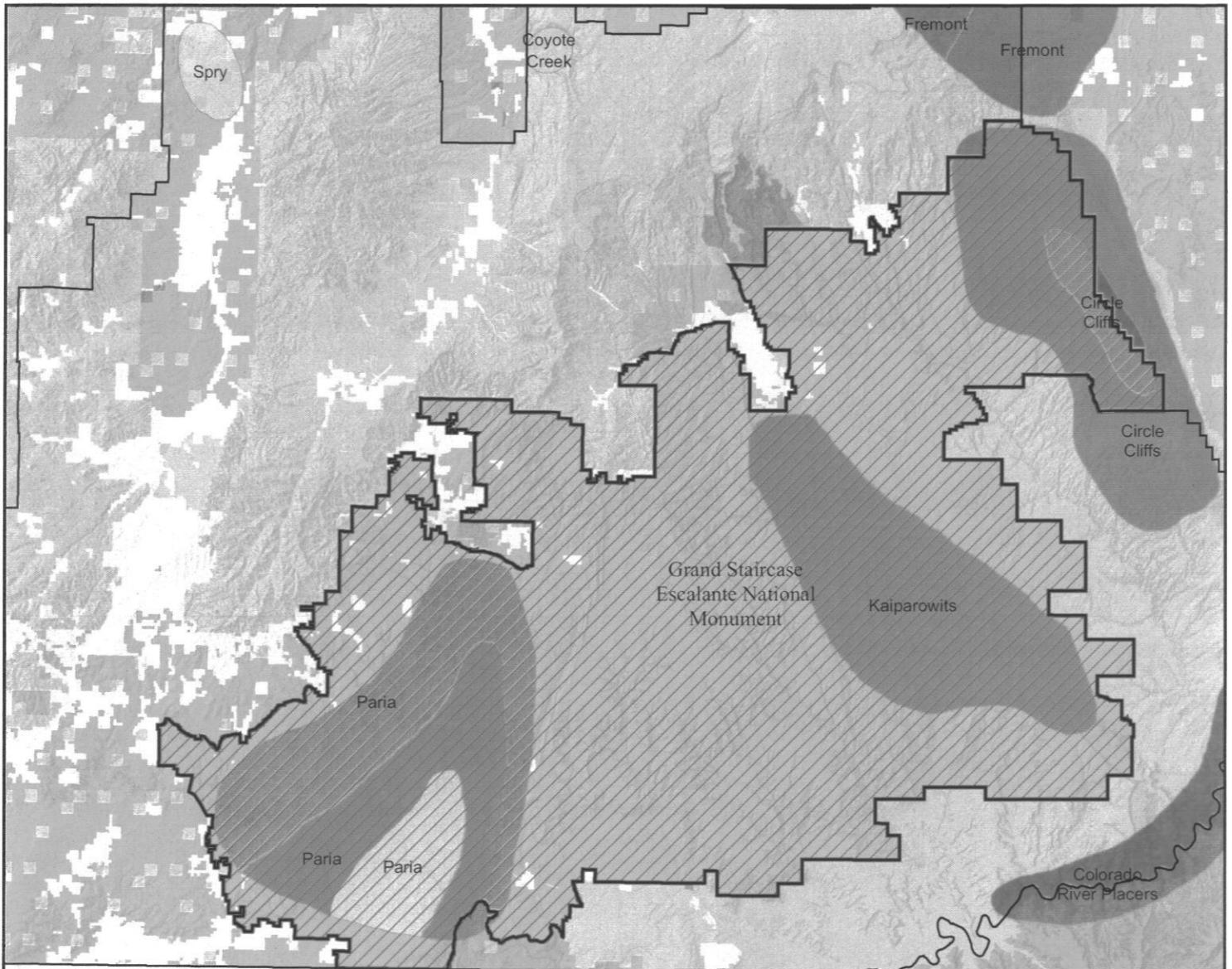


GRAND STAIRCASE NM MINING DISTRICTS

R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E

T31S
T32S
T33S
T34S
T35S
T36S
T37S
T38S
T39S
T40S
T41S
T42S
T43S



Grand Staircase NM

Designation

National Monument

TYPE

Misc
 Precious
 Radioactive

Land Status

BLM Wilderness Area
 Bankhead-Jones Land Use Lands
 Bureau of Land Management (BLM)
 Indian Reservation (IR)
 National Park Service (NPS)
 Private
 State
 State Parks and Recreation
 State Wildlife Reserve/Management Area
 US Forest Service (USFS)
 USFS Wilderness Area



0 5 10
Miles



March 6, 2017

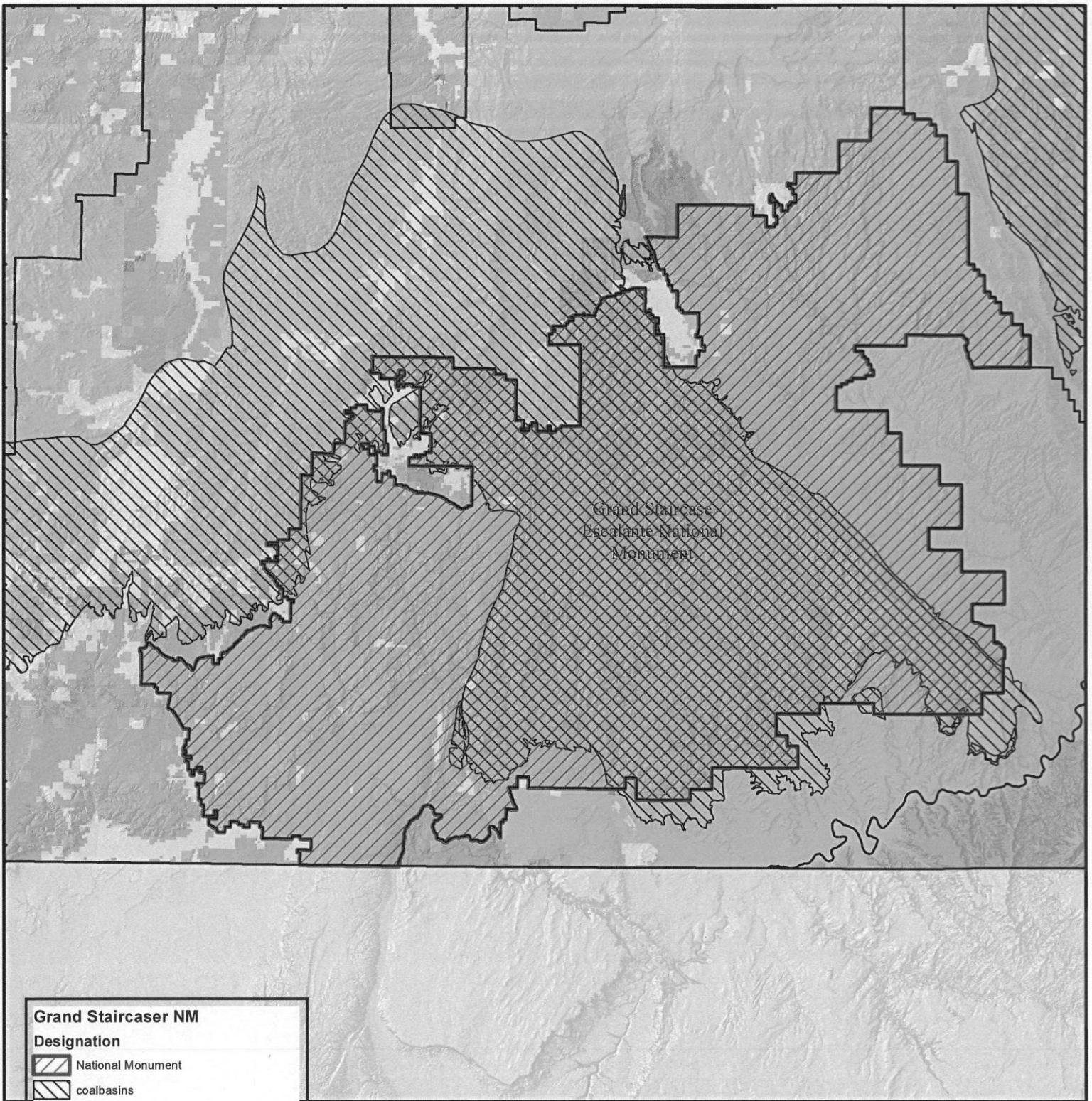
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DOI-2020-02 02467



GRAND STAIRCASE NM KAIPAROWITS COAL BASIN

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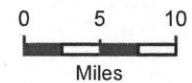
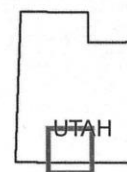
Grand Staircase NM

Designation

-  National Monument
-  coalbasins

Land Status

-  BLM Wilderness Area
-  Bankhead-Jones Land Use Lands
-  Bureau of Land Management (BLM)
-  Indian Reservation (IR)
-  National Park Service (NPS)
-  Private
-  State
-  State Parks and Recreation
-  State Wildlife Reserve/Management Area
-  US Forest Service (USFS)
-  USFS Wilderness Area



March 6, 2017

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DOI-2020-02 02468



<http://files.geology.utah.gov/online/c/c-93/gsenmcir.htm#coalfield>

Coal Resources

Table 1. Coal resources in the Kaiparowits Plateau coal field (billions of short tons) compiled by the Utah Geological Survey from Hettinger and others (1996).

RESOURCE CATEGORY	FEDERAL	PRIVATE	STATE	TOTAL
Resources in-place	57.2	0.3	4.8	62.3
Estimated minable	20.88	0.11	1.75	22.74
Estimated recoverable	10.44	0.05	0.87	11.36

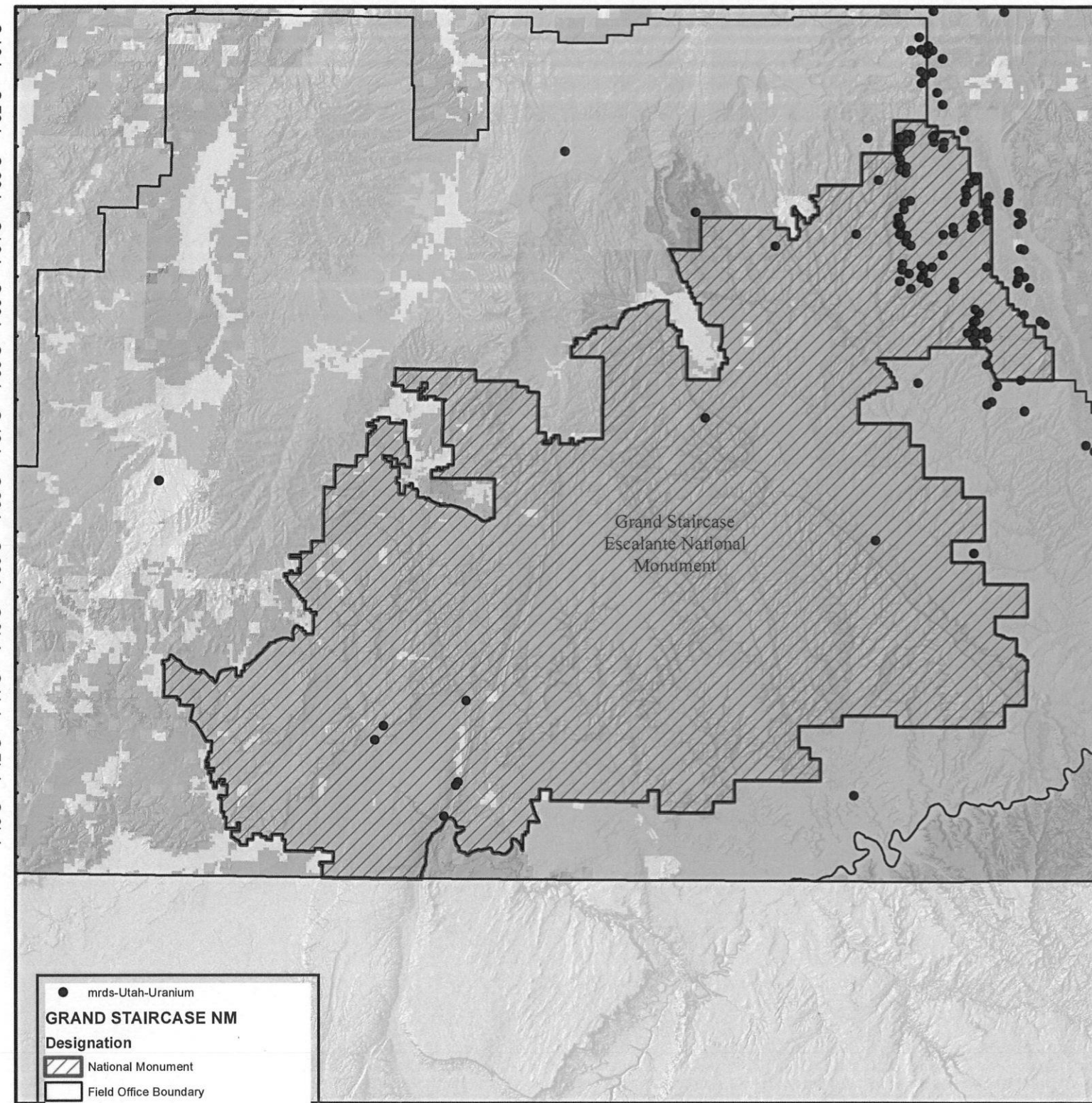
Hettinger and others (1996) estimate that some 62.3 billion tons of original coal resources are contained in the Kaiparowits coal field (table 1). They define original resource as including all coal beds greater than one foot thick. None of the resource is mineable by surface methods. Moreover, the total original resource estimate does not reflect geologic, technological, land-use, and environmental restrictions that may affect the availability and the recoverability of the coal. At least 32 billion tons of coal are unlikely minable under current conditions because the coal beds are either too deep (greater than 3,000 feet), too thin (less than 3.5 feet thick), inclined at more than 12°, or in beds that are too thick (greater than 14 feet thick) to be completely recovered in underground mining using existing mining machinery. The estimated balance of 30 billion tons of minable coal resources does not reflect land-use or environmental restrictions, does not account for coal that would be bypassed due to mining of adjacent coal beds, does not consider the amount of coal that must remain in the ground for roof support, and does not take into consideration the continuity of beds for mining. Although all of these factors will reduce the amount of coal that could be recovered, insufficient data are available to estimate recoverable coal resources. Using Hettinger and others' (1996) summary, the UGS feels that an additional 7.5 billion tons within seams 3.5 to 6 feet thick are not minable because they are too thin for current longwall operations in Utah. This leaves 22.74 billion tons minable throughout the field. Applying a conservative recovery factor of 50 percent to the minable resource leaves about 11.37 billion tons as recoverable. Other underground coal mines in Utah recover 60 to 80 percent of the minable resource. Studies of coal resources in the southeastern Appalachians have shown that less than 10 percent of the original coal resource, in the areas studied, could be mined economically at today's prices (Rohrbacher and others, 1994). Given that much of the Appalachian coal was in thin beds and was mined with much lower efficiency methods than are currently available, the 10 percent recovery should be considered an unrealistically low minimum recovery factor in the Kaiparowits coal field. Moreover, if longwall technology is redesigned allowing coal seams to be mined that are thicker than 14 feet and mining occurs deeper than 3,000 feet, than mineable resources could be greater, perhaps 50 percent higher.

[illegible]

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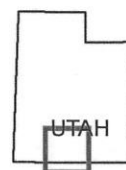
● mrds-Utah-Uranium
GRAND STAIRCASE NM

Designation

- National Monument
- Field Office Boundary

Land Status

- BLM Wilderness Area
- Bankhead-Jones Land Use Lands
- Bureau of Land Management (BLM)
- Indian Reservation (IR)
- National Park Service (NPS)
- Private
- State
- State Parks and Recreation
- State Wildlife Reserve/Management Area
- US Forest Service (USFS)
- USFS Wilderness Area



0 5 10
Miles



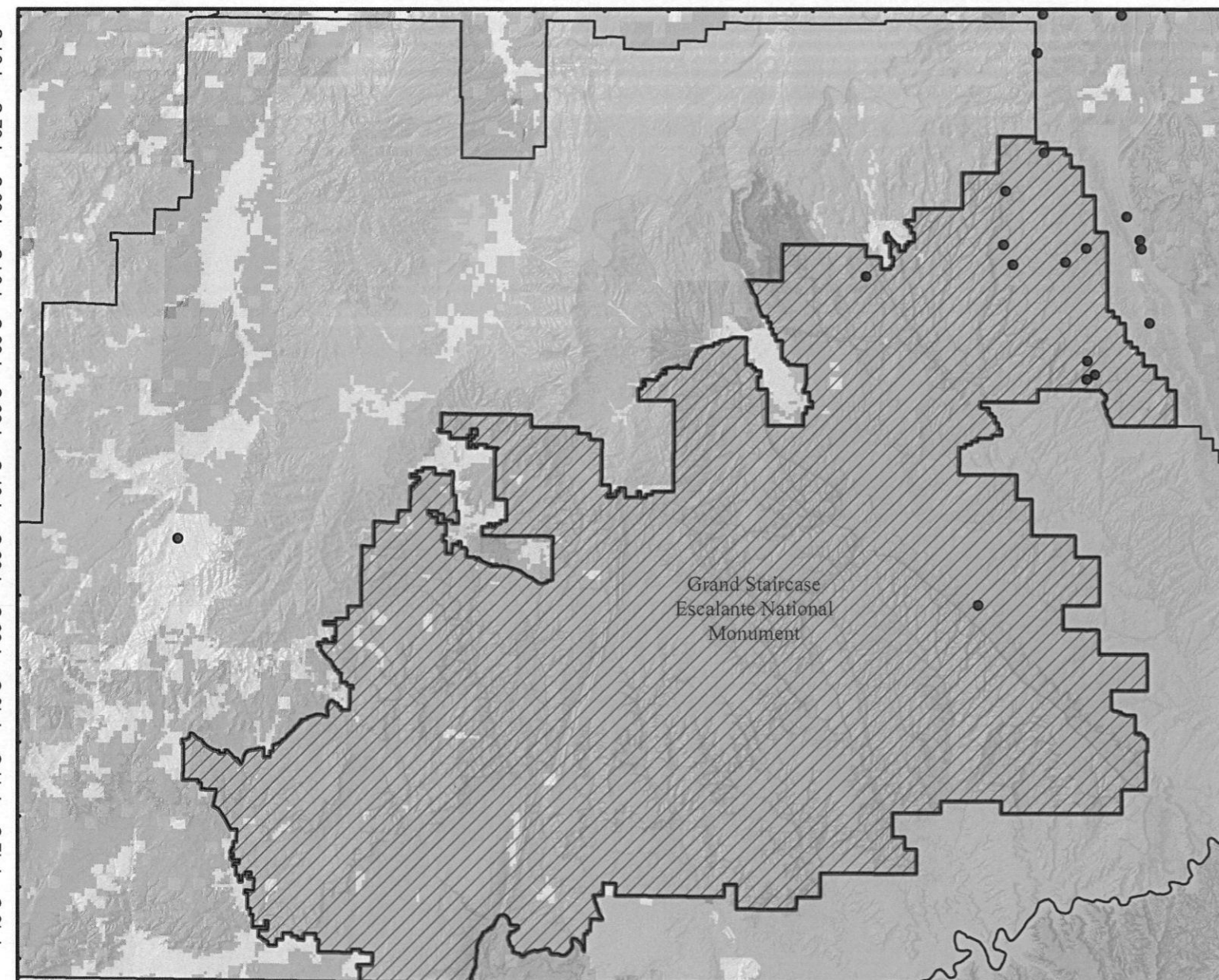
March 6, 2017

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DOI-2020-02 02471

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● mrds-Utah-Vanadium

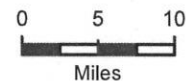
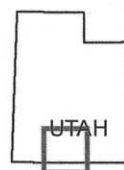
GRAND STAIRCASE NM

Designation

-  National Monument
-  Field Office Boundary

Land Status

-  BLM Wilderness Area
-  Bankhead-Jones Land Use Lands
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-  USFS Wilderness Area



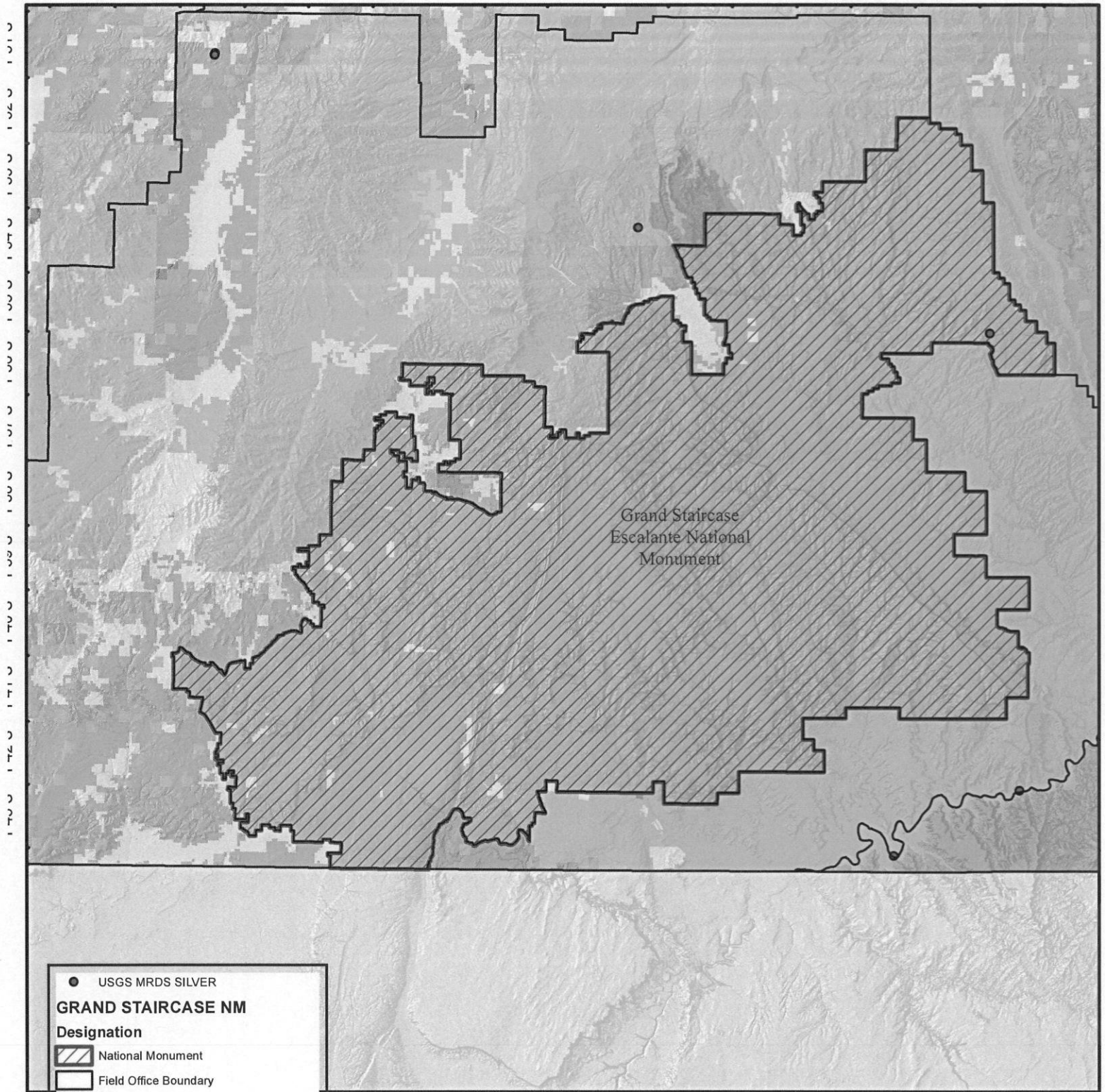
March 6, 2017

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DOI-2020-02 02472



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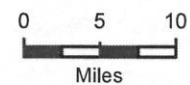
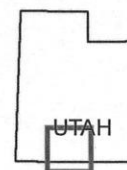
● USGS MRDS SILVER
GRAND STAIRCASE NM

Designation

- National Monument
- Field Office Boundary

Land Status

- BLM Wilderness Area
- Bankhead-Jones Land Use Lands
- Bureau of Land Management (BLM)
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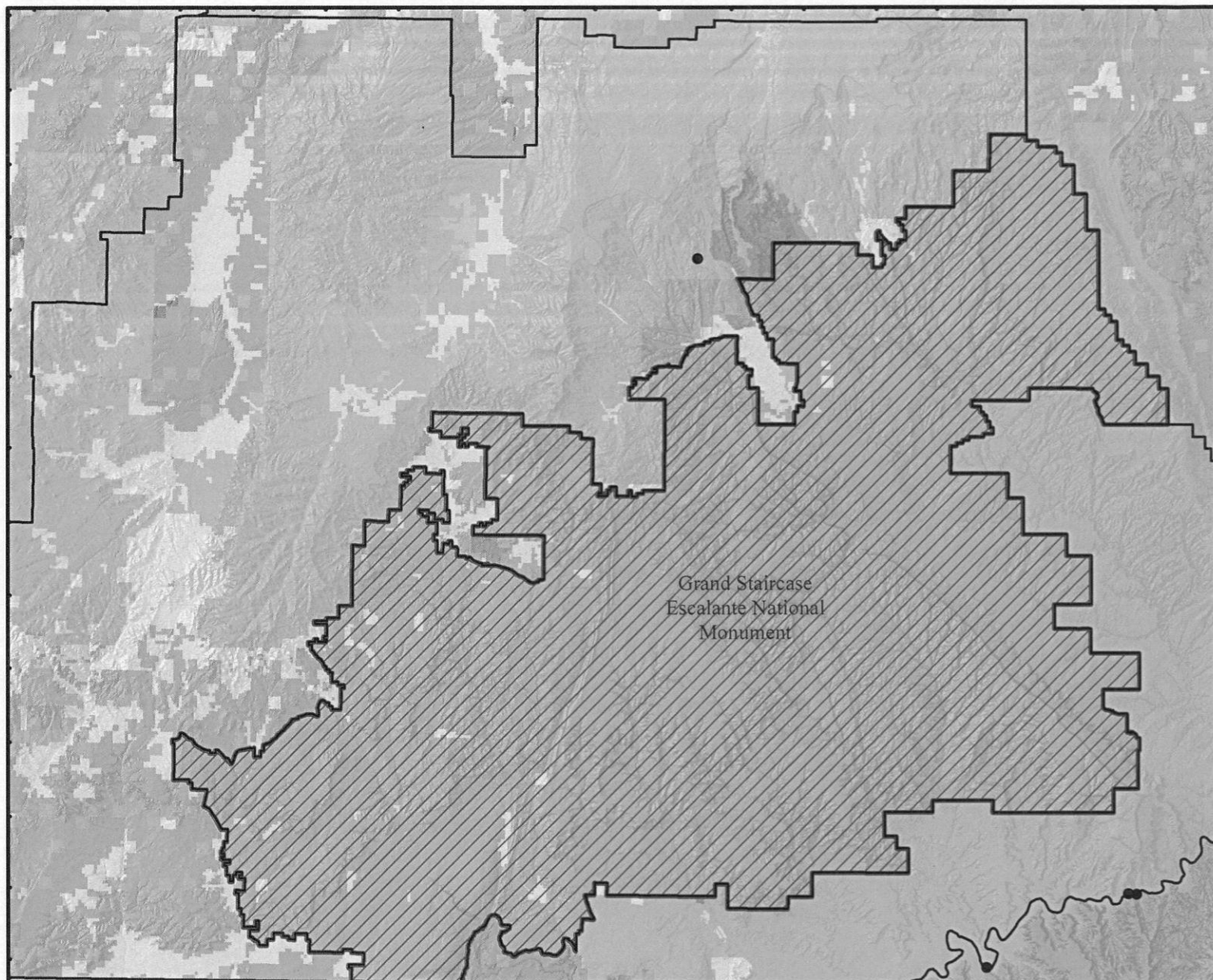
March 6, 2017

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DOI-2020-02 02473





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● USGS MRDS GOLD

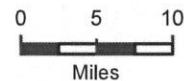
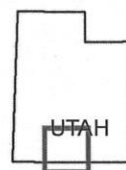
GRAND STAIRCASE NM

Designation

-  National Monument
-  Field Office Boundary

Land Status

-  BLM Wilderness Area
-  Bankhead-Jones Land Use Lands
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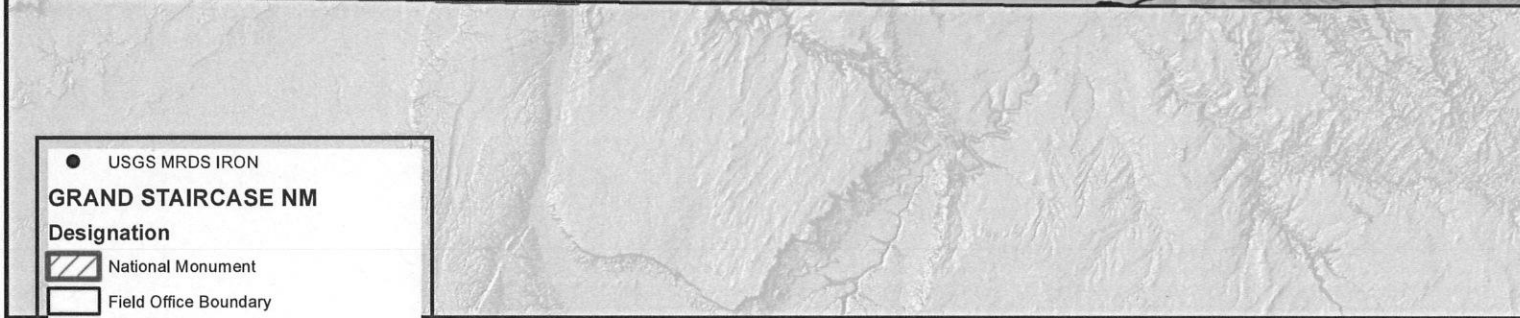
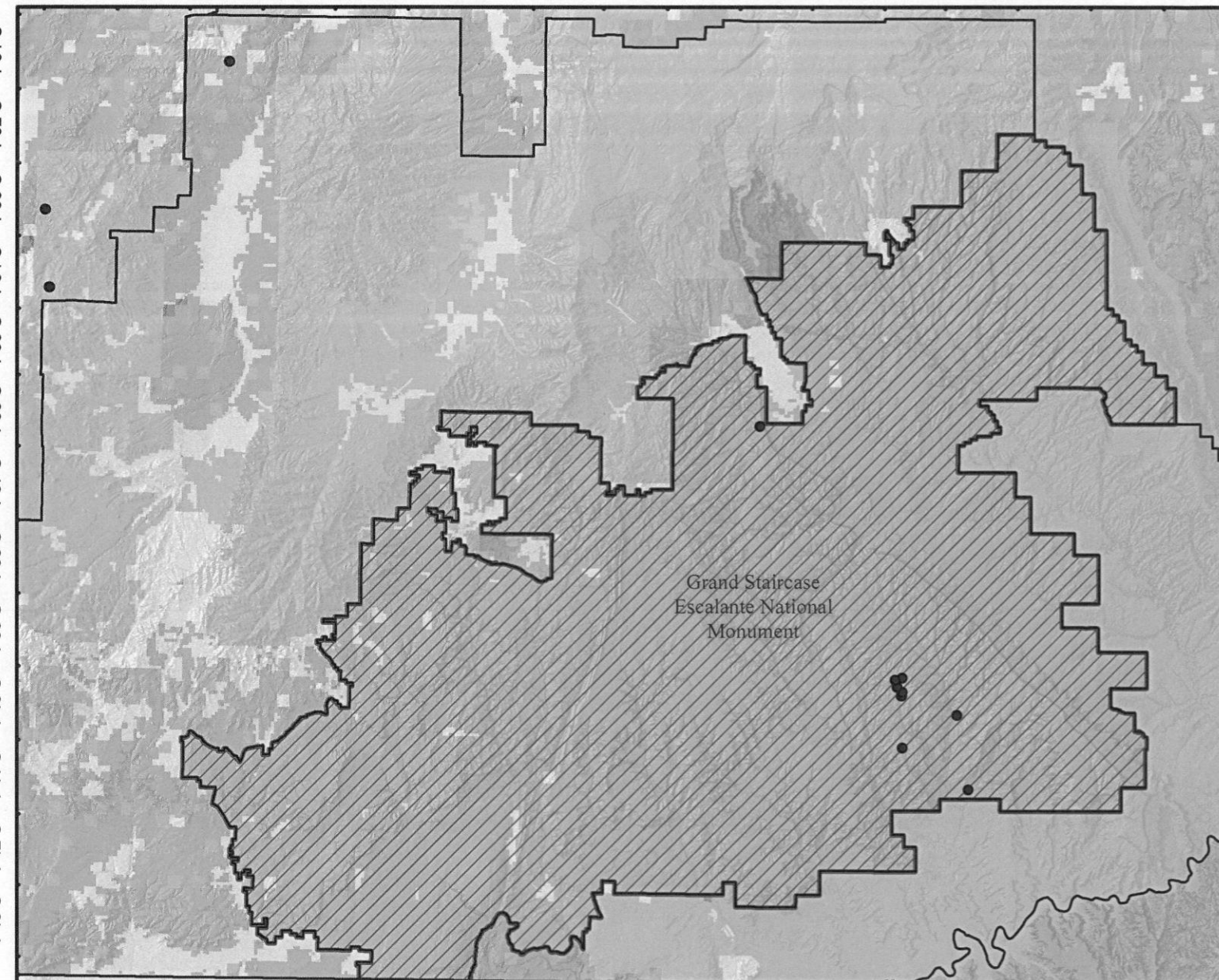
March 6, 2017

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DOI-2020-02 02474



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● USGS MRDS IRON

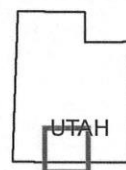
GRAND STAIRCASE NM

Designation

- National Monument
- Field Office Boundary

Land Status

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0 5 10
Miles



March 6, 2017

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