, 1997, a wind event impacted an area of approximately 20,000 acres of the Routt National Forest within and just to the west of the Mt. Zirkel Wilderness Area, near Steamboat Springs, Colorado. This area and event will be referred to hereafter as the "Routt Divide Blowdown".

A separate Environmental Impact Statement is being prepared to address the site-specific impacts of the Routt Divide Blowdown and evaluate possible management responses which may be necessary to mitigate environmental concerns and address timber salvage issues. This analysis will also evaluate possible amendments to the Revised Routt National Forest Land and Resource Management Plan (Revised Forest Plan) if such amendments are appropriate.

This Supplemental Information Report (SIR) has been prepared to evaluate whether this blowdown event has resulted in "changed circumstances" or provided any "significant new information" which may require the Forest Service to supplement its Environmental Impact Statement (EIS) for the Revised Forest Plan. The Draft Environmental Impact Statement (DEIS) was released in February of 1996. The Final Environmental Impact Statement (FEIS) will be released in February or March of 1998. To assist the Regional Forester in making this important determination as to whether or not to prepare a supplemental EIS, the Routt Forest Plan Revision Interdisciplinary Team (IDT) has reviewed maps, examined video, developed analysis with the data described below, and the IDT Leader has flown the Routt Divide Blowdown area. The IDT has also examined and compared this SIR to the analysis and findings disclosed in the EIS and the following information has been provided to the Regional Forester.

Explanation of Acreages and Data Sources

The mileage and acreage figures presented in this Supplemental Information Report were generated from a variety of sources. These sources include several different Geographic Information System (GIS) software platforms, data from oracle databases and spreadsheets, and data from the Forest Planning (FORPLAN) model.

Most of the data residing in GIS was originally created in DWRIS (Distributed Wildland Resource Information System), a microcell grid-based GIS that operates on the Data General, the Forest Service's centralized computer system. For the Routt Forest Plan Revision, some of this data was transferred to vector layers in ARC/Info, a GIS operating on a unix-based workstation. Due to software and system considerations and original cell size in DWRIS, most of the data layers transferred to ARC/Info have a coarser resolution than some of the data layers that were subsequently created in ARC/Info. In response to the blowdown event, some new vector layers were created in ARC/Info, including a layer on the location and intensity of the blowdown. Some layers that had previously been converted from DWRIS to ARC/Info at a coarse resolution were re-converted at a finer resolution for the area of the forest effected by the blowdown event.

Natural Disturbance Events

Ecosystems found within the Routt National Forest have developed with this type of natural disturbance event. Natural disturbance events are discussed in the Range of Natural Variability Report (Routt National Forest 1994), Chapter 3 of the EIS, especially the Biodiversity and Vegetation Sections, and in the Management Area Desired Condition Sections of the Proposed Revised Forest Plan. Although the magnitude of this wind event could not have been predicted, the EIS and Proposed Revised Forest Plan both anticipate and plan for, to the degree possible, the occurrence of this type of natural event.

Figure

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here

Within the blowdown area, 12,913 acres were directly affected by the windstorm, with differing percentages of trees actually blown down in patches. The patches of blowdown occur in a mosaic pattern within the 20,000 acre area (see Table 1). In areas adjacent to the blowdown patches, further blowdown may occur and insect and disease problems are likely to develop. Predicting the timing and extent of these impacts is impossible at this time. Monitoring of the area will help us to anticipate the effects and analyze their impact on the Forest Plan.

Table 1 shows the percentage of downed trees and the acreage on which they occur. The percent of downed trees were grouped and assigned a category code for ease of reference (90-100% down = Category 1, etc.).

Table 1		
Percent of Trees Down	Category Code	Total Acres
90-100	1	4,405
50-89	2	5,223
20-49	3	1,744
<19	4	1,541
Total		12,913

The planning area considered in this revision effort contains 1,358,600 acres. Thus, about 1 percent of the Forest was directly affected.

Table 2 shows how these acres are distributed across the Management Area allocations for Alternative C in the FEIS.

Table 2		
Management Area	All Category Codes Total Acres	Percent of Total Blowdown Acres
1.11	4,423	34.3
1.12	1,283	9.9
1.13	1,919	14.9
1.32	1,835	14.2
1.5/(3.4)*	636	4.9
3.23	1	<.1
4.2	52	.4
4.3	65	.5
5.11	2,317	17.9
5.13	382	3.0
Inclusions in Wilderness		
1.5	92	
2.2	791	

*3.4 used in the FEIS

Table 2 shows 59.1 percent of the acres affected by the blowdown event are in a Wilderness allocation; 4.9 percent are in Wild/Scenic River allocation; 14.2 are in Backcountry Non-motorized Recreation; and 20.9 percent are in a timber management allocation (5.11 or 5.13).

Known And Anticipated Effects

Physical Elements Of The Environment

Air

The Routt Divide Blowdown event has not resulted in any measurable effect on air quality resources. Some short-term effects could occur in the event of future wildfire or controlled-burn activities. However, at this time, no controlled burning in the area is planned. The effects of these activities would be analyzed during site-specific project planning. In addition, any prescribed burning activities would be required to meet State air quality standards.

Heritage Resources

The Forest has signed a Programmatic Agreement (PA) with the Colorado State Historic Preservation Office, and the Advisory Council on Historic Preservation. This PA defines the steps that will be taken to ensure that effects to the heritage and cultural resources will be mitigated or avoided, thereby completing the steps for compliance with Section 106 of the National Historic Preservation Act (NHPA). Any mitigation needed as a result of Forest Service actions within the blowdown area will be identified during site-specific project level analysis.

Soil

The effect of the Routt Divide Blowdown to the soil resource is constant across all alternatives. The acres of blowdown by watershed are summarized in Table 3.

Table 3	
Watershed	Acres
81B01	294
81B02	446
81B03	15
83B04	2557
83B05	1769
83B06	627
85B03	99
85B04	3546
85B05	805
85B06	2542
85B07C	202
95C02	10
TOTAL	12,912

According to the "Preliminary Assessment of Blowdown on the Routt National Forest October 1997" (Rocky Mountain Research Station 02/06/98), "Research at the Fraser Experimental Forest and elsewhere has demonstrated that sediment increases following vegetation removal are usually associated with physical disturbance of the soil and thus increasing erosion and then direct connection or delivery path for the eroded material to reach the channel. The soil disturbance process is usually associated with road and log-deck construction."

Because over half of the blowdown occurs in wilderness, and will not be subject to future road construction, there is no significant change required in the analysis of effects to the soil resource. The blowdown may affect the location of soil and water resource improvement projects already identified in the EIS.

Water/Riparian/Wetlands

Water

The Routt Divide Blowdown affected 11 of the 54 fourth order/sixth level watersheds in the Yampa River basin. Discussion of the anticipated effects of the blowdown event can be found in the "Preliminary Assessment of Blowdown on the Routt National Forest October 1997" (Rocky Mountain Research Station 02/06/98). Effects resulting from actions taken in response to the blowdown, such as salvage logging etc., will be disclosed in project level, site-specific analyses. Some site-specific watershed improvement projects may be implemented where necessary to maintain channel stability and existing structures such as culverts and bridges.

The affects of the blowdown event were combined with the effects displayed in the Watershed Health Assessment table in Appendix I of the FEIS. This information is summarized in tables 4-7. Acres within each of the blowdown categories were adjusted to represent the percent of area affected. For example, a 2000 acre patch with 20-49% blowdown was assumed to have 35 percent of the area, or 700 acres affected by the blowdown. Categories include 1-19%, 20-49%, 50-89%, and 90-100 percent of down timber within the delineated blowdown polygons. In each sixth level watershed, the adjusted acreage for each category was summed and the total acres added to the existing acres of disturbance to represent total disturbance within each watershed. The area of total disturbance was then divided by the drainage area to represent the percent of disturbance in each watershed.

As a result of the blowdown event, the sensitivity ranking of the North Fork Elk River watershed (#85B04) was changed from low to high. This change is due primarily to the large extent of this watershed affected by the blowdown, and the high concentration of large blowdown patches within two subwatersheds.

Increases in water yield from the blowdown will occur in the first decade and then decline over time with timber regeneration. All of the water yield increase will be in the fourth level Yampa River basin.

The blowdown is expected to increase water yield by 10,250 acre-feet per year in the first decade and decline in subsequent decades. This is 1.3 percent above the baseline water yield in the Yampa basin (estimated to be 813,260 acre-feet). Projected water yield increases in the Yampa River basin for full implementation of alternative C in the first decade are 940 acre-feet per year in the first decade. The overall projected water yield increase of the blowdown event and full implementation of Alternative C is 11,190 acre-feet per year in the first decade or a 1.4 percent increase above baseline water yield.

Forest wide, overall water yield increase in the first decade from the blowdown and full implementation of Alternative C will be 17,550 acre-feet per year in the first decade. This is 1.1 percent above baseline water yield for the Routt National Forest. Water yield increases by Alternative Forest-Wide vary between 2,400 acre-feet per year in Alternative B to 12,600 acre-feet per year in Alternative E in the first decade.

According to the "Preliminary Assessment of Blowdown on the Routt National Forest October 1997" (Rocky Mountain Research Station 02/06/98), the increase in streamflow "will be most detectable on-site or close to the disturbance and it will be quickly dissipated downstream from the impacted areas." In addition, it is stated that "The timing of the changes that do occur will be more delayed than one might expect following disturbance like timber harvest or fire. For example, the foliage is still on the vegetation so there will be some continued interception and vapor loss from those surfaces."

While the increased water yield for the Yampa Basin appears to be substantial, the increase is still within the scope and context of the analysis completed in the DEIS and FEIS. The water yield increases Forest-Wide through the fifth decade range from 11,900 acre-feet per year for Alternative B to 43,900 acre-feet per year for Alternative E. The increase from the Blowdown is well within this range and will decline over time.

In addition, the majority of the blowdown occurred in non-timber emphasis management areas such as wilderness, and only 20.9 percent in Management Area 5.11 or 5.13, there is very little which could be done in the Forest Plan to mitigate the effects of the blowdown. For example, completely eliminating timber harvest in the Yampa River basin would only reduce the water yield increase by less than one percent (940 acre-feet per year for Alternative C).

Riparian/Wetland

According to the "Preliminary Assessment of Blowdown on the Routt National Forest October 1997" (Rocky Mountain Research Station 02/06/98), "Over the short-term (next 2 or 3 years), some of the same effects of fires and clear-cut timber harvest (increased erosion and sedimentation, increased soil leaching and nutrient enrichment), may be manifested over small, intensely-disturbed patches.

These effects are all site-specific in nature and do not represent a significant change to the effects or current conditions of the Routt National Forest."

Table 4. Blowdown Acres by Watershed					
4th-order Watershed	6th-level Watershed	Acres 90-100% down	Acres 50-90% down	Acres 20-50% down	Acres 0-20% down
81B01	140500010613	128	77	47	42
81B02	140500010503	31	203	149	63
81B03	140500010502	0	2	8	6
83B04	140500010610	862	939	371	385
83B05	140500010611	345	1008	215	202
83B06	140500010612	36	178	236	177
85B03	140500010604	53	35	10	1
85B04	140500010601	1822	1285	234	205
85B05	140500010602	351	258	96	99
85B06	140500010603	710	1140	349	343
85B07C	140500010606	67	98	29	8
95C02	101800020901	0	0	0	10
TOTAL		4405	5223	1744	1541

Table 5. Equivalent Clearcut Acres due to Blowdown.					
4th-order Watershed	6th-level Watershed	ECA 90-100% down	ECA 50-90% down	ECA 20-50% down	ECA 0-20% down
81B01	140500010613	121.6	57.75	16.45	4.2
81B02	140500010503	29.45	152.25	52.15	6.3
81B03	140500010502	0	1.5	2.8	0.6
83B04	140500010610	818.9	704.25	129.85	38.5
83B05	140500010611	327.75	756	75.25	20.2
83B06	140500010612	34.2	133.5	82.6	17.7
85B03	140500010604	50.35	26.25	3.5	0.1
85B04	140500010601	1730.9	963.75	81.9	20.5
85B05	140500010602	333.45	193.5	33.6	9.9
85B06	140500010603	674.5	855	122.15	34.3
85B07C	140500010606	63.65	73.5	10.15	0.8
95C02	101800020901	0	0	0	1
TOTAL		4184.75	3917.25	610.4	154.1

Table 6. Total Equivalent Clearcut Acres							
4th-order watershed	6th-level watershed	Total Blow-down ECA	Existing ECA	Total ECA	Watershed Acres	Existing Wtrshed % Total Disturb.	Prior Wtrshed % Total Disturb.
81B01	140500010613	200	16	216	6393	3	<1
81B02	140500010503	240.15	24	264.15	15554	2	<1
81B03	140500010502	4.9	28	32.9	4271	1	<1
83B04	140500010610	1691.5	119	1810.5	26377	7	<1
83B05	140500010611	1179.2	0	1179.2	12415	9	0
83B06	140500010612	268	14	282	13383	2	<1
85B03	140500010604	80.2	611	691.2	15507	4	4
85B04	140500010601	2797.05	2647	5444.05	26538	21	10
85B05	140500010602	570.45	13	583.45	13209	4	<1
85B06	140500010603	1685.95	5	1690.95	21772	8	<1
85B07C	140500010606	148.1	1087	1235.1	12194	10	9
95C02	101800020901	1	182	183	16355	1	1
TOTAL		8866.5					

Table 7. Change in Watershed Disturbance due to Blowdown				
4th-order Watershed	6th-level Watershed	% Total Wtrshed Disturb. Blowdown+Existing	Prior Wtrshed % Total Disturb.	Increase due to Blowdown
81B01	140500010613	3	<1	2
81B02	140500010503	2	<1	1
81B03	140500010502	1	<1	0
83B04	140500010610	7	<1	6
83B05	140500010611	9	0	9
83B06	140500010612	2	<1	1
85B03	140500010604	4	4	0
85B04*	140500010601	21	10	11
85B05	140500010602	4	<1	3
85B06	140500010603	8	<1	7
85B07C	140500010606	10	9	1
95C02	101800020901	1	1	0

* This watershed now has a high sensitivity ranking.

Figure

2

map

Biological Elements Of The Environment

Biological Diversity

Coarse Filter and Range of Natural Variability (RNV)

As Table 1 shows, about 1 percent of the Routt National Forest was directly effected by the October 18th wind event. This is about .02 percent of the Province (M331) and about .07 percent of Sections M331I and M331H. Although the windstorm was a large natural disturbance event, at the coarse filter scale, it had a negligible effect.

The Range of Natural Variability Report (Routt National Forest, 1994) documents that natural disturbance events of this magnitude have historically occurred. It is therefore not surprising when these events do occur and they should be expected to continue into the future. Information presented in the RNV was used to build Desired Condition statements, and standards and guidelines in the Proposed Revised Plan. Natural disturbance events are anticipated in each management area and direction is provided on management response to them.

From the Coarse Filter and RNV perspective, this windstorm and its effects on the resources are well with the range anticipated in both the EIS and Proposed Revised Forest Plan.

Fine Filter

A discussion of the habitats and associated sensitive species can be found in the wildlife section of this document.

Fire Management

As disclosed in the Fire Management sections of the EIS, the risk of major wildfire increases with an increase in fuel loading. The areas with blown down trees will experience an increase in fuel loading over the next few years. An ongoing site-specific analysis will indicate areas where salvage of the down trees will decrease these fuel loadings.

The source of ignitions remains low in this area primarily due to climatic factors. The sources of ignitions for the Routt Forest are discussed fully in the Fire Management sections of Chapter 3 in the EIS. Some increase in the risk of human-caused ignitions might be expected, due to an increase in visitors for the next few years. Also noteworthy, the area affected by the blowdown event is just east of the Continental Divide and one of the wettest areas in the Rocky Mountain Region.

The increase in fuel loading along with the low risk of ignition, is not expected to require any modification to the wildfire control strategy in the affected management areas. The flexibility in the specified management area control strategies accounts for this. These wildfire control strategies were developed and applied to compliment the levels of natural disturbance described in the management area themes and desired condition statements.

Fisheries and Aquatic Habitat

According to the "Preliminary Assessment of Blowdown on the Routt National Forest October 1997" (Rocky Mountain Research Station 02/06/98) "The large increase in coarse woody debris and more open canopy will increase primary production and benefit invertebrate and fish populations." "Willows may increase near streams."

The Preliminary Assessment further concludes that "Barring the disturbance of critical fish spawning habitat (e.g. heavy sedimentation of the primary spawning tributary for an adfluvial

fish populations...adults move from lakes to spawn in streams), the disturbance is probably not critical."

Standards and Guidelines will be followed to protect fish habitat from any potential increases in sedimentation due to salvage logging.

For Colorado River cutthroat trout, Lost Dog Creek is within the blowdown area. According to Conservation Status of Colorado River Cutthroat Trout, Young, et al, 1996, Lost Dog Creek, within the North Fork Elk River drainage has a genetic purity of hybridized trout. Additional information on the Lost Dog Creek can be found in Appendix A of Young, et al. 1996. Site-specific effects to the Colorado River Cutthroat trout will be determined in a separate EIS for the Routt Divide Blowdown.

Insects and Disease

During preparation of the Revised Plan, it was anticipated that disturbance events of this nature would occur. It has always been a question of when these natural disturbances would occur rather than if they would occur.

Chapter 3 (Insects & Disease), Affected Environment and Environmental Consequences section of the EIS discusses situations occurring from disturbances such as blowdown, insect or disease outbreaks, and wildfire.

In addition, the Revised Forest Plan, Forest-Wide Standards and Guidelines, and Standards and Guidelines for each Management Prescription Area give general direction for management actions when these disturbance events occur.

As a result of the blowdown, there is an increased risk of insect outbreaks occurring. Spruce beetle is the primary concern. Information on spruce beetle and stands at risk is found in Appendix D to the FEIS. The Forest Plan contains adequate direction at the Management Area level for addressing natural disturbance events including insect infestations.

The blowdown creates opportunities at the project level to conduct research on the frequency and severity of spruce beetle infestations. This research will of course need to be conducted over a fairly long-term (perhaps 5-15 years).

The 1997 blowdown event does not require a change in the management prescription allocations nor is there a need to change or add management prescriptions to the area affected by the blowdown. Management Area direction on natural disturbance events is discussed in the Vegetation Section of Chapter 3 in the FEIS. The anticipated effects are within those discussed in the FEIS.

Vegetation

Table 8 shows how overall cover types on the forest were affected. These cover types are described in the EIS Vegetation Section.

Table 8		
Cover Type	Blowdown Acres	Percent of Total
spruce/fir	11,753	91.0
lodgepole pine	620	4.8
aspen	291	2.2
non-forest	269	2.1

As Table 8 shows, most of the acres affected were in spruce/fir forests. Table 9 provides more detail on the individual habitat structural stages (described in EIS Vegetation Section) involved.

The structural stage remaining after the blowdown depends on the number and size of the remaining trees and cannot be estimated at this time. In general, the more trees on the ground, the greater the degree of change in structural stage. Structural stages 1 and 2 should be expected to increase as a result of this event.

Table 9		
Structural Stage and Cover Type	Total Acres	Percent of Total
spruce/fir ukn*	249	1.9
spruce/fir 1	21	.2
spruce/fir 3	4,836	37.5
spruce/fir 4	6,647	51.5
lodgepole pine ukn*	5	<.1
lodgepole pine 3	134	1.0
lodgepole pine 4	481	3.7
aspen 3	276	2.1
aspen 4	15	.1
non-forest	269	2.1

*ukn - unknown

The development of the forest in the blowdown areas over time depends on many factors including, the percent of trees down, the site, aspect, and elevation to name a few. The interrelation of these factors makes prediction difficult. As stated throughout the Vegetation Section of the EIS, the ecosystems on the Routt National Forest have developed within the context of these natural disturbance events.

Late successional forest structure is described in the EIS, Vegetation Section. Table 10 shows how the blowdown affected late successional forests. As the table displays, about 1.1 percent of the late successional forest structure on the Routt National Forest was affected. Before the blowdown event, about 49 percent of the forest was considered late successional. Subtracting the 1.1 percent from 49 percent leaves about 48 percent of the forested acres on the Routt National Forest in a late successional stage. Late successional forests are still projected to increase within the range displayed in the alternatives.

Table 10		
Cover Type	Acres of Blowdown in Late Successional	Percent of Late Successional on Forest
spruce/fir	5,636	2.2
lodgepole pine	481	.3
aspen	15	<.1
TOTAL ALL SPECIES	6,132	1.1

Exactly what effect this event will have on patch size and shape over the long-term cannot be estimated at this time. Some of the patches are over 1000 acres, while others are only less than an acre. Vegetation development of these blowdown patches, as discussed above, depends on many factors. A large patch has a great deal of variation which could effect development. The immediate effect of the blowdown event is a decrease of late successional forest structure in the area. However, over 73 percent of the affected forests are in Management Areas where natural disturbance is accepted (Vegetation Section of EIS).

Overall, the effects of the blowdown event on this resource are within the range of those disclosed in the EIS.

Wildlife

Snags and Coarse Woody Down and Dead

Associated species: see Table 12, below.

No acre figure calculated for this habitat type. According to the "Preliminary Assessment of Blowdown on the Routt National Forest October 1997" (Rocky Mountain Research Station 02/06/98), "we would expect birds to exhibit the most immediate response in terms of species richness and diversity to the downed trees. . . Primary cavity nesters may increase in areas less severely affected and the secondary cavity nesters may increase a few years later. . . Birds that glean food from logs. . . may benefit if loss of cover is not too harmful."

In addition, the Draft Assessment states, "If marten are able to forage in the dense downed branches they may benefit by an increase in subnivean access." (id.)

Not all the timber in the affected area were 100% blown down. Snag habitat should be within the range described in the environmental effects for the various alternatives for Snags and Coarse Woody Down and Dead. Forest-wide standards and guidelines will be followed to maintain sufficient habitat for those associated species.

Mature Conifer and Late Successional

Associated species: see Table 12, below.

Total late successional acres of the blowdown for spruce/fir are 5636 (acres). This total is for all Management Areas across the blowdown. The number of late successional acres outside of the wilderness area is 3,852. The 5636 acres of late successional spruce/fir blowdown is approximately 2.2% of the total late successional spruce fir acres described in the FEIS (Table 3-48, p. 3-125). This 2.2% blowdown is within the range described in the environmental effects for the various alternatives for Mature Conifer and Late Successional habitat (FEIS, p. 3-129, and Table 11, below).

Aspen

Associated species: see Table 12, below.

There were 291 acres of aspen for the entire blowdown area mapped. Fifty-one (51) acres of which was mapped within the 5.11, 5.13 and tentatively suitable timber base. The 291 acres of aspen blown down is less than 1% of the aspen acres described in the environmental effects for the various alternatives for Aspen in the FEIS (Table 3-48, p. 3-125) and within the range described (FEIS, pp. 3-129 to 3-130, and Table 11, below).

Lodgepole Pine

Associated species: see Table 12, below.

Total acres of lodgepole pine mapped is 620. Within the 5.11, 5.13 and tentatively suitable timber base, 337 acres is classified as lodgepole pine. Total acres mapped is less than 1% of the total lodgepole pine acres described in the FEIS (Table 3-48, p. 3-125). This is within the range described in the environmental effects section for the various alternatives for lodgepole pine habitat (FEIS, p. 3-130, and Table 11, below).

Mixed deciduous/shrublands

Associated species: see Table 12, below.

No acre figure was calculated for this habitat type. However, it is not anticipated that the effects to this habitat will be outside of the range described in the environmental effects section for this habitat type (FEIS, Table 3-48, p. 3-125 and 3-130).

Riparian/wetland

Associated species: see Table 12, below.

See discussion under effects to fisheries.

Grassland/forbs

Associated species: see Table 12, below.

No acre figure was calculated for this habitat type. However, species associated with this habitat may benefit as grass/forb production increases.

Alpine Talus

Associated species: see Table 12, below.

No acre figure was calculated for this habitat type.

Table 11					
Habitat	Total blowdown acres	5.11, 5.13, & T.S.	FEIS Acres	Percent of total blowdown	Range of % difference from FEIS
Mature	5,636	1,936 (34.4%)	254,000	2.2%	<1% to <4%
Aspen	291	51 (17.5%)	260,400	0.1%	<1% /all Alts
Lodgepole	620	337 (54.4%)	379,100	0.2%	<1% to <5%
Shrub			68,600		
Grass/Forb			117,700		
Riparian/Wet			61,300		

Table 12. Species and associated habitat types; MIS and Sensitive.		
Habitat	MIS	Sensitive
Mature	pine grosbeak	black-backed woodpecker
	blue grouse	three-toed woodpecker
	elk	pine marten
	mule deer	Northern goshawk
	goshawk	boreal owl
	pine marten	olive-sided flycatcher
	osprey	pygmy shrew

	bald eagle	golden-crowned kinglet
		lynx
		wolverine
Aspen	hairy woodpecker	purple martin
	warbling vireo	merlin
	elk	
	mule deer	
Lodgepole	red-backed vole	pygmy nuthatch
	elk	flamulated owl (ponderosa pine)
Shrub	blue grouse	ringtail
	sagebrush vole	Columbian sharp-tailed grouse
	elk	
	mule deer	
	blue-gray gnatcatcher	
	sharp-tailed grouse	
Grass/Forb	blue grouse	loggerhead shrike
	vesper sparrow	ferruginous hawk
Riparian/Wetlands	beaver	greater sandhill crane
	Wilson's warbler	fox sparrow
	G. Sandhill crane	tiger salamander
	wood frog	boreal western toad
		Northern leopard frog
		wood frog
		white-faced ibis
		Lewis' woodpecker
		long-billed curlew
		black tern
Snag/Down Wood	Northern flicker	
	hairy woodpecker	
	red-backed vole	

Effects on the Management Indicator Species and sensitive species of the Routt National Forest will differ. It will benefit some, and may hinder others. Potential direct impacts on wildlife will be analyzed in a site-specific EIS for proposed timber salvage projects.

The "Preliminary Assessment of Blowdown on the Routt National Forest October 1997" (Rocky Mountain Research Station 02/06/98) states that "elk, bear, chipmunks, deermice populations will likely not change in the blowdown and surrounding areas." "Snowshoe hare, blue grouse, red-backed voles, shrews, and birds that glean food from logs will probably increase in blowdown areas." and "Deer, American marten, red squirrels, and birds that depend on late-seral stages will probably decrease in blowdown areas."

Lands

The blowdown event has no effect on ownership, special uses, utility corridors or electronic sites which would require development of new alternatives or additional analysis. The only effect is limited short-term access in some areas.

Recreation

The effects of the blowdown event on the recreation resource (both inside and outside the Mt. Zirkel Wilderness area) can be expected to influence recreational use in the area for several

years until all site-specific planning and mitigation is complete. Access to many areas which experience high levels of recreation use will be affected until such time that wilderness and recreation experts can evaluate the situation, and actually reopen trails to users. Consequently, use will be displaced for some time, including commercial outfitting and guide operations. The area is still considered a premier recreation resource. Any proposed mitigation and possible long-term changes will be done in accordance with the Forest Plan Standards and Guidelines and are considered to be site-specific.

Research Natural Areas

The Mad River Research Natural Area has a total of 698 acres affected by the blowdown event. This presents several research opportunities. Otherwise, no other effects to the RNA allocation are known or anticipated.

Roadless Areas

Four of the Inventoried Roadless Areas were affected by the blowdown event. These areas are shown in Table 13. The blowdown event has had no effect on these Inventoried Roadless Area boundaries or their capability, availability, or need for wilderness. The blowdown event itself has no anticipated influence on future wilderness recommendations.

Table 13			
Roadless Area Number	Roadless Area Name	Acres Affected	Capability
R21108	Dome Peak	456	Not Capable
R21109	South Fork	232	Not Capable
R21110	Gold Creek	1,099	Not Capable
R21111	Mad Creek	741	Capable

Travel Management

There are six miles of Forest Development road affected by the blowdown event. The effects of road closures will be short-term, due to the need for opening these routes and resuming access to the area. Future road projects associated with the blowdown event will be analyzed on a site specific basis and will be determined by project-level decisions. Currently, road construction and reconstruction levels are within the output levels identified in the S-Tables of the EIS.

Visual Resources

The effects to the visual resource from the blowdown event are site-specific and will be considered an existing condition in future analyses and the objectives in the Forest Plan still apply. Projects planned in association with the blowdown event will be required to follow the Standards and Guidelines in the Revised Forest Plan for visual resources.

Wild and Scenic Rivers

The Scenic River allocation is located on the west edge of the blowdown area, within the project boundary currently under consideration. Trees that are down within 200 feet of the Elk River will be left, in accordance with Forest Plan Standards and Guidelines and additional criteria. A proposal recommending inclusion of this stretch of river into the National Rivers System has not yet been made. Until that time, the assumptions made in the EIS are valid.

Wilderness

Since blowdown is a natural event, by itself it should not be considered as having a negative or positive impact on the wilderness resources. Recreation use inside the Mt. Zirkel Wilderness will be severely affected until trail mitigation is complete. Until that time, users may be compelled to access the area off existing trails, increasing the likelihood for "pioneer" trails to

develop. Visitors will be displaced, as will some wildlife species, which will change the wildlife related recreation experience. Where trails are inaccessible, separate analyses will provide opportunities to manage this heavily used portion of the Mt. Zirkel Wilderness. Overall, all effects identified in the EIS are still valid.

Production Of Natural Resources

Minerals

The blowdown event has no significant effect to the minerals resource requiring changes to any of the proposed alternatives or additional analysis. Some short-term access problems will exist which may limit exploration opportunities. These will be addressed during site-specific project proposal analyses.

Range

The blowdown area contains 11,788 acres of suitable rangeland. The other 1,125 acres of the blowdown are on lands not suited to range.

A total of 15 range allotments contain portions of the blowdown event. Only four of these include 1,000 acres or more. Although most of the area is in suitable range, the majority is in spruce/fir cover type which generally is not considered to be good grazing land.

In the short-term, there will be a reduction in forage because of the reduced access. Over time, there will be an increase in transitory range similar to that which follows timber harvest. The blowdown event will not change the number of AUM's for each allotment. Any long-term changes to management will be the result of the allotment management planning process and not the Revised Forest Plan.

Timber

Any timber volume salvaged that went towards the calculation of the allowable sale quantity (ASQ) will contribute towards the ASQ. An estimate was made of the timber volume that may be salvaged from suitable timber lands. The following report was generated from a GIS overlay of the RIS coverage (vegetation type and size class), the blowdown coverage, and the Alternative C management area prescription allocation coverage:

Table 14. Suited Blowdown Acres by Cover type and Tree size (MA 5.11 or 5.13 and in tentatively suitable)				
Cover type	Tree Size	Blowdown Category	Blowdown Description	Total Acres
TAA	L	2	50 TO 89 PC DOW	3
	L	4	00 TO 19 PC DOW	1
	M	2	50 TO 89 PC DOW	45
	M	3	20 TO 49 PC DOW	2
TAA				51
TLP	L	1	90 TO 100 PC DO	175
	L	2	50 TO 89 PC DOW	93
	L	3	20 TO 49 PC DOW	30
	L	4	00 TO 19 PC DOW	10
	M	2	50 TO 89 PC DOW	6
	M	4	00 TO 19 PC DOW	8
	S	1	90 TO 100 PC DO	6

	S	2	50 TO 89 PC DOW	7
	S	3	20 TO 49 PC DOW	1
TLP				337
TSF	L	1	90 TO 100 PC DO	965
	L	2	50 TO 89 PC DOW	623
	L	3	20 TO 49 PC DOW	130
	L	4	00 TO 19 PC DOW	109
	M	1	90 TO 100 PC DO	10
	M	2	50 TO 89 PC DOW	63
	M	3	20 TO 49 PC DOW	11
	M	4	00 TO 19 PC DOW	25
	N	1	90 TO 100 PC DO	3
	N	2	50 TO 89 PC DOW	17
	S	1	90 TO 100 PC DO	4
	S	2	50 TO 89 PC DOW	10
	S	3	20 TO 49 PC DOW	3
	S	4	00 TO 19 PC DOW	1
	V		90 TO 100 PC DO	11
	V	1	50 TO 89 PC DOW	47
TSF		2		2,034
Grand Total				2,421

All aspen acres were ignored (only 51 acres). Size class N (non-stocked) and S (sapling) were also ignored, as these acres have no commercial timber volume. Timber volumes were then calculated using the first decade yield streams from the FORPLAN timber yield tables. For size class L and M, density class B from FORPLAN was used. For size V, density class C was applied. For the blowdown polygons that were less than 100% blowdown, a mid-range percent was applied to the total acres. The following volumes were calculated:

Table 15.						
Cover type	Tree size	FORPLAN MBF/AC	Blowdown Percentage	Total Acres	Calculated Acres	Total MBF
TLP	L (9B)	12.89	90 - 100% (100%)	175	175	2256
			50 - 89% (75%)	93	69.75	899
			20 - 49% (35%)	30	10.5	135
			0 - 19% (10%)	10	1	13
	M (8B)	8.29	50-89% (75%)	6	4.5	37
			0 - 19% (10%)	8	0.8	7
TSF	L (9B)	12.80	90 - 100% (100%)	965	965	12352
			50 - 89% (75%)	623	467.2	5981
			20 - 49% (35%)	130	45.5	582
	M (8B)	7.51	90 - 100% (100%)	10	10	75
			50 - 89% (75%)	63	47.25	355
			20 - 49% (35%)	11	3.85	29
			0 - 19% (10%)	25	2.5	19

	V (9C)	17.07	90 - 100% (100%)	11	11	188
			50 - 89% (75%)	47	35.25	602
					Total	23670

Thus, it is estimated that 23,670 mbf (23.67 mmbf) would contribute towards the ASQ. This is well below the ASQ for any alternative in the EIS. In conclusion, the blowdown has no effect on the ASQ analysis that was done for the EIS.

Social And Economic

Social and Economic Environment

Estimated outputs and usage (recreation, range, timber, etc.) have been determined to remain the same as displayed in the EIS over the life of the Routt Forest Plan (see analyses of effects of blowdown for other resources). Because outputs are not expected to change, the social and economic analyses in the EIS remain valid. Although there is no long-term effect on local communities, there may be some short-term effects from timber salvage operations and inaccessibility. If it is determined to be an issue, any direct impacts on local counties or communities from timber salvage operations or temporary inaccessibility to the area will be analyzed separately under site-specific project analyses.

Potential Conflicts with Goals or Objectives of Other Agencies

The discussion in the EIS covers any anticipated effects due to the blowdown event.

Resource Commitments

The discussion in the EIS covers any anticipated effects due to the blowdown event.

Conclusion

After reviewing 40 CFR 1502.9(c)(1) and FSH 1909.15(18.1) the interdisciplinary team has concluded that the blowdown event does not constitute significant new information which would require a supplement to the EIS. This conclusion is based on three factors:

Factor 1: The area involved is less than 1 percent of the total 1.3 million acres of the Routt National Forest.

Factor 2: There are six decisions made in forest plans. These decisions and the analysis behind them are strategic in nature. The context of this Forest Plan is the 1,358,600 planning area, surrounding counties, and to some extent, the ecological province and sections.

Decision 1) Establishment of Forest-Wide Multiple Use Goals and Objectives

The analysis provided above indicates that the blowdown event is clearly accommodated within the Goals and Objectives of the Revised Plan. No change to the Goals or Objectives is required.

Decision 2) Establishment of Forest-Wide Standards and Guidelines

There are no effects from the blowdown event, current or anticipated, which indicate any need to change Forest-Wide Standards or Guidelines. As stated in Factor 1 above, the blowdown event affected less than 1 percent of the total planning area.

Decision 3) Establishment of Management Area Direction (Management Area Prescriptions and Associated Standards and Guidelines)

The analysis above has shown that the Routt Divide Blowdown is a natural disturbance event. Natural disturbance events are clearly anticipated and planned for to the greatest degree possible in Management Area Direction. This direction is provided through the Theme, Setting, Desired Conditions, and Standards and Guidelines.

Decision 4) Designation of Suitable Timber Land and Establishment of the Allowable Sale Quantity (ASQ). Designation of Lands Suitable for Grazing and Browsing. Identification of Lands Suitable for Oil and Gas Leasing. Provision for a Broad Spectrum of Forest and Rangeland Related Outdoor Recreation Opportunities.

The analysis and results described above clearly show that the blowdown event does not have a significant effect on the ASQ, designation of lands suitable for grazing and browsing, lands suitable for oil and gas production, or the provision for outdoor recreation opportunities.

Decision 5) Establishment of requirements for monitoring and evaluating the Implementation of the Revised Plan to meet the requirements of 36 CFR 219.11.

The monitoring plan and requirements found in Chapter 4 of the Revised Forest Plan are not affected by the blowdown event. They provide for an adaptive approach to management of the Routt National Forest. The Forest Plan, outlined in Chapter 4, allows the effects of the blowdown event to be monitored with regard to the attainment of the Goals and Objectives of the Forest Plan. One of the primary purposes of monitoring is the indication of changes needed to the Plan. Although the analysis displayed here clearly indicates that changes to the Forest Plan are not needed, monitoring and analysis will detect any unanticipated changes needed in the future.

Decision 6) Recommendations to the Wilderness Preservation System

This blowdown event has no effect on the Roadless Area Inventory, or wilderness capability, availability, or needs assessments. The blowdown event itself has no bearing on the possibility of future wilderness designations.

Factor 3: The blowdown event effects are within the scope of the alternatives, environmental impacts, and the actions disclosed in the EIS.

The context of the decisions and analysis described under Factor 2 control the scope of the alternatives, environmental impacts, and actions considered in the EIS. The format of the analyses described above was adopted after that used in the EIS. Each of the effects of the blowdown event considered are with the range of alternatives, environmental impacts, and actions disclosed in the EIS.

Based on the analysis done by the Interdisciplinary Team in this Supplemental Information Report, and by comparing the effects of the Routt Divide Blowdown with the impacts disclosed in the Revised Forest Plan EIS and the Revised Forest Plan, it is concluded that no supplemental EIS is necessary.

Signature page:

DATED this _13th_____ day of February, 1998.

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