

ADDENDUM to

**Specialist Report 4.0
Fish and Wildlife Resources
and Management Indicator Species**

**Oil and Gas Leasing EIS
on Lands Administered by the
Dixie National Forest**

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Addendum Table of Contents

1.0	Introduction.....	1
2.0	Changes between Draft and Final EIS	1
2.1	Revised Leasing Options	1
2.2	New GIS Model.....	2
2.3	Errata	2
2.3.1	Clarifications	2
2.3.2	Expanded Analyses	3
2.3.3	New information or Agency direction (since 2008)	3
3.0	Changes to Fish and Wildlife Resources.....	4
3.1	Revised Leasing Options and New Model	4
3.2	Errata	5
3.2.1	MIS and Aquatic Amendment	5
3.2.2	Blue Ribbon Fisheries.....	14
3.2.3	Other errata	16

Addendum Tables

Table 1	Changes to leasing options since the DEIS reflected in the new GIS model.	1
Table 2	Acreage of Resource Components under each Leasing Stipulation by Alternative	4
Table 4.4-3	Common native fishes and non-native game fishes that occur on the Dixie National Forest	5
Table 3	MIS Species and Associated Habitats on the Dixie National Forest	7
Table 4.5-2 (in part)	Leasing options assigned under each alternative for wildlife resources.....	8
Table 4.5-3 (in part)	Impacts with respect to Measurement Indicators #1 - #6. LT = long term; ST = short term.	10

Addendum Figures

Figure 4.4-1	Big Game Summer and Winter Range.....	22
Figure 4.5-1	Cumulative Effects Area	23

1.0 INTRODUCTION

This addendum updates Specialist Report 4.0: Fish and Wildlife Resources, which informed the DEIS. This addendum provides the supplemental information necessary to inform the FEIS and make a decision. The specific purposes of this supplement are to:

1. Provide an overview of changes between the Draft and Final EIS (**Section 2.0**).
2. Highlight the changes since the DEIS that were made specifically to protect Fish and Wildlife Resources or that are otherwise relevant to Specialist Report 4.0 (**Section 3.0**).

2.0 CHANGES BETWEEN DRAFT AND FINAL EIS

A number of changes were made to the DEIS in preparing the FEIS. These changes were primarily minor edits, corrections, and updates, and are reflected in the FEIS. Chapter 7 was added to the FEIS and contains an analysis of the public comments received on the DEIS and responses from the Dixie National Forest. The public involvement process since the DEIS is described in detail in Chapter 7, and summarized in Section 1.9.1 of the FEIS.

A Supplemental Information Report (SIR) was issued in January 2009 to address comments on the DEIS from agencies and the public concerning air resources and climate change. Other changes (i.e., not related to air and climate change) were not substantial changes to the proposed action, or significant new circumstances bearing on the proposed action (following 40 CFR Part 1502.9) that would require a supplemental DEIS. These changes are summarized in the following sections.

2.1 Revised Leasing Options

Several changes were made to the action alternatives, and specifically leasing options, in response to public comments on the DEIS. Other changes to leasing options reflect Forest or other Agency decisions made since the DEIS that have bearing on the resources analyzed. **Table 1** summarizes the changes to leasing options since the DEIS.

Table 1 Changes to leasing options since the DEIS reflected in the new GIS model.

Resource	DEIS Leasing Option	FEIS Leasing Option	Alternatives Affected
Inventoried Roadless Areas	NSO (mod*)	NSO	C, D1, and E1
SIO Unassigned	LN	CSU	B, C, D, and E
NPS Protective Measure (new)	n/a	NL	B
	n/a	NSO	C
ROS Primitive	NL	NSO	C
Sage-Grouse Leaks	1-mile buffer	2-mile buffer	B and C
Fisheries Habitat	300-foot buffer	500-foot buffer	C
Boreal Toad Habitat (new)	n/a	Added to "Forest Service-Sensitive Species and Suitable Habitat"	A-E
Desert Tortoise Habitat	various	No suitable habitat determination	A-E

Desert Tortoise Critical Habitat	various	No suitable habitat determination	A-E
Lava Fields over Sensitive Aquifers	NSO	NL	B and C
Class I Airsheds – 60 km buffer (new)	n/a	CSU	A-E
Iron Town Historic District	various	No acres on Dixie National Forest	A-E

*Actual leasing option CSU but called a “modified NSO.”

2.2 New GIS Model

The GIS model was re-run to incorporate the changes made to leasing options and the addition of new resources in the FEIS. The new model output, or the number of acres under each leasing option across the Forest, and revised baseline acres where appropriate, is reflected in each resource section in the FEIS. Regarding these specialist report updates (i.e., addendums), individual number replacements in the text that reflect the new model output for the FEIS are not listed in the errata sections. Instead, tables of data, usually replacing a specific table in the DEIS specialist report, are presented in each specialist report addendum to summarize the data changes in the FEIS.

2.3 Errata

Errata correct (**Section 2.3.1**) or expand on data previously presented (**Section 2.3.2**), or incorporate new information or decisions since the DEIS (**Section 2.3.3**).

2.3.1 Clarifications

Clarifications to the DEIS were made to correct errors or to eliminate confusion. Most were made as responses to public comments on the DEIS.

- Chapter 1
 - Section 1.5.2, Lands Not Legally Available for Leasing, clarification to language describing Utah Wilderness Act of 1984.
 - Section 1.5.2, Lands Not Legally Available for Leasing, clarification to language describing Split-estate parcels.
 - Section 1.8.2, 2001 Roadless Area Conservation Rule and Legal Activity, clarification to how Roadless Areas on the Dixie are officially identified.
- Chapter 3
 - Section 3.5.4, Aquatic Species and Habitat, clarification to which waterbodies on the Dixie are Blue Ribbon Fisheries, following a memo from the Blue Ribbon Fisheries Advisory Council dated 26 March 2006.
 - Section 3.6.2.3, Candidate Species, GIS error and clarification on acres of greater sage-grouse brood-rearing habitat within the Dixie.
- Chapter 4
 - All Sections, all effects determinations under NL were changed to “No Effect” (from “negligible”).
 - Section 4.6.4, Impacts of Connected Actions by Leasing Option, reducing impact adversity determinations for Utah prairie dog, greater sage-grouse, and pygmy rabbit.
 - Sections 4.6.4, 4.6.5, 4.9.4, and 4.9.5, Impacts of Connected Actions by Leasing Option and by Alternative: Reduced impact adversity determinations for pygmy rabbit, sensitive bats, sensitive raptors, big game, and marginally unstable slopes (soils) under CSU for some of the action alternatives due to misunderstanding

- (by the consultant) of the application of resource-specific CSUs.
 - Section 4.6.4, Impacts of Connected Actions by Leasing Option, road density was clarified as Open Motorized Road Density (OMRD).
 - Section 4.7.4, Impacts of Connected Actions by Leasing Option, clarification added to lava fields over sensitive aquifer impacts regarding the BLM Onshore Oil and Gas Order requirement for well casing.
 - Section 4.12.2.4 and 4.12.2.5, Class I Cumulative Impact Analysis and Visibility and Deposition Analysis, clarifications added (since SIR) regarding the need for additional air quality analyses for proposed projects and the criteria under which further analyses are required.
 - Section 4.12.2.7 (new), Direct Ozone Impacts, this section was added to clarify that ozone impacts are discussed in the cumulative effects section of Air Resources (5.12.3.1).
 - Section 4.17, Forest Plan Consistency Determination, assessments of compliance with the Forest Plan in the DEIS were eliminated due to the Forest Plan amendment that will be implemented to reflect the stipulations needed for resource protection.
- Chapter 5
 - Section 5.6.2, Past, Present, and Reasonably Foreseeable Future Actions, cumulative effects discussion regarding grazing effects to Utah prairie dog and greater sage-grouse expanded to include more of the scientific information available.

2.3.2 Expanded Analyses

Expanded analyses were made as a result of the comments received on the DEIS. Apart from the SIR, which presented a new analysis on Climate Change and other aspects of Air Resources not in the DEIS (e.g., ozone), the main areas with information added were night skies (Visual Resources, 3.2 and 4.2), unroaded/undeveloped areas (IRAs/WSRs, 3.3 and 4.3), and greater sage-grouse (Special Status Species, 3.6 and 4.6). In the case of greater sage-grouse, impact determinations were re-assessed for alternatives B-E. Scientific evidence or Agency direction not previously considered was added to these discussions in response to public comments on the DEIS from government agencies and environmental groups.

The Air Resources analysis expanded upon in the SIR was further expanded in response to public comment on the SIR. Areas with new information include NAAQS for nitrogen oxides and ozone, secondary PM_{2.5} analysis, updated ozone monitoring data from Zion NP, an expanded ozone analysis based on the UBAQS, and additional information on the impacts to sagebrush habitat from climate change.

2.3.3 New information or Agency direction (since 2008)

The following decisions, regulations, or information were incorporated in the FEIS where applicable:

- Omnibus Public Land Management Act 2009
- Memorandums 1042-154 (2009) and 1042-155 (2010) (RACR)
- Wild and Scenic Rivers Suitability Study (2008)
- Forest Service Strategic Plan (2007-2012)
- National Visitor Use Monitoring Study (2010)
- Motorized Travel Plan (2009)

- Dixie National Forest Annual Monitoring Reports (2008 and 2009)
- Dixie National Forest Aquatic Monitoring Amendment (2010)
- Conservation Agreements for southern leatherside (UDWR 2010)
- New BLM RFPs – Cedar City and Richfield Field Offices (both 2008)
- Alton Coal Development update
- Updated R4 TESP list (2011)
- New definition of Sensitive Fisheries Habitat on the Dixie (=occupied *and suitable*; 2009)
- Updated occurrence and habitat data for TES species on the Dixie (2008-2010)
- Biological Opinion from USFWS (2011), including Lease Notices
- USFS SOPA (since 1ST quarter 2011; updates to Foreseeable Future Actions)
- BLM IM No. UT 2010-055 (Protection of Ground Water Associated with Oil and Gas Leasing, Exploration, and Development – Utah BLM)

3.0 CHANGES TO FISH AND WILDLIFE RESOURCES

The main change to Specialist Report 4.0 in the FEIS is regarding Management Indicator Species (MIS). MIS were moved to Specialist Report 4.0 for the FEIS analysis, from Specialist Report 6.0. This is because Specialist Report 6.0 was used as the Biological Evaluation for the FEIS analysis, and as such, only discusses Sensitive species. As a result, all changes to MIS between the DEIS and FEIS are discussed in this addendum.

3.1 Revised Leasing Options and New Model

No leasing options were changed between the DEIS and FEIS that relate directly to fish and wildlife resources or MIS.

The output of the new GIS model as it pertains to fish and wildlife (including MIS) resources is shown in **Table 2**. The only GIS data relevant to these resources is for MIS habitat, and specifically mule deer and elk (“big game”).

Table 2 Acreage of Resource Components under each Leasing Stipulation by Alternative

Resource Component	Leasing option ³	Alternative ^{1,2}						
		A	B	C	D1	D2	E1	E2
Big game winter range	NA	553	553	553	553	553	553	553
	NL	169,915	169,915	130				
	NSO			139,100	67,408	19,417	49,776	
	TL				102,507 12/1-4/15	150,498 12/1-4/15		
	CSU			30,685				
	SLT						120,139	169,915
Big game summer range	NA	874	874	874	874	874	874	874
	NL	402,344	402,344	25,963				
	NSO			327,684	197,949	34,895	171,168	
	TL			48,696 5/15-7/5	188,757 5/15-7/5	349,473 5/15-7/5		
	CSU				15,636	17,974		

	SLT				1	1	231,175	402,344
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¹ Small discrepancies in the acreage presented for each alternative are due to the fact that the GIS database has limitations when applied over an extremely large area that result in an inability to calculate acreages that match exactly between alternatives. A more detailed table that separates the acreage by resource component and ranger district will be available in Appendix B.

² Alternatives D1, D2, E1, and E2 represent the dual analysis of Alternatives D and E. D1 and E1 represent the acres available with NSO in all IRAs. D2 and E2 represent the acres with leasing allowed in IRAs under a less restrictive leasing option.

³ Areas not legally available (NA) for leasing (see Section 1.5.2) are included in the Table to provide context to the analysis.

3.2 Errata

Errata specific to Specialist Report 4.0 expand on or correct data previously presented, or incorporate new information or decisions since the DEIS. Some changes, clarification and updates to resource-specific data and analysis were made as a result of the comments received on the DEIS. The errata below update the original Specialist Report.

Most errata fall under two categories: 1) updates regarding the Dixie National Forest Aquatic Amendment (2010) and other clarification regarding MIS (**Section 3.2.1**), and 2) an expanded analysis of Blue Ribbon Fisheries (**Section 3.2.2**). Other errata are discussed in **Section 3.2.3**.

3.2.1 MIS and Aquatic Amendment

Page 6 (Section 4.4.2)

Newly (since 2008)-designated Sensitive species and MIS were removed from Table 4.4-3, as this table only discusses native fishes with no special status.

- Replace **Table 4.3-3** with:

Table 4.4-3 Common native fishes and non-native game fishes that occur on the Dixie National Forest

Common Name ¹	Origin	Occurrence on Dixie National Forest ²			
		PV	CC	PL	ES
NATIVE FISHES					
Utah chub <i>Gila atraria</i>	Bonneville Basin		X	X	X
Speckled dace <i>Rhinichthys osculus yarrowi</i>	Bonneville Basin	X	X	X	X
Mottled Sculpin <i>Cottus bairdi</i>	Bonneville Basin		X	X	X
Redside shiner <i>Richardsonius balteatus</i>	Bonneville Basin		X	X	
Mountain sucker <i>Catostomus platyrhynchus</i>	Bonneville Basin		X	X	X
Desert sucker <i>Catostomus clarki</i>	Virgin River drainage	X			
NON-NATIVE (GAME) FISHES(not including MIS species)					
Tiger trout <i>Salmo trutta</i> X <i>S. fontinalis</i>	stocked (hybrid)		Panguitch Lake, Paragonah Reservoir		Several lakes across the district
Splake <i>Salmo namaycush</i> X <i>S. fontinalis</i>	stocked (hybrid)		Navajo Lake		
Smallmouth bass <i>Micropterus dolomieu</i>	stocked	Lower Enterprise			

		Reservoir			
Arctic grayling					Several lakes across the Boulder Top

Page 7 (Section 4.4.2)

- Replace last paragraph in “Fisheries” section with

TEC (Threatened, Endangered, or Candidate) and sensitive fish species, their ecology, distribution, and habitat are discussed in Specialist Reports 5.0 and 6.0, respectively. MIS fish are discussed in this Specialist Report (4.0). Fishes that are both MIS and Sensitive are discussed in Specialist Report 6.0. Fish species include Bonneville cutthroat trout (MIS and sensitive; *Oncorhynchus clarki utah*), Colorado cutthroat trout (MIS and sensitive; *Oncorhynchus clarki pleuriticus*), brown trout (MIS; *Salmo trutta*), brook trout (MIS; *Salvelinus fontinalis*), rainbow trout (MIS; *Oncorhynchus mykiss*), other cutthroat species (MIS), Virgin spinedace (MIS; *Lepidomeda mollispinus*), Southern leatherside (MIS and sensitive; *Lepidomeda alicia*), Virgin River chub (endangered; *Gila seminuda*), and woundfin (threatened; *Plagopterus argentissimus*). The quantity and quality of surface water, stream morphology, riparian vegetation, and wetland and floodplain function is discussed in Specialist Report 7.0.

Page 8 (Section 4.4.2)

- Add after 1st paragraph in “Aquatic Habitat” section (language moved from **Specialist Report 6.0**):

MACROINVERTEBRATES

Aquatic macroinvertebrates are invertebrates that live in water and that are large enough to be seen with the naked eye. They are useful indicators of aquatic habitat conditions due to their strict habitat requirements. Most macroinvertebrate species are adapted to fast-water stream environments, as evidenced by flattened bodies, streamlined shape, suckers, friction pads and hooks, secretions, and upstream migrations. Species include mayflies (Ephemeroptera), stoneflies (Plecoptera), caddisflies (Trichoptera), and true flies (Diptera); as well as crustaceans, mollusks, and freshwater earthworms (Rodriguez 2004).

Aquatic macroinvertebrates are responsive to changes in aquatic habitat conditions due to land management actions, such as those that cause sedimentation, changes in water chemistry, low streamflow, and high streamflow (Rodriguez 2004). Communities are also naturally dynamic, due to seasonal variations, life cycles, and natural stream disturbances.

Page 8 (Section 4.4.3 – new)

- Place all of Section 6.4.2 (“Management Indicator Species,” from **Specialist Report 6.0**) before at the end of Section 4.4.2.

Within the MIS discussion previously found in **Specialist Report 6.0 (=Section 4.4.3 – new)**

- Replace 2nd paragraph:

MIS on the Dixie National Forest include trout and other fish species (Bonneville and Colorado River cutthroat, other cutthroat, rainbow, brook, and brown trout, southern leatherside, and Virgin spinedace), mule deer, Rocky Mountain elk, northern goshawk, wild turkey, and northern flicker. MIS species are presented with associated habitats in Table 4.4-4 and described in more detail below.

- Replace Table 6.4-7 with **Table 3**

Table 3 MIS Species and Associated Habitats on the Dixie National Forest

MIS	Associated habitat
Bonneville cutthroat trout	Headwater streams
Colorado River cutthroat trout	
Cutthroat trout (other spp.) <i>Onychorhynchus clarki</i>	Streams, rivers, lakes, and reservoirs
Rainbow trout <i>Oncorhynchus mykiss</i>	
Brook trout <i>Salvelinus fontinalis</i>	
Brown trout <i>Salmo trutta</i>	
Virgin spinedace	Streams
Southern leatherside	
Rocky Mountain Elk <i>Cervus canadensis</i>	Grass-forb, sapling to mature aspen, sapling to old growth conifer
Mule deer <i>Odocoileus hemionus</i>	Grass-forb, sagebrush, mountain brush, pinyon-juniper, sapling to mature aspen, sapling to mature conifer
Northern goshawk	Riparian trees, mature aspen, mature to old growth conifer
Northern flicker <i>Colaptes auratus</i>	Mature aspen, mature conifer
Wild turkey <i>Meleagris gallopavo</i>	Mountain brush, pole to mature aspen, mature to old growth conifer

Source: USFS 1986

- Insert **Figure 4.4-1** (“Big Game Habitats”) - see Page 22 of this addendum
- Change “Trout” heading to “Fishes”
- Insert Virgin spinedace in “Fishes” section

VIRGIN SPINEDACE

The current distribution of Virgin spinedace is within the mainstem Virgin River and eleven of its tributaries including Moody Wash and Ash Creek, which is downstream of the Dixie National Forest. The largest populations occur in the upper mainstem Virgin River above Quail Creek diversion and in drainages of the Santa Clara River and Beaver Dam Wash (UDWR 2002).

Virgin spinedace are typically found in clear, cool, swift streams that have interspersed pools, runs, and riffles. They seem to prefer pools with some kind of protection such as undercut banks, boulders or debris. In Beaver Dam Wash, for example, Virgin spinedace utilize narrow, shallow runs with large amounts of emergent vegetation, and in the North Fork of the Virgin River, they most often occupy quiet pools (UDWR 2002).

Regular UDWR population monitoring has occurred at eleven different sites for approximately 14 years. Spinedace density estimates have been highly variable over the period of record. Tributary populations such as Ash Creek are relatively susceptible to major fluctuations in population size based on flow and habitat changes. Prior to the drying of Ash Creek in summers 2007 and 2008, Virgin spinedace were found in relatively high numbers from Krom Diversion to the Virgin River confluence (UDWR 2008b). The only confirmed presence of Virgin spinedace on the Dixie National Forest is in Moody Wash.

Within the 23,000 acres of suitable fisheries habitat on the Dixie National Forest, suitable occupied habitat for Virgin spinedace includes 786 acres on the Pine Valley Ranger District (Moody Wash)..

- Remove “Aquatic Macroinvertebrates” section
- Insert before 1st paragraph in “Aquatic MIS” section:

In June 2010 the Dixie National Forest amended their LRMP to eliminate aquatic macroinvertebrate biotic condition index (BCI) as a designated MIS, eliminate the use of the BCI as a designated monitoring method, include additional fish species as aquatic MIS, and eliminate obsolete references to directives. Changes to the LRMP are listed in the Environmental Assessment (USFS 2010a).

- Add to last sentence under “Northern Flicker”:
 , in 2007 559 were detected (USFS 2008b), and in 2008 558 were detected (USFS 2009b).

Page 14 (Section 4.5.4)

- Add leasing options for big game to **Table 4.5-2**.

Table 4.5-2 (in part) Leasing options assigned under each alternative for wildlife resources.

Crucial and substantial elk and mule deer winter range	NL	NL	CSU	TL Dec 1 – April 1	SLT
Crucial elk and mule deer summer range	NL	NL	TL May 15 – July 5	TL May 15 – July 5	SLT

- One clarification was made to the TL period for big game winter range (Alternative D). The TL ends on April 1st, not April 15th. This was an error in the DEIS.

Page 15 (Section 4.5.4.1)

- Add big game impacts discussion (“TL”) from **Specialist Report 6.0**

NOTE: No changes to this section since the DEIS.

Page 15 (Section 4.5.4.1)

- Add big game impacts discussion (“CSU”) from **Specialist Report 6.0**

Replace impacts to big game winter range under *MI #2* (Fragmentation) and *MI #4* (Road Density Increases) with the following:

Resource	MI #2
Crucial and substantial big game winter range	Fragmentation impacts would be as described under SLT, although of lesser intensity because less habitat could be disturbed. The Forest would have some leverage as to where roads were allowed so as to prevent impacts to big game populations. Fragmentation impacts would be long term and moderate under the CSU.

- *Measurement Indicator #4* ROAD DENSITY INCREASES

The addition of oil and gas roads could occur under CSU as under SLT (below) and TL (above): However, the CSU would give the Forest leverage as to where these roads are placed such that major impacts to big game populations would be avoided. Impacts from road density increases under the CSU would be moderate and long term.

Page 16 (Section 4.5.4.1)

- Add big game impacts discussion (“SLT”) from **Specialist Report 6.0**
- Replace first paragraph, 5th sentence under *MI #4* (Road Density Increases):

- *Measurement Indicator #4* ROAD DENSITY INCREASES

In addition to fragmentation impacts, new temporary road construction into previously isolated areas has the potential to impact big game species because some roads may create increased public access and traffic (if they are open to the public following oil and gas activities, which would be decided in site-specific NEPA analysis), which may lead to intentional or unintentional harassment,

poaching, and increased harvest levels by legal hunting.

- Replace first two rows of “Fish and Resource Management Guidelines for MIS..” table with the following:

Guideline	Terrestrial species: big game, goshawk, wild turkey, and flicker	Aquatic species (fisheries)
Maintain habitat capability at a level at least 80% of potential capability for all emphasized species (terrestrial) and for aquatic species, maintain stream habitat objectives revised in USFS (2010a)	MAY NOT COMPLY Production field development under SLT within mature aspen or mature conifer communities may not comply with the Guideline (all terrestrial species).	MAY NOT COMPLY Oil and gas activities under SLT have the potential to degrade aquatic habitat (see TR 4.0, 7.0, and 8.0) thus any large-scale disturbances within 300 feet of streams may not comply with the Guideline.
Maintain habitat needed to support the coordinated population goals	WOULD COMPLY Population goals are being met for MIS on the Dixie National Forest; terrestrial species have generally increased in the past few years due to increased precipitation. Levels of mortality that would affect population numbers are not expected. However, due to highly variable population numbers, population goals could fluctuate and not comply.	MAY NOT COMPLY MIS fisheries are stable but currently below population goals due to recent fires that have degraded habitat. Any further impacts to streams from oil and gas activities may not comply with the Guideline.

Page 22 (Section 4.5.4.3)

- Add impacts to big game to **Table 4.5-3** from **Specialist Report 6.0** (Table 6.5-10).
- Replace impacts to big game for Alternative C with the following:

Table 4.5-3 (in part) Impacts with respect to Measurement Indicators #1 - #6.
LT = long term; ST = short term.

Resource	MI	ALT C
Big game (MIS)	MI#1	negligible-minor ST-LT
	MI #2	moderate LT
	MI #3	negligible ST
	MI #4	moderate ²³ ST-LT
	MI #7	neutral

² Impacts most likely within Cedar City Ranger District

³ Impacts most likely within Powell Ranger District

Page 25 (Section 4.5.5.1)

- Add after 1st paragraph:

The CEA would also include the full extent of all big game hunt units (Wildlife Management Units) located on the Dixie National Forest.

- Remove 2nd paragraph.

- Replace 3rd paragraph with:

Lands within the CEA (Figure 5.6-1) are managed primarily by the BLM (45% of the CEA), 50 percent of which is the Grand Staircase Escalante National Monument (23% of the CEA). Twenty three percent of lands in the CEA are managed by the Dixie National Forest. Fifteen percent of the CEA is private land, ten percent in National Park Service (Cedar Breaks National Monument, Zion National Park, Bryce Canyon National Park, Canyonlands National Park, Glen Canyon National Recreation Area), and six percent is state land with five percent SITLA (remaining one percent state land includes state parks and wildlife reserves). Actions within the CEA are discussed within the various BLM districts (Richfield, Kanab, Cedar City, or St. George) and the GSENM or the Dixie National Forest since these areas make up the majority of the CEA.

Page 26 (Section 4.5.5.1)

- Add at the end of “Rationale” paragraph:

Regarding elk and mule deer, by including the full extent of all big game hunt units most movements would occur within the CEA.

Page 27

- Replace **Figure 4.5-1** (“Cumulative Effects Area”) with Figure showing big game hunt units (see Page 23 of this addendum)

Page 28 (Section 4.5.5.2)

- Add after Table 4.5-4:

Big game are also affected by road density because they move long distances between seasonal ranges and barriers such as roads can force stressed individuals with limited reserves to take alternate (i.e., longer) routes. Road density is currently high in many areas of the CEA, particularly the Cedar City Ranger District of the Dixie National Forest where some summer range occurs. According to UDWR (2003), winter range (for mule deer) in the CEA needs “improvement” mainly in the areas north of the Escalante Ranger District and between the Cedar City and Powell Ranger Districts. The area between the Cedar City and Powell Ranger Districts also contains areas with high road density that may be contributing to the decline in quality of this winter range. Implementation of route rehabilitation from Duck Swains and the MTP decision is expected to bring road density closer to Forest Plan direction.

Page 34 (Section 4.5.5.3)

- Replace 2nd paragraph under “Alternative C” with:

The potential for effects to streams would be low under Alternative C due to NSO stipulations applied in a 300-foot buffer around streams, lakes, reservoirs, and springs and a 500ft. buffer around all streams with fisheries habitat. Stream crossings and seismic activities would be allowed within these buffers, but not in fisheries habitat. Seismic exploration would not affect aquatic species, and road crossings could result in detrimental effects to native, non-sensitive fishes (in streams not within fisheries habitat) if sediment were introduced. These impacts would not lead to cumulative impacts to aquatic species, however, because the amount of sediment that may be introduced by a crossing would not be of sufficient magnitude to affect the aquatic habitat when past, present, and foreseeable future impacts are considered.

- Add after 2nd paragraph under “Alternative C”:

Under Alternative C (and D and E), there would be cumulative impacts to big game. Within the CEA, existing road density and road density increases in the foreseeable future are impacts to security and other functions of suitable big game range. A further increase in road density associated with oil and gas developments under Alternative C could diminish the effectiveness of remaining habitat areas that currently provide isolation from human disturbances (e.g., traffic, poaching, general human presence) that are essential to big game persistence. An increase in road density from oil and gas activity in the context of road density within the CEA would be a cumulative impact to big game. This impact could be long term if roads are associated with a production well, as roads would probably last for longer than ten years. Cumulative impacts would be minor to moderate, depending on where the roads occur: impacts could be moderate if road density increases in a critical habitat area (such as high value winter range) that currently provides enough isolation to be suitable but that has been impacted in the past by roads. If this area were to become unsuitable for big game then cumulative impacts could be moderate.

- Add after 1st sentence in “Alternative D with NSO in IRAs”:

Cumulative impacts to big game would be as described under Alternative C.

Page 35 (Section 4.5.5.3)

- Add after 1st sentence in “Alternative D with CSU in IRAs”:

Cumulative impacts to big game would be these same as described for Alternative D1.

- Add after 1st sentence in “Alternative E with NSO in IRAs”:

Cumulative impacts to big game would be these same as described for Alternative D1.

- Add after 1st sentence in “Alternative E with SLT in IRAs”:

Cumulative impacts to big game would be these same as described for Alternative D1.

3.2.2 Blue Ribbon Fisheries

Page 6 (Section 4.4.2)

- Insert in 1st paragraph after 2nd sentence in “Fisheries”:

Blue Ribbon Fisheries on the Dixie National Forest include Panguitch Lake, McGath Lake, Paragonah (aka Red Creek) Reservoir, and Panguitch Creek. All Blue Ribbon Fisheries meet certain standards for water quality and quantity, public accessibility, and sustainability (i.e., natural reproduction capacity; UDWR 2006b).

Page 9 (Section 4.4.4)

- Add after 1st paragraph:

According to UDWR (2006b), Blue Ribbon Fisheries on the Cedar City Ranger District include Panguitch Lake (1,234 surface acres), Paragonah (aka Red Creek) Reservoir (70 surface acres), and Panguitch Creek (11 miles total, from an irrigation diversion near Panguitch to the Butler Creek confluence; 9.5 miles on the Dixie National Forest). Asay Creek is a Blue Ribbon Fishery located just downstream from the Dixie National Forest, which joins the main stem of the Sevier River just west of the Forest boundary.

Page 9 (Section 4.4.5)

- Add after 1st paragraph:

The East Fork Sevier River (11.5 miles from the Otter Creek Reservoir Diversion to the confluence with Deer Creek; UDWR 2006b) is a Blue Ribbon Fishery stream located east of the Powell Ranger District, but is downstream from several streams on the Forest.

Page 10 (Section 4.4.6)

- Add after 1st paragraph:

McGath Lake (43 surface acres) is a Blue Ribbon Fishery located on the Escalante Ranger District (UDWR 2006b).

Page 12 (Section 4.5.4)

- Add before last sentence in 2nd paragraph:

Blue Ribbon Fisheries criteria would be affected if a waterbody were to lose, among other characteristics, 1) its ability to sustain a viable fishery (by reduced water quantity or quality) or 2) its accessibility to the public (see UDWR 2006b for list of criteria).

Page 13 (Section 4.5.4)

- Add before last sentence in 4th paragraph “Exploratory Drilling and Road Construction”:

Adverse effects within Blue Ribbon fishery streams would affect Blue Ribbon criteria if the stream were to no longer able to sustain a viable fishery.

Page 15 (Section 4.5.4.1)

- Add at the end of “CSU” section:

AQUATIC SPECIES

Measurement Indicators

- *Measurement Indicator #3* ESTIMATES OF INCREASED SEDIMENT PRODUCTION AND AMOUNT THAT COULD REACH AQUATIC HABITATS

Impacts to aquatic species from increases in sediment production under CSU would be lower than under SLT, due to soil protection measures that are part of this particular stipulation. Oil and gas facilities within 300 feet of aquatic habitats (streams, lakes, riparian areas, etc.) would be placed on wooden platforms to reduce soil disturbance, thus vehicles and other operations would not make contact with the soil and potentially introduce sediments into adjacent aquatic habitats. Impacts to aquatic species with regard to increased sediment production under CSU would be short (exploration activities) to long term (production activities) and negligible to minor. Impacts could be minor because a small amount of sediment, that may affect some individuals of various aquatic species, may still be introduced into aquatic habitats during installation and removal of the platforms.

- *Measurement Indicator #4* NUMBER AND TYPE OF STREAM, RIPARIAN AREA, AND WETLAND CROSSINGS

Impacts from stream, riparian, or wetland crossings under CSU would be the same as SLT because stream crossings are not restricted under this leasing option and would be installed following standard specifications (e.g., BLM and USFS 2007), as under SLT. Impacts would be short (exploration) to long (production) term and minor because it is likely that only some individuals (of any aquatic species) would be affected by a stream, riparian, or wetland crossing at any one location. There would be no impacts to populations of aquatic species from crossings.

- *Measurement Indicator #5* POTENTIAL CHANGES TO AQUATIC HABITAT CONDITION (AQUATIC CONDITION INDICATORS)

Impacts to aquatic habitat condition would be the same under this CSU as under SLT, because operations could be in a similar proximity to aquatic habitats. Impacts to aquatic habitat conditions under SLT have the potential to be major because populations would almost certainly be affected by an unanticipated event such as a spill, although this type of event is unlikely. Adverse impacts to aquatic species populations would be certain to lower the reproductive rate of the population and could put the persistence of the species on the Dixie National Forest in an uncertain position. Blue Ribbon Fishery criteria would also be adversely affected such that the affected stream would no longer meet the criteria for natural reproduction capacity. Impacts under SLT would be short to

long term and moderate to major, depending on the location of disturbance, present condition of the aquatic habitat, and the severity of the impact.

Page 17 (Section 4.5.4.2)

- Under All Wildlife, *Measurement Indicator #1*, add before last sentence in 2nd paragraph:
Impacts within Blue Ribbon Fisheries would be moderate.

Page 20 (Section 4.5.4.2)

- Under Aquatic Species and Habitat, *Measurement Indicator #5*, add before 2nd to last sentence in the 3rd paragraph:
Blue Ribbon Fishery criteria would be adversely affected because the stream would no longer meet the criteria for natural reproduction capacity.

3.2.3 Other errata

Page 13 (Section 4.5.4)

- Replace 1st sentence of 1st paragraph on page:
Fragmentation of wildlife habitats is a concern with oil and gas disturbances due to the linear extent of many activities, including roads connecting to well pads. (Seismic activity would not fragment habitat).

Page 24 (Section 4.5.4.3)

- Replace last paragraph under Alternative C with:
Most potential impacts to fish and aquatic species would be unlikely under Alternative C due to NSO buffer zones that would not allow use or occupancy within 500 feet of streams (see Section 4.7; road crossings would be allowed but not in sensitive fish habitat; see Section 4.6). Impacts to fish and aquatic species with regard to *Measurement Indicators #3*, and *#5* under Alternative C would be negligible. With the exception of sensitive fish habitat under Alternative C, the NSO leasing option would allow for perpendicular stream crossings (*Measurement Indicator #4*; see Section 4.6 for sensitive fish habitat); thus, stream crossing impacts to native, non-sensitive fishes would be as described under SLT (Section 4.5.4.6): long term and minor. Indirect impacts to these fishes with regard to the spread of invasive plants (*Measurement Indicator #6*) would be long term and minor because it is likely that only individuals, and not *populations* of native fishes or other aquatic species, would be affected by the potential spread of invasive plants via seismic activities that may indirectly degrade aquatic habitats.

Page 28 (Section 4.5.5.2)

- Add footnote to Table 4.5-4

¹ Motorized Travel Plan implementation (see USFS 2009c) will close some routes that are negatively impacting soil, water, and wildlife resources, and/or are not needed for future resource management activities.

- Replace “Vegetation Changes” section with:

Vegetation changes on the Dixie National Forest are described in Section 5.1.2.1. These changes reduce the habitat available for Utah prairie dogs, sage grouse, pygmy rabbit, and big game (winter range). A decline in aspen to conifer encroachment has reduced the available habitat for elk, goshawk, and three-toed woodpecker, although the sensitive bird species can also use conifers. An increase in conifers has generally increased the nesting substrate available to sensitive raptors and woodpeckers. Vegetation management on the Forest is currently attempting to reverse the trends of climax species encroachment in order to reduce the risk of fire and insect outbreak, and vegetation “restoration” treatments on the Grand Staircase-Escalante National Monument are expected to cover approximately 20,000 acres over the next 15 years (BLM 1999a).

Page 29 (Section 4.5.5.2)

- Replace “Recreation” section with

OHV use, described for the Dixie National Forest in Section 5.1.2.1, particularly cross-country travel, has resulted in direct impacts to riparian and upland vegetation as well as noxious weed introductions. However, OHV cross-country use on the Dixie NF is expected to decrease as a result of the implementation of the MTP decision signed April 2009. On BLM districts, OHV use has increased from 5 to 10 years ago and management strategies are still being devised to protect wildlife and fish habitats.

- Replace “Oil and Gas” section with:

MINERALS ACTIVITY

Past and present oil and gas activity on the Dixie National Forest, including the Upper Valley oil field, is described in Section 5.1.2.1. In the past few years there has been a renewed interest in oil and gas within the CEA and there are currently 122 authorized leases and 14 pending leases, with a combined total lease area of 101,682 acres (UDNR 2008b). While these leases occur throughout the CEA, they tend to occur in clusters. Some of the larger clusters are to the south and north of the Cedar City Ranger District, in between the Cedar City and Powell Ranger Districts, and off the southeast corner of the Escalante Ranger District (an extension of the Upper Valley Field). Only the Upper Valley Field is currently active. The only other recent activity on these leases has been the drilling of a five wildcat wells on state and private land, all of which have been plugged and abandoned (UDNR 2008a). While the lease acreage is not reflective of potential surface disturbance area, it may be likely that the larger lease areas and the lease clusters may eventually have a greater area of surface disturbance than a smaller, isolated lease. Further, it can be assumed that similar types of impacts as are described for on-Forest leases could occur on these leases as well.

The portion of the CEA within the BLM's Richfield District has a low development potential for oil and gas (described in Section 5.2.2). The RFDS for the BLM's Kanab District predicts 90 new well sits and up to 1,500 miles of seismic data. These would disturb an estimated 2,070 acres (23 acres per well) and 905.5 acres, respectively. Some of this development could occur on the portions of the Kanab District within the CEA. The BLM's Cedar City District RFDS on the eastern portion of the Field Office is three exploratory wells per year (BLM 2008d). There are currently 254 authorized oil and gas leases in the Cedar City Field Office (CCFO), totaling over 450,000 acres, over 90 percent of which occur within the eastern half of the district in an area bounded by I-15 (on the east) and the Union Pacific Railroad (on the west). Although nearly all public lands in the CCFO have been under federal oil and gas lease at some time in history, future leasing interest is likely to be focused within this area. There are currently no oil and gas production facilities within the CCFO.

On state land, there is the possibility of unquantified drilling for coal bed methane within the John's Valley area within the next 15 years. This would likely involve not only drilling but also establishment of a gas delivery system to market the gas if it occurred in paying quantities. Production would most likely be gas rather than oil. One of the five wells that was plugged and abandoned was a coal bed methane well in this area.

In addition to oil and gas activity, there are currently 25 separate mineral activities, more than half of which are on BLM land surrounding the Pine Valley Ranger District. These mineral activities are all very small operations (less than five acres) and primarily target materials such as sandstone, limestone, silica, rhyolite, alabaster, and travertine (UDNR 2008b). There are a few larger mines for iron, gold, and silver; however, all of these are inactive or in some stage of reclamation. There are 2 larger mines proposed for the near future: the Alton Coal Hollow mine and the Iron Spring iron mine.

Alton Coal Mine

The Coal Hollow mine is proposed by Alton Coal Development, LLC. The company plans to mine up to 2 million tons of surface coal on 635 acres of private land. An engineering evaluation and air quality impact analysis done for the air quality permit process found the proposed strip-mine development project meets federal and state air quality rules and regulations. The permit for mining on private reserves was approved on November 8, 2010 after being upheld following contests from environmental groups.

The initial stages of mining will slowly roll out a smaller number of highway-approved tractor-trailers transporting coal from Alton to Intermountain Power Agency's plant near Delta. The number of trucks could eventually expand to as many as 300 coal trucks per day passing through Panguitch and other towns on state Route 89 (St. George Spectrum 09/20/2010).

Iron Springs Mine

Palladin Iron Corporation was recently granted Tentative Approval of Amended

Notice of Intention to Commence Large Mining Operations at the Iron Springs mine. These mines were last active over 50-years ago and previously disturbed 417 acres. Plans over the next five years include the disturbance of 48 currently undisturbed acres and 14 acres that were previously disturbed.

Page 30 (Section 4.5.5.2)

➤ Replace Table under “Additional Reasonably Foreseeable Future Actions” with:

Project	Potential Impacts to Fish and Wildlife Resources
Upper Santa Clara River Vegetation and Fuels Project	Habitat removal: 1,662 total treatment acres, of which 352 acres will be treated in 2008, and 596 acres will be treated in 2009; decreased risk of uncharacteristic wildfire that would remove habitat.
Pine Valley Fuels Treatments	Habitat removal: 217 acres in 2011; decreased risk of uncharacteristic wildfire that would remove habitat.
Navajo Basin Forest and Scenic Recovery	Habitat removal (dead/dying conifers); regeneration of aspen and conifer habitat on 4,737 acres in 2011
Red Desert Vegetation Treatment	Habitat removal: prescribed burning to regenerate aspen habitat on 2,225 acres in 2011.
Tippets Salvage	Habitat removal (dead/dying conifers) on 250 acres in 2011.
Duck Creek Fuels Treatment	Habitat removal: Phase II will treat 600 acres and Phase III 2,800 acres in 2008, 10,000+ acres in 2009, 5,000 acres 2010, and 1,500+ acres in 2011; decreased risk of uncharacteristic wildfire that would remove habitat.
Edward Spring Vegetation Treatment	Vegetation removal and increase in early succession grassland and aspen habitat: 1,108 acres.
Paunsaugunt Vegetation Management	Habitat removal and modification in aspen stands to regenerate aspen habitat: 2,218 acres in 2012.
Sawmill Point/Baldy Ridge Aspen Improvement	Habitat removal and regeneration of aspen stands on 894 acres in 2011.
Midway-Deer Valley Scenery Enhancement and Vegetation Treatment	Habitat removal, including spruce, aspen, and meadow; treatments include 600 acres in 2008, 400 acres in 2009, and 200 acres in 2010.
Pretty Tree Bench Fire Treatments	Would enhance elk and deer winter range.
Stump Springs Fire Treatments	Habitat removal: 5,400 acres over 9 years; decreased risk of uncharacteristic wildfire that would remove habitat.
Dipping Vat Habitat Improvement Project	Improvement of sagebrush habitat on 1,132 acres in 2008.
Mt. Dutton Vegetation Management Project	Habitat removal on approximately 870 acres, including approximately 620 acres in 2009, 200 acres in 2010, and 50 acres in 2011. Conifer and aspen trees would be established, thus creating a more diverse habitat than what existed before the outbreak.
East Fork Boulder	Impacts to non-native trout; long term would increase distribution of Colorado

Project	Potential Impacts to Fish and Wildlife Resources
Creek Native Trout Restoration	River cutthroat trout.
McGath Lake Dam	Reduce risk to fisheries in McGath Lake: 2008
Pockets Vegetation Management	Conifer (4,721 acres) and aspen (2,647 acres) habitat removal.
Toad Salvage	Removal of ponderosa pine trees.
UNEV Pipeline	Minor habitat disturbance due to pipeline establishment in existing ROW.

Page 33 (Section 4.5.5.2)

- Add to end of section:

Projects in the official planning stage on BLM lands are listed below. Minor projects in the foreseeable future not listed below include routine maintenance, range projects, minor ROW authorizations, permit renewals, wind testing projects.

Project	Project Description	Approximate Project Location	Potential Impacts to Fish and Wildlife
Projects on BLM-administered land			
Sigurd to Red Butte Power Line Upgrade Project	Upgrade an existing power line from the Sigurd substation (6 miles northeast of Richfield) to the Red Butte substation (near Central).	BLM lands north of Pine Valley Ranger District	Would remove some wildlife habitat within the 150-foot ROW
Upper Kanab Creek Project	Within the upper Kanab Creek watershed, reduce hazardous fuels, restore sagebrush, increase plant species diversity, enhance habitat conditions for mule deer and sagebrush-obligates, and decrease pinyon-juniper encroachment. Project Area includes 90,000 total acres of BLM lands.	BLM lands south of Cedar City and Powell Ranger Districts	Would remove some habitat for forest-dependent species; long term habitat enhancement for sagebrush obligates and mule deer;
Alton Sage Grouse Habitat Project	Restore sage-grouse movement corridors by mechanical vegetation treatments and seeding. Project Area includes 400 acres of BLM lands predominantly pinyon-juniper/sagebrush	BLM lands south of Alton	Long-term enhancement of sagebrush habitat, also beneficial impacts to mule deer.
Shinob Kibe Riparian Treatment	Removal of salt cedar and planting of desirable riparian and upland species on 24 acres along the Virgin River	BLM lands near Washington, Utah	Long-term improvement of riparian habitat for Virgin River chub, woundfin, Virgin spinedace,

Project	Project Description	Approximate Project Location	Potential Impacts to Fish and Wildlife
	floodplain.		southwestern willow flycatcher, and yellow-billed cuckoo

Page 39:

Add the following new references:

US Department of Agriculture. Forest Service. 2008b. Dixie National Forest Monitoring Report for fiscal year 2007. August 2008.

____ 2009b. Dixie National Forest Monitoring Report for fiscal year 2008. September 2009.

____ 2009c. Dixie National Forest Motorized Travel Plan. Final Environmental Impact Statement. US Department of Agriculture, Forest Service, Intermountain Region. April 2009.

____ 2010a. Environmental Assessment: Aquatic Monitoring Amendment. Dixie National Forest. June 2010.

US Department of the Interior. Bureau of Land Management. 2008d. Oil and gas leasing in the eastern portion of the Cedar City Field Office. Programmatic Environmental Assessment UT-040-08-036. Cedar City, Utah. August 11, 2010.

Utah Department of Natural Resources. Division of Oil, Gas, and Mining. 2008a. LiveData online oil and gas information system. Available at: http://oilgas.ogm.utah.gov/Data_Center/LiveData_Search/main_menu.htm. Accessed 22 February 2008.

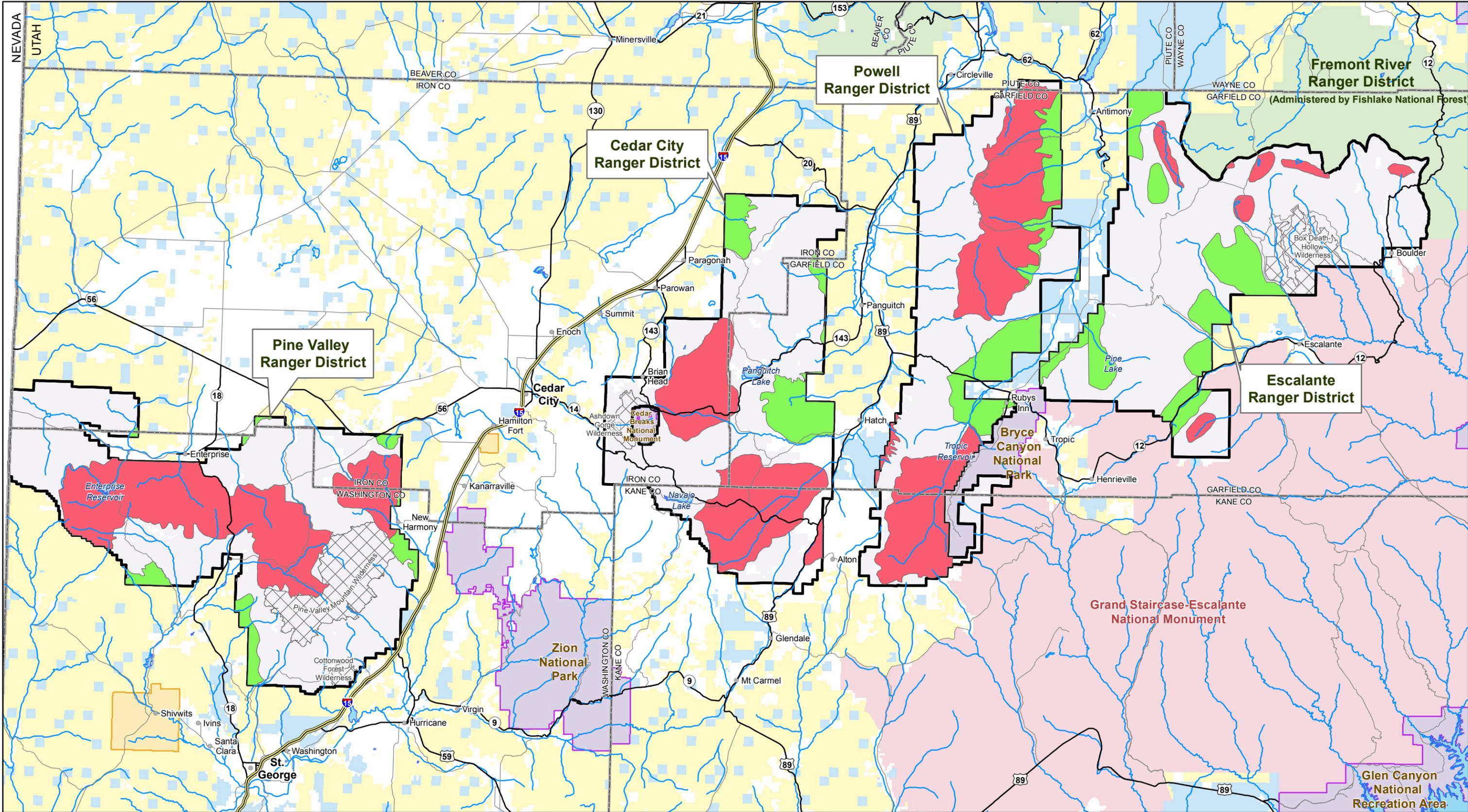
____ 2008b. Utah Division of Oil, Gas, and Mining Files. January.

Utah Department of Natural Resources. Division of Wildlife Resources (UDWR). 2002. Virgin spinedace (*Lepidomeda mollispinus mollispinus*) Conservation Strategy. UDWR Publication Number 02-22.

____ 2003. Statewide management plan for mule deer. Approved 13 November 2003; valid until 13 November 2008. Available at http://www.wildlife.utah.gov/hunting/biggame/pdf/mule_deer_plan.pdf

____ 2006b. Memorandum from Blue Ribbon Fisheries Advisory Council to Governor Jon M. Huntsman, Jr. April 23, 2006.

____ 2008b. Virgin spinedace (*Lepidomeda mollispinus mollispinus*) Conservation Agreement and Strategy 2002-2008 Assessment. UDWR Publication Number 08-56.



Oil & Gas Leasing EIS on Lands Administered by the Dixie National Forest



**FIGURE 4.4-1
Big Game Summer & Winter Range**

Horizontal Datum = NAD 83
Coordinate System = Zone 12N

1:590,000

1 in = 9 miles



Legend

- Cities
- Freeways
- Highways
- Minor Roads*
- Major Streams & Rivers
- Water Bodies
- County Boundaries
- State Boundaries
- Dixie National Forest
- Wilderness Areas
- Fishlake National Forest

Other Land Administration

- Bureau of Land Management
- GSENM**
- National Park Service
- Private
- State of Utah
- Tribal

Mule Deer & Rocky Mountain Elk

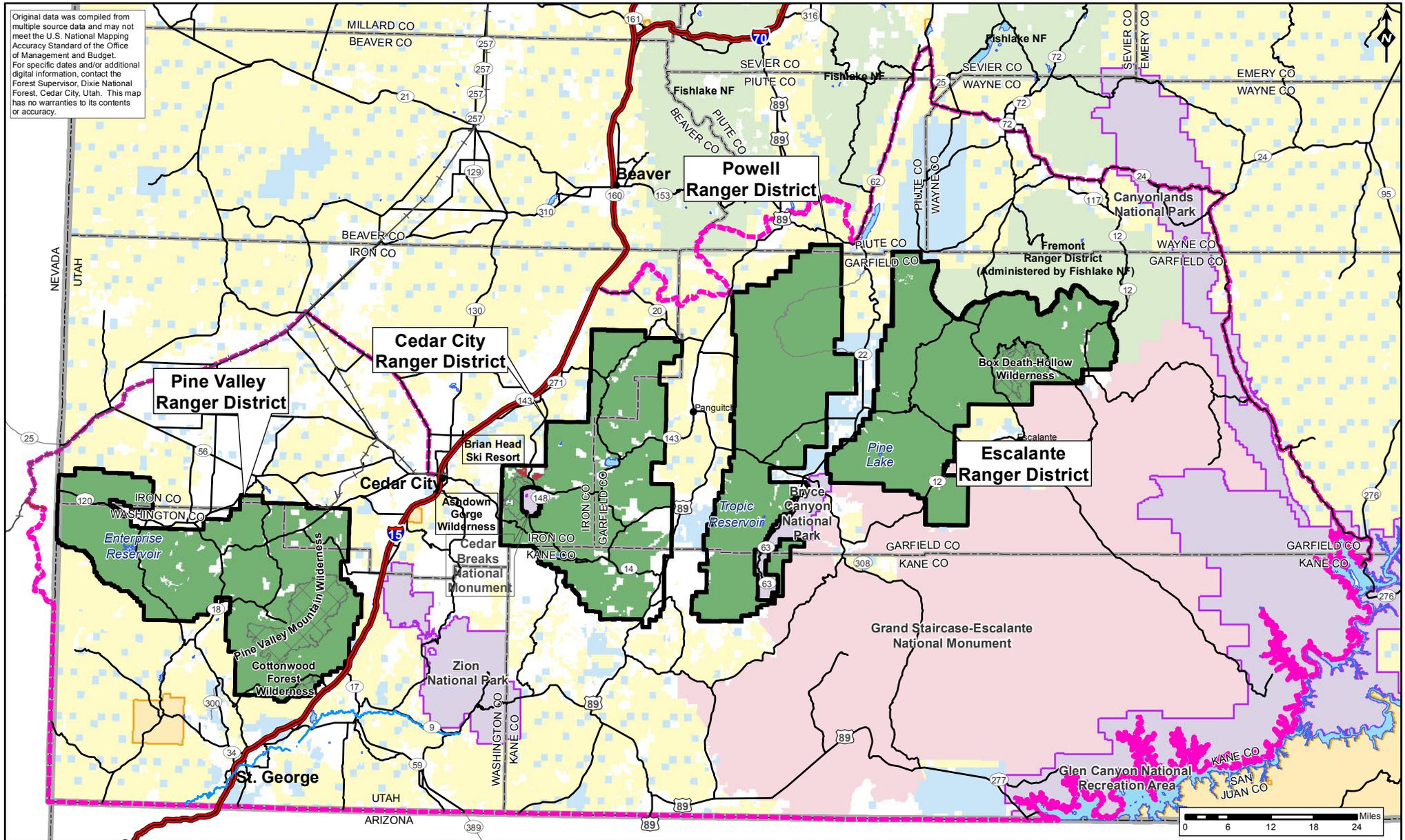
- Crucial Summer Range
- Crucial/Substantial Winter Range



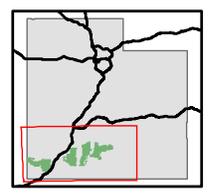
Original data was compiled from multiple source data and may not meet the U.S. National Mapping Accuracy Standard of the Office of Management and Budget. For specific dates and/or additional digital information, contact the Forest Supervisor, Dixie National Forest, Cedar City, Utah. This map has no warranties to its contents or accuracy.

*Not all roads are shown. Only some roads are depicted for orientation purposes.
**Grand Staircase-Escalante National Monument. Managed by the Bureau of Land Management.

Original data was compiled from multiple source data and may not meet the U.S. National Mapping Accuracy Standard of the Office of Management and Budget. For specific dates and/or additional digital information, contact the Forest Supervisor, Dixie National Forest, Cedar City, Utah. This map has no warranties to its contents or accuracy.



Oil and Gas Leasing EIS on Lands Administered by the Dixie National Forest
FIGURE 4.5-1
Cumulative Effects Area / Utah Division of Wildlife Resources Management Units and 6th-Level HUCs



- Cities
- Railroad
- Minor Roads*
- Major Roads
- Freeways
- Virgin River
- Water Bodies
- ▭ County Boundaries
- ▭ State Lines
- ▭ National Forest System Lands
 - ▭ Dixie National Forest
 - ▭ Fishlake National Forest
- ▭ Wilderness Areas
- ▭ Brian Head Ski Resort

- Other Land Administration**
 - ▭ Bureau of Land Management
 - ▭ GSENM**
 - ▭ National Park Service
 - ▭ Private
 - ▭ State of Utah
 - ▭ Tribal
 - ▭ Cumulative Effects Area***

*Not all roads are shown. Only some roads are depicted for orientation purposes.
 **Grand Staircase-Escalante National Monument. Managed by the Bureau of Land Management.
 ***Includes extent of all Wildlife Management Units (Utah Division of Wildlife Resources) that intersect the Dixie National Forest and 6th-level HUCs.

1 in = 18 miles
 1:1,000,000
 Horizontal Datum = NAD 83
 Coordinate System = Zone 12N

