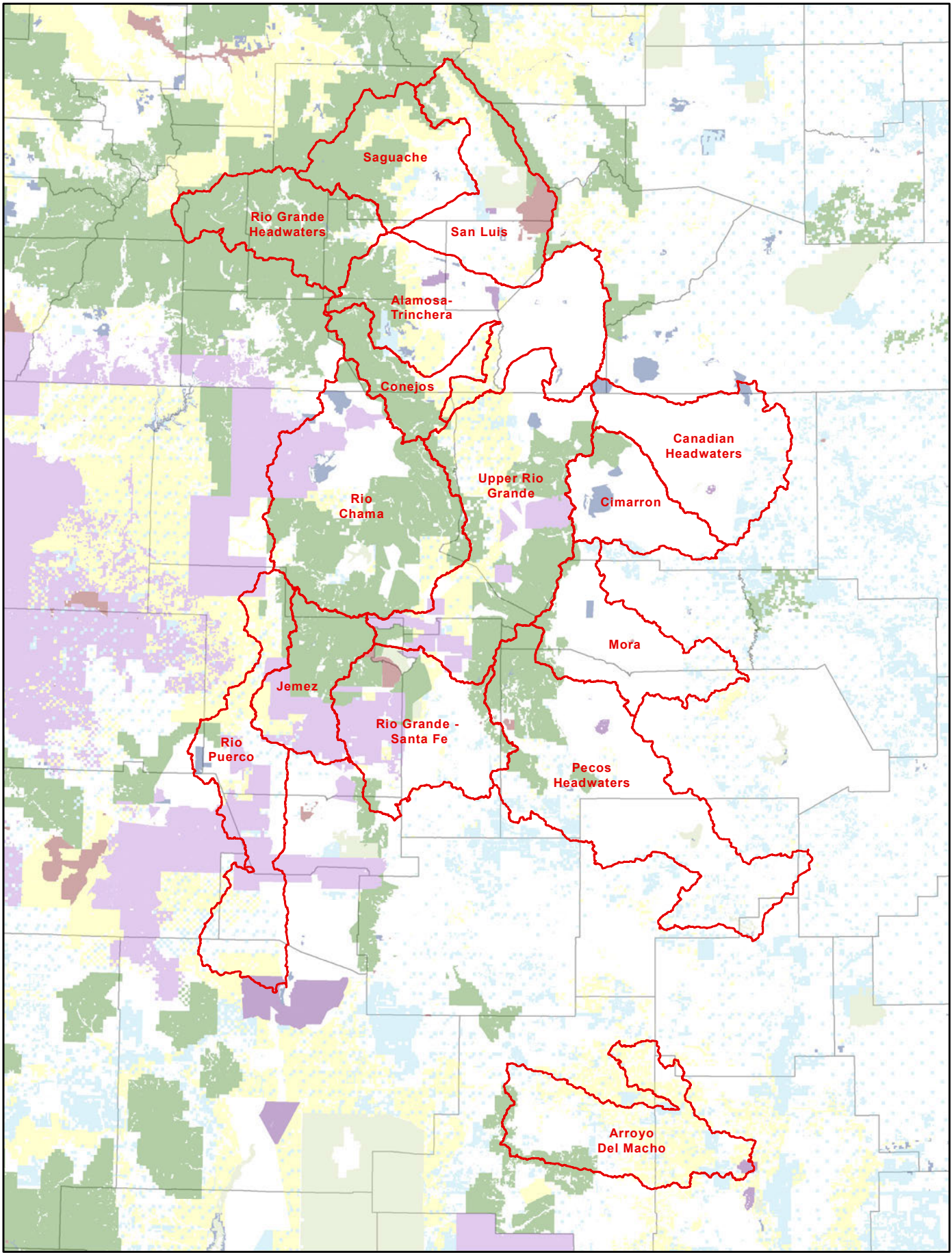


Rio Grande Cutthroat Trout Wildfire Risk Assessment



Rio Grande Headwaters

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Upper Pecos

Pecos Headwaters

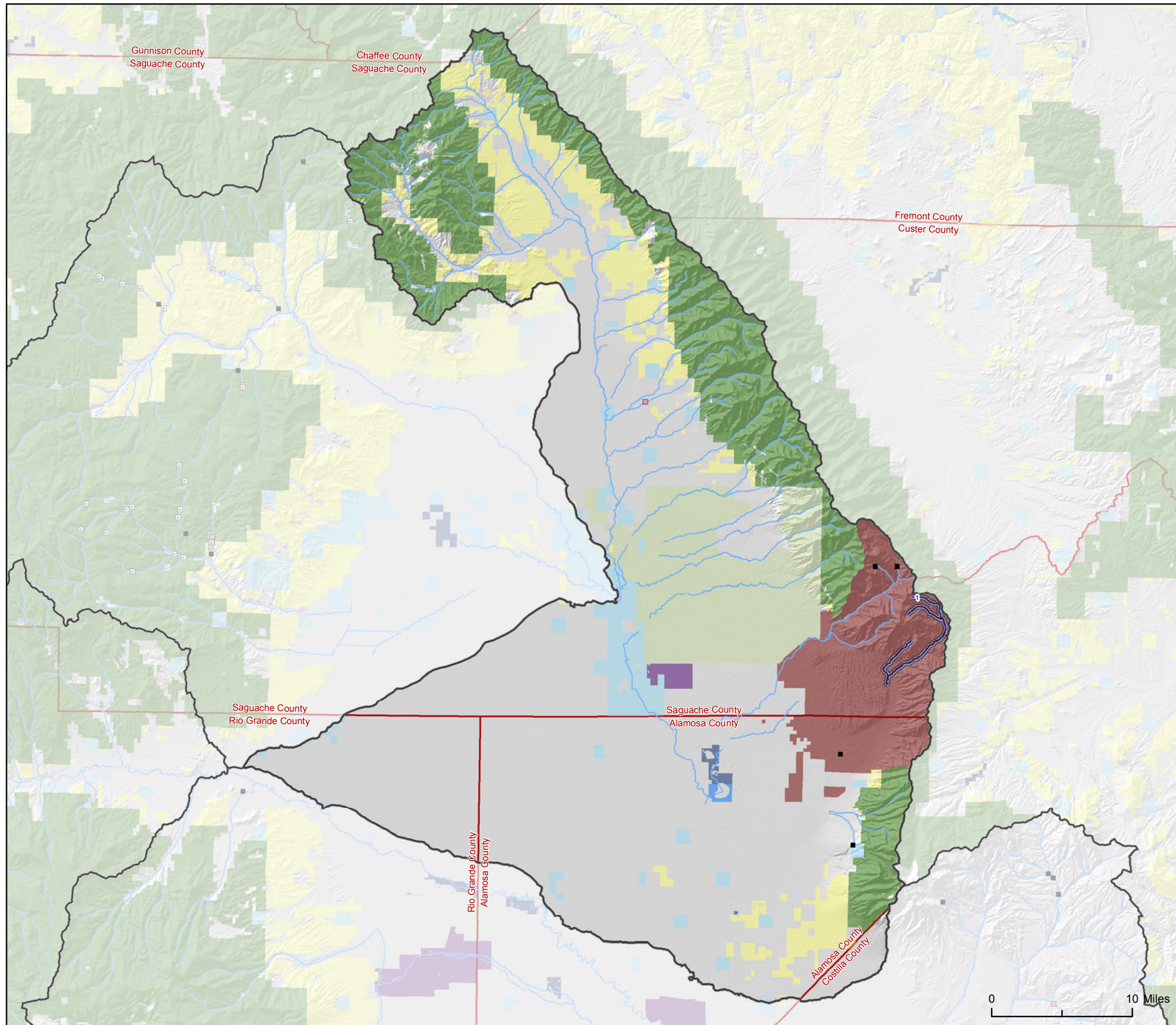
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June 2013
 Prepared for:
New Mexico Department of Game and Fish
 By:
The Nature Conservancy in New Mexico

San Luis Watershed (13010003)



Rio Grande Cutthroat Trout

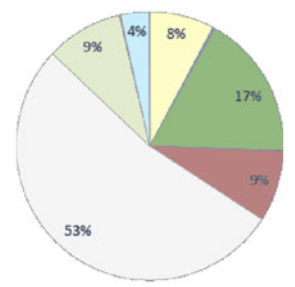
- Conservation Population 18 Mi. (2% of Total Conservation Populations)
- Core Population 18 Mi.
- Historic Distribution 509 Mi.

Barrier

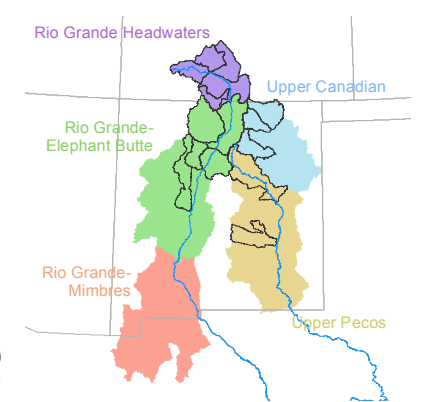
- Complete
- Partial
- Unknown

Ownership

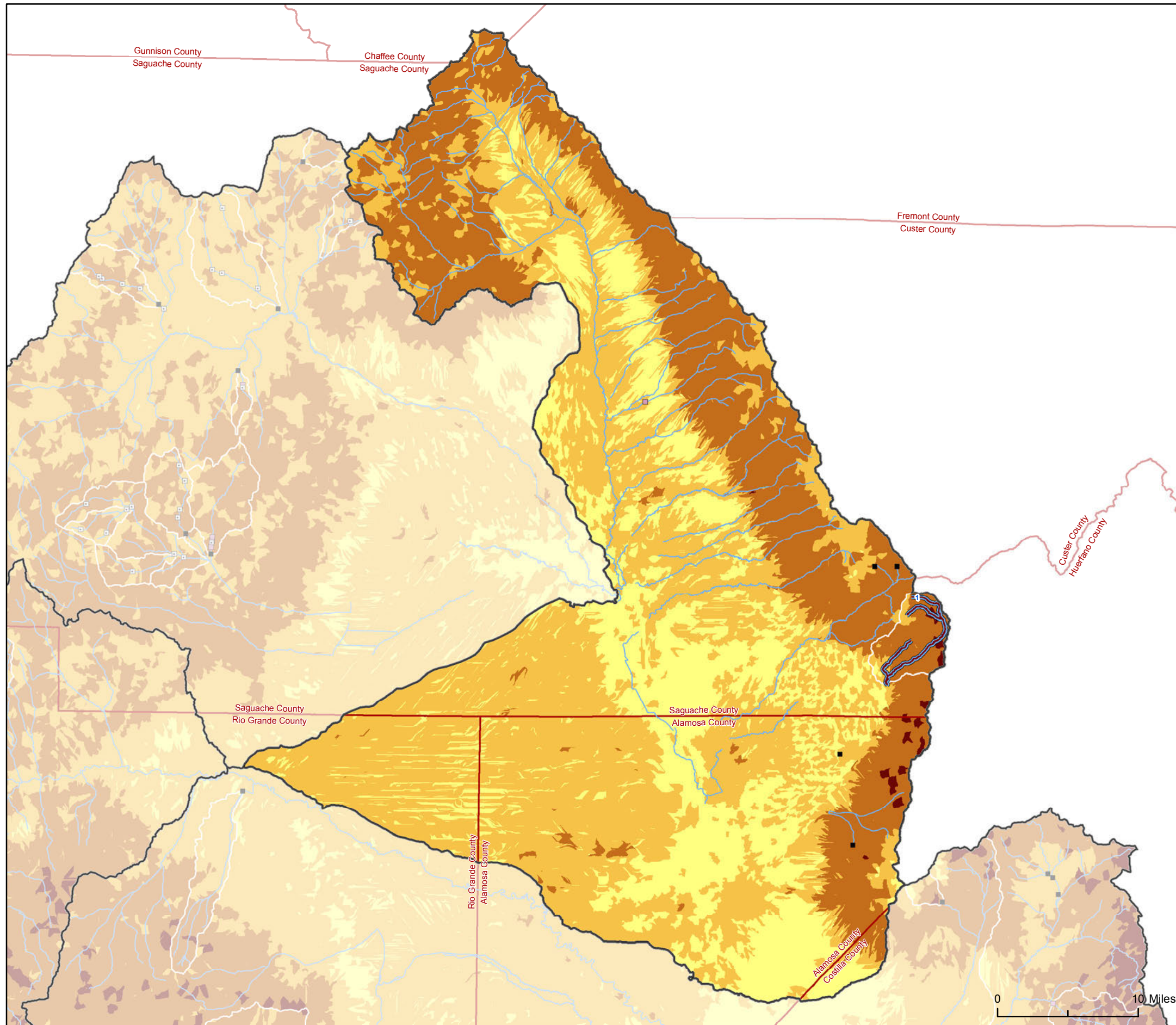
- BLM
- FWS
- NPS
- USFS
- State Trust
- State Fish & Wildlife
- Other State
- Other Federal






San Luis Watershed (13010003)
Overview






Overall Risk: Wildfire Risk + Debris Flow Risk







Rio Grande Cutthroat Trout

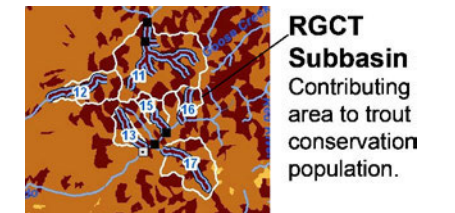
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-  Core Population 18 Mi.
-  Historic Distribution 509 Mi.

Barrier

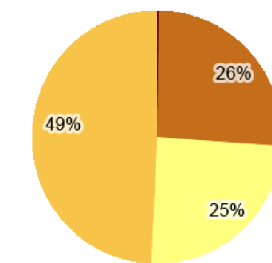
-  Complete
-  Partial
-  Unknown

Overall Risk

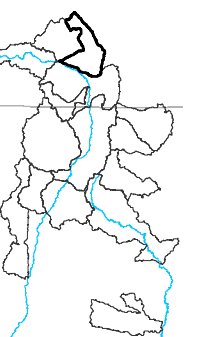
-  Low
-  Moderate
-  High
-  Extreme



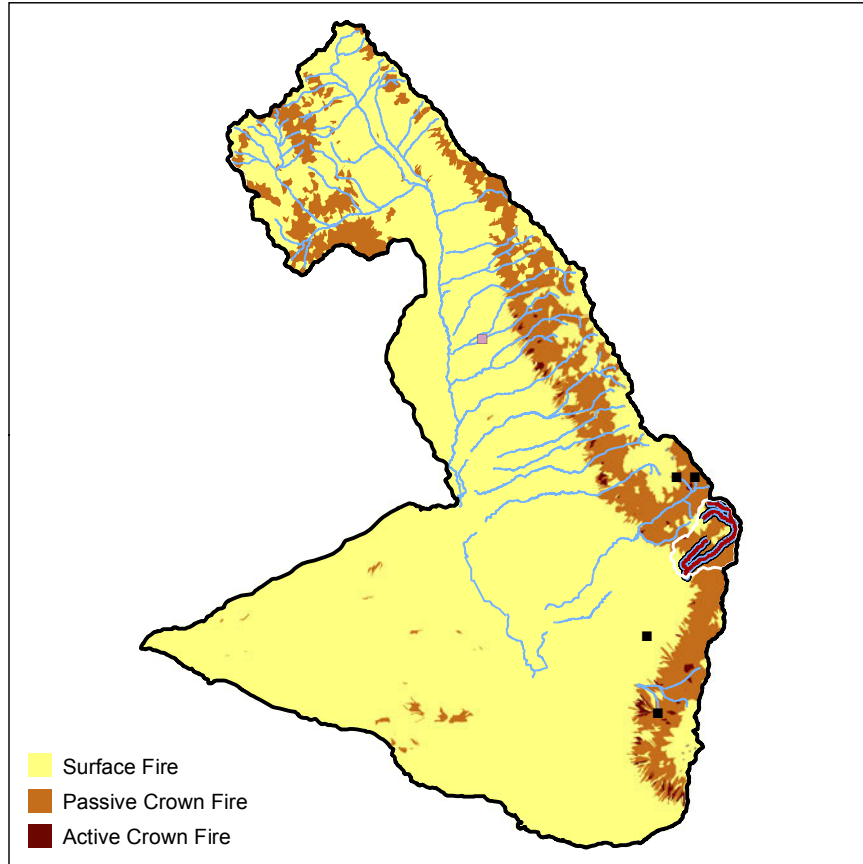
Overall Risk from fire represents the combined hazard from wildfire and debris flows. For example, areas with high overall risk indicate watersheds where if a fire starts, intense fire behavior combined with a high likelihood of and volume of debris flows post fire.



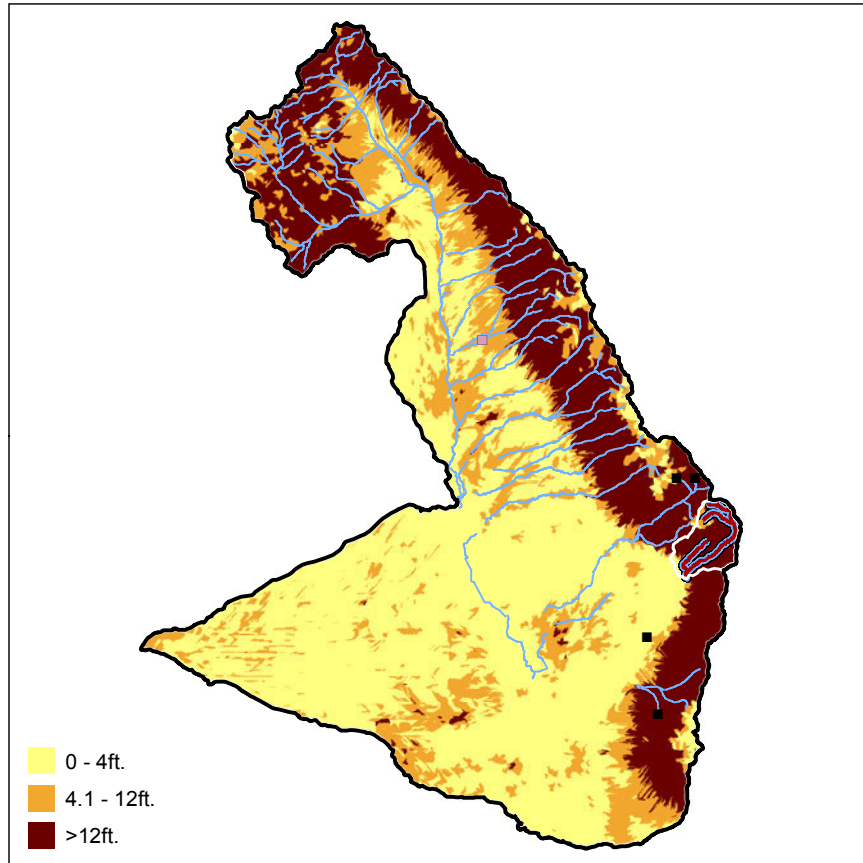
San Luis Watershed (13010003)
Overall Risk from Fire



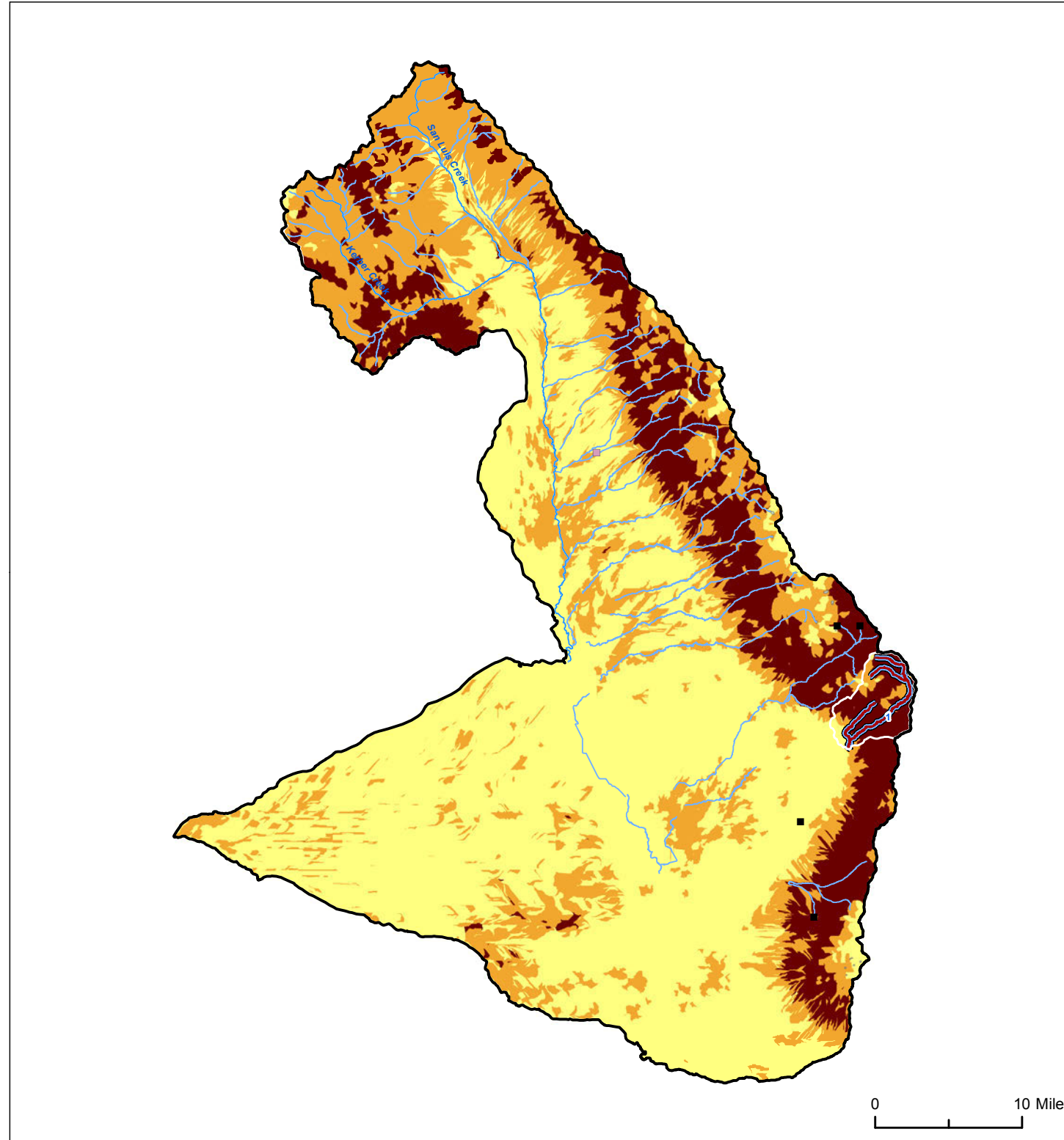
Crown Fire Potential



Flame Length



Overall Wildfire Risk



Overall Wildfire Risk can be considered as the combined hazard of both crown fire potential and flame length. Crown fire is the movement into and through the canopy. Passive crown fires are fires that move through the crown intermittently, and active crown fires are fires that carry continuously through the crowns. Crown fires typically move quickly and are very intense. Flame length is an indicator of fire intensity at the active flaming front and is a good measure of what fire suppression resources can be used on a fire. Flame lengths of <4 feet indicate fires where direct attack is feasible; flame lengths of 4 to 12 feet indicate fires with substantial resistance to control and indirect attack is recommended; flame lengths of >12 feet indicate extreme fires where control of any kind is difficult and safety of firefighters is a concern. The drainage areas at highest risk from wildfire represent areas where the majority of the drainage basin is expected to have the potential for crown fires and flame lengths of >12 feet.

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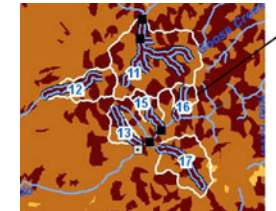
Wildfire Risk

Rio Grande Cutthroat Trout

- Conservation Population 18 Mi. (2% of Total Conservation Populations)
- Core Population 18 Mi.
- Historic Distribution 509 Mi.

Barrier

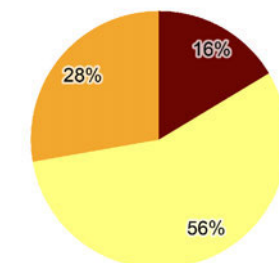
- Complete
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- Unknown



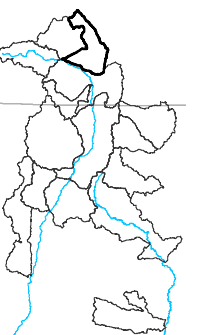
RGCT Subbasin
Contributing area to trout conservation population.

Overall Risk

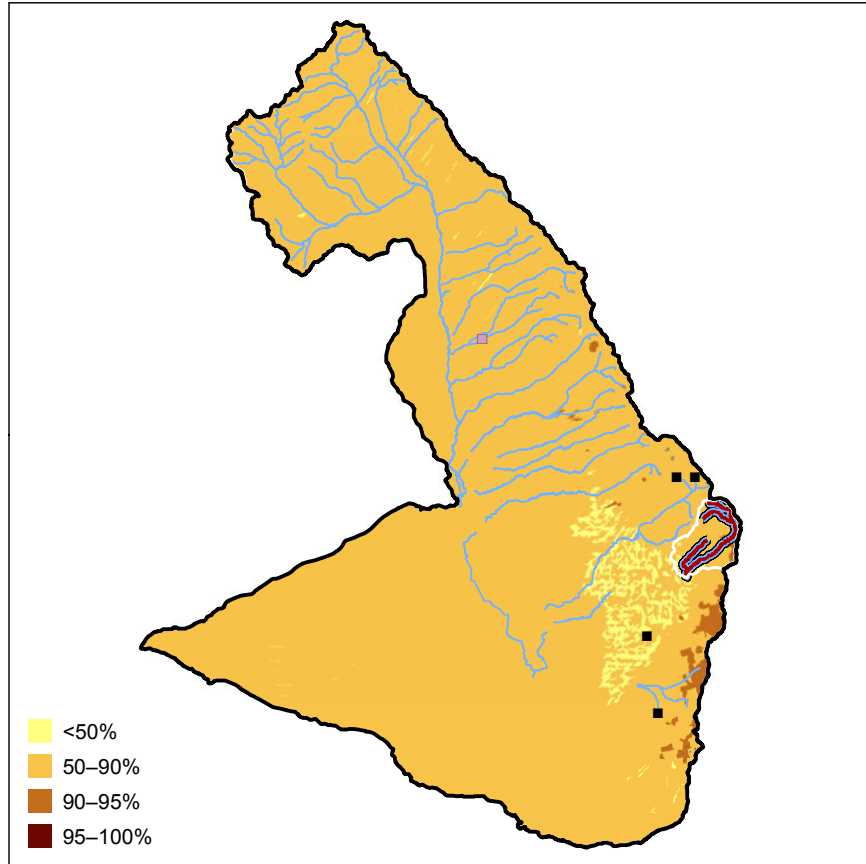
- Low
- Moderate
- High



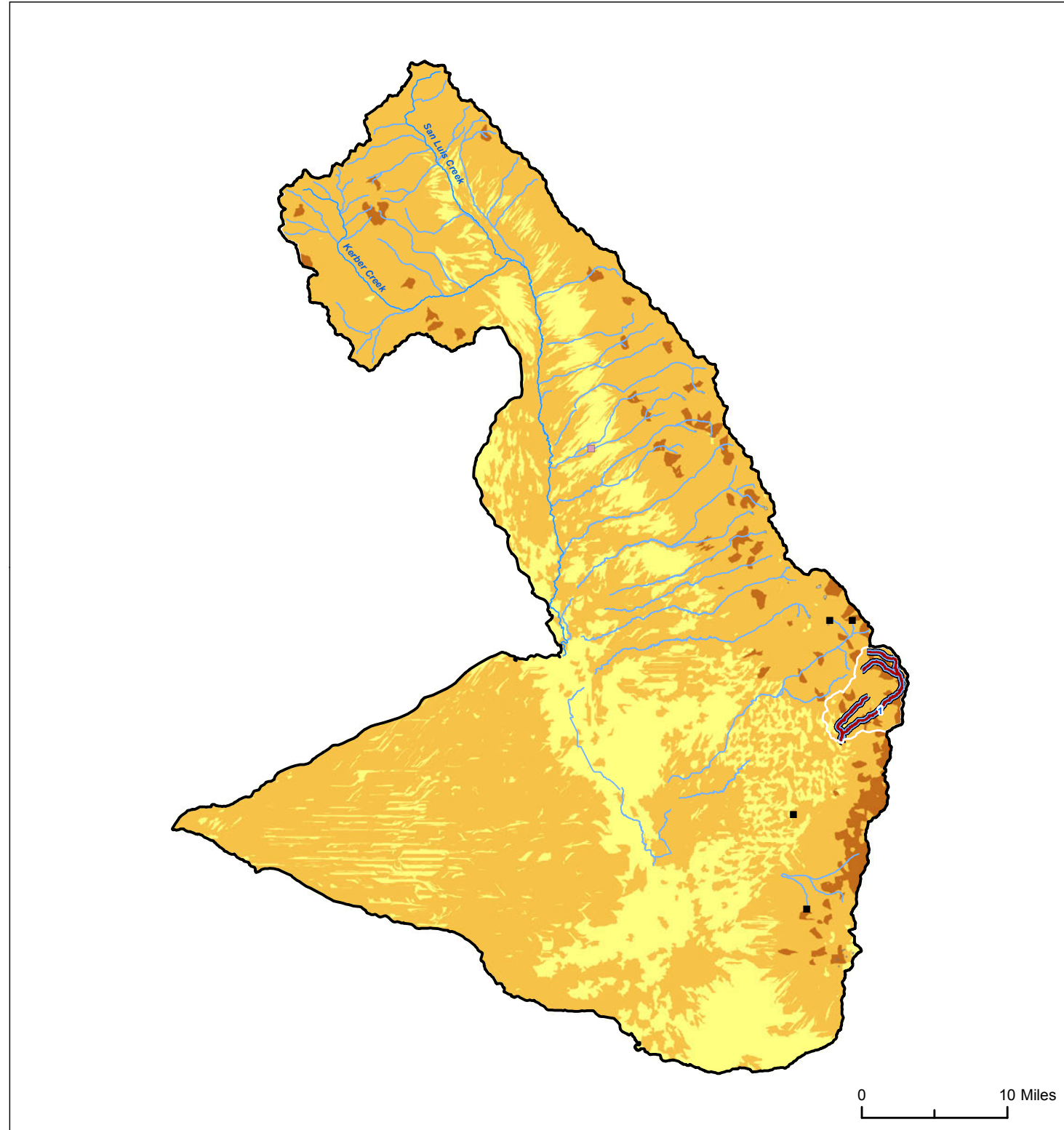
San Luis (13010003) Wildfire Risk



Debris Flow Probability



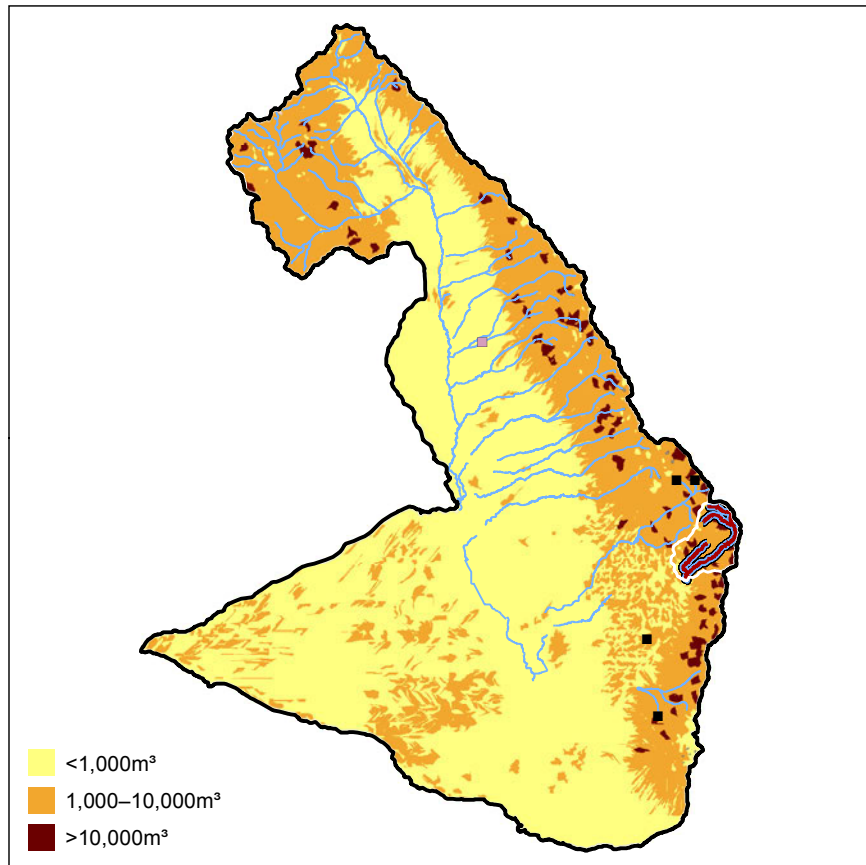
Overall Debris Flow Risk



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Estimated probability and volume of a debris flow in response to a 10-year 30-min rainfall. Estimations based on method developed by Cannon et al, 2009.

Debris Flow Volume

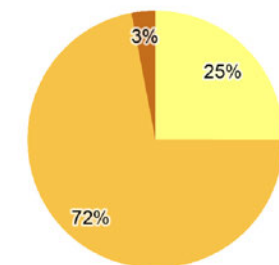
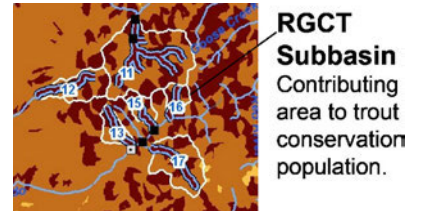


Debris Flow Risk

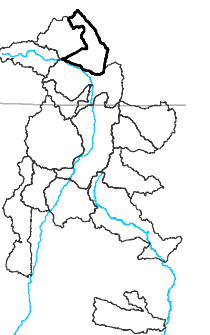
- Rio Grande Cutthroat Trout**
- Conservation Population 18 Mi. (2% of Total Conservation Populations)
 - Core Population 18 Mi.
 - Historic Distribution 509 Mi.

- Barrier**
- Complete
 - Partial
 - Unknown

- Debris Flow Risk**
- Low
 - Moderate
 - High
 - Extreme



San Luis (13010003)
Debris Flow Risk

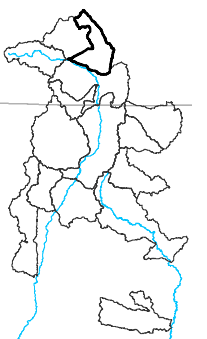


Summary Table

San Luis (13010003)

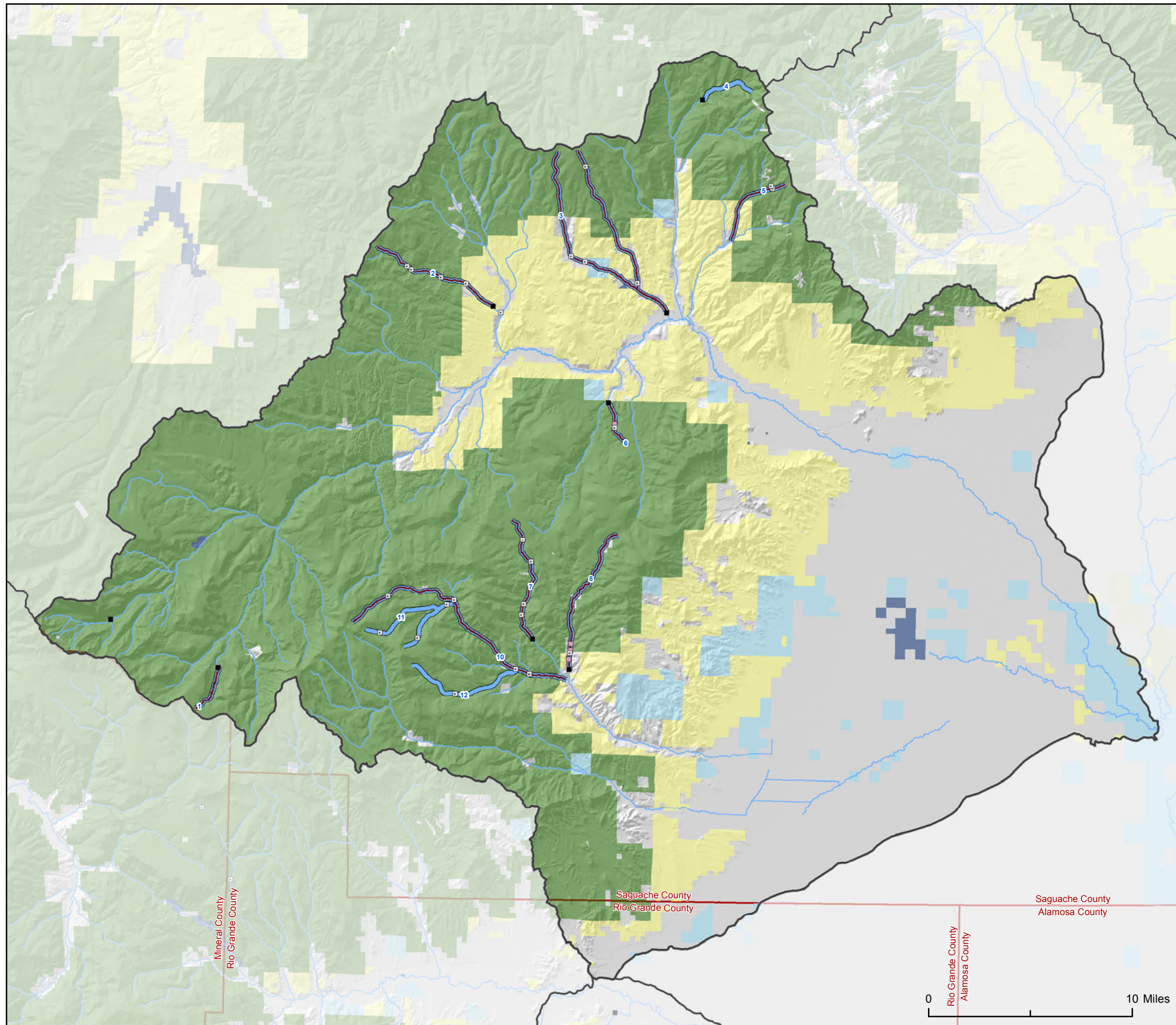
| cpID | Population Class | Area (km2) | Elevation (m) | | | Debris Flow prob. (%) | Debris Flow Volume | | Debris Flow Risk Class (mean) | | | Fire Behavior Risk Class (mean) | | | Overall Risk |
|------|---------------------------------------|------------|---------------|-------|-------|-----------------------|--------------------|------------|-------------------------------|--------|----------|---------------------------------|--------------|----------|--------------|
| | | | min | max | range | | mean (m3) | total (m3) | prob | volume | combined | crown fire | flame length | combined | |
| 01 | Core | 62.7 | 2,549 | 4,071 | 1,522 | 77.41% | 4,860.7 | 709,660.1 | 1.99 | 1.95 | 3.94 | 2 | 2.77 | 4.46 | 8.40 |
| | <i>Hudson Branch Medano Creek</i> (R) | | | | | | | | | | | | | | |
| | <i>Little Medano Creek</i> (R) | | | | | | | | | | | | | | |
| | <i>Medano Creek</i> (R) | | | | | | | | | | | | | | |

(A) and (R) indicate aboriginal and restored populations of trout.



San Luis (13010003)
Summary Table

Saguache Watershed (13010004)



Rio Grande Cutthroat Trout

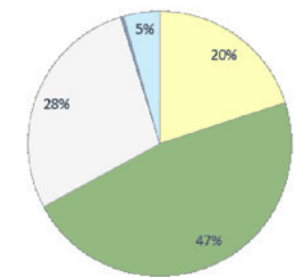
- Conservation Population 83 Mi. (11% of Total Conservation Populations)
- Core Population 65 Mi.
- Historic Distribution 542 Mi.

Barrier

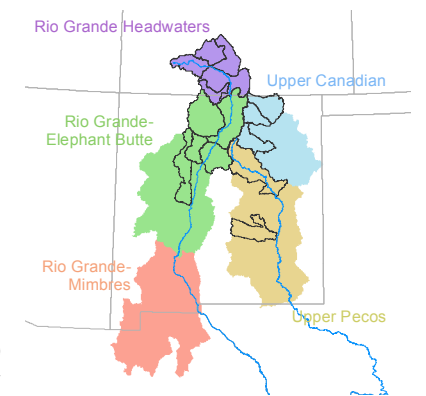
- Complete
- Partial
- Unknown

Ownership

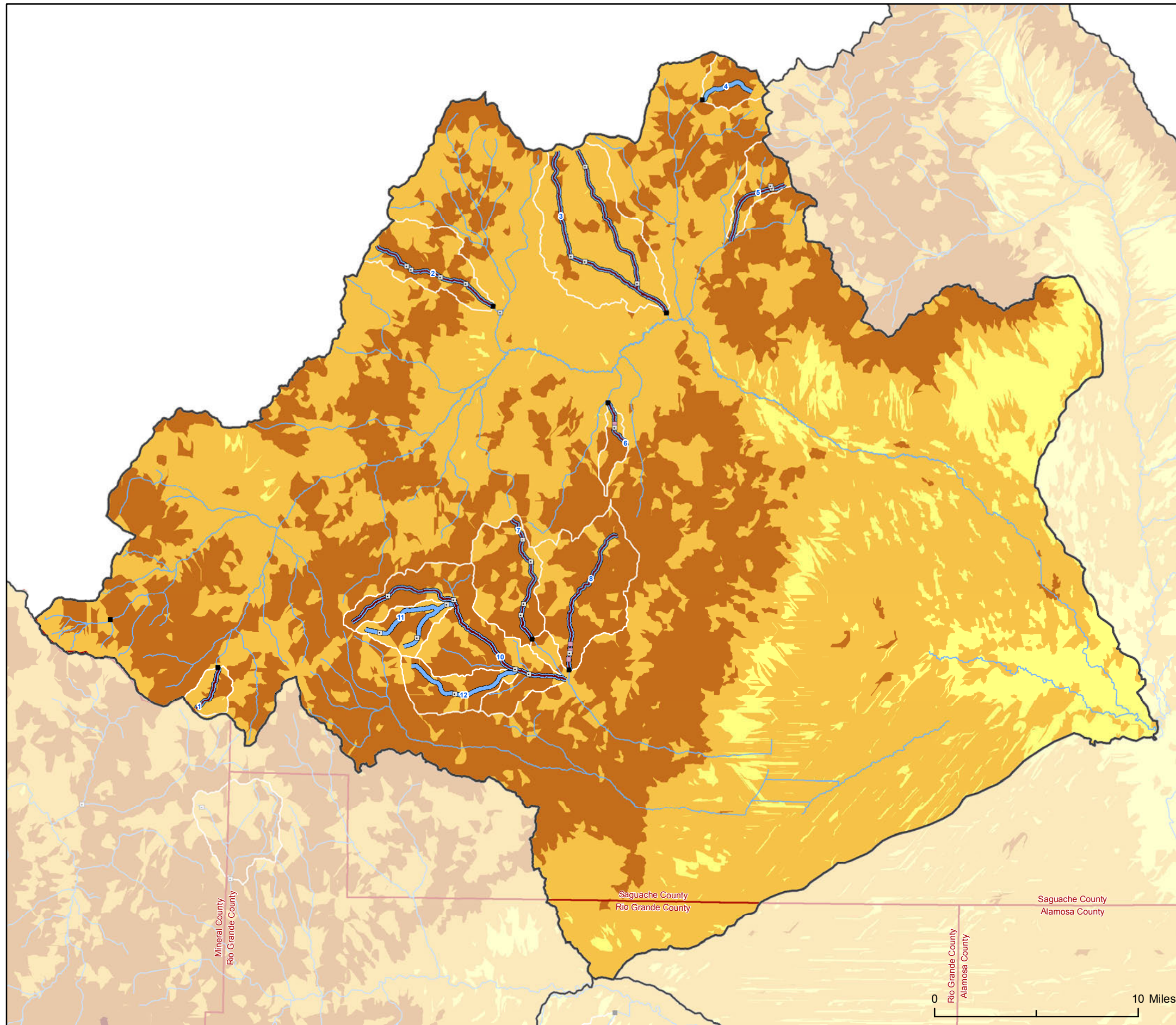
- BLM
- USFS
- State Trust
- State Fish & Wildlife
- Other Federal



Saguache Watershed (13010004)
Overview



Overall Risk: Wildfire Risk + Debris Flow Risk



Rio Grande Cutthroat Trout

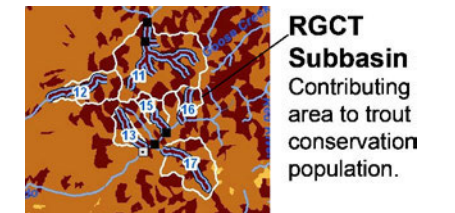
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Barrier

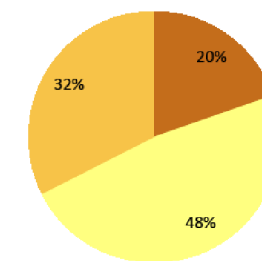
- Complete
- Partial
- Unknown

Overall Risk

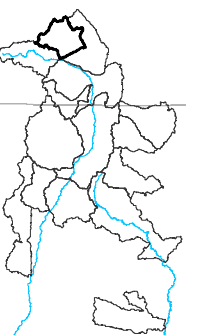
- Low
- Moderate
- High



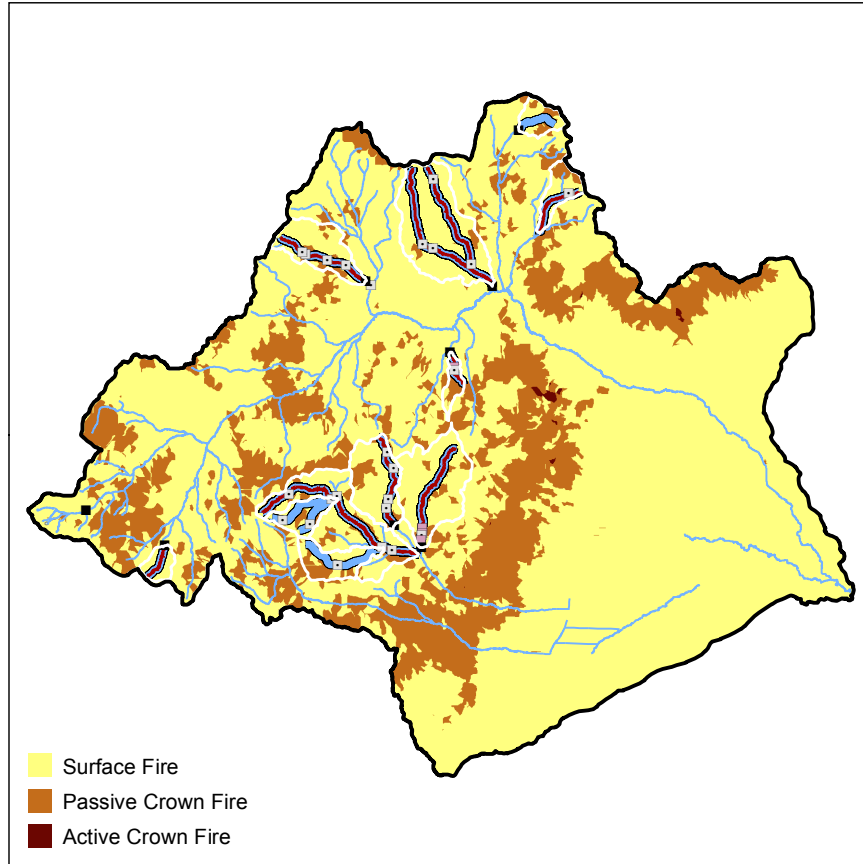
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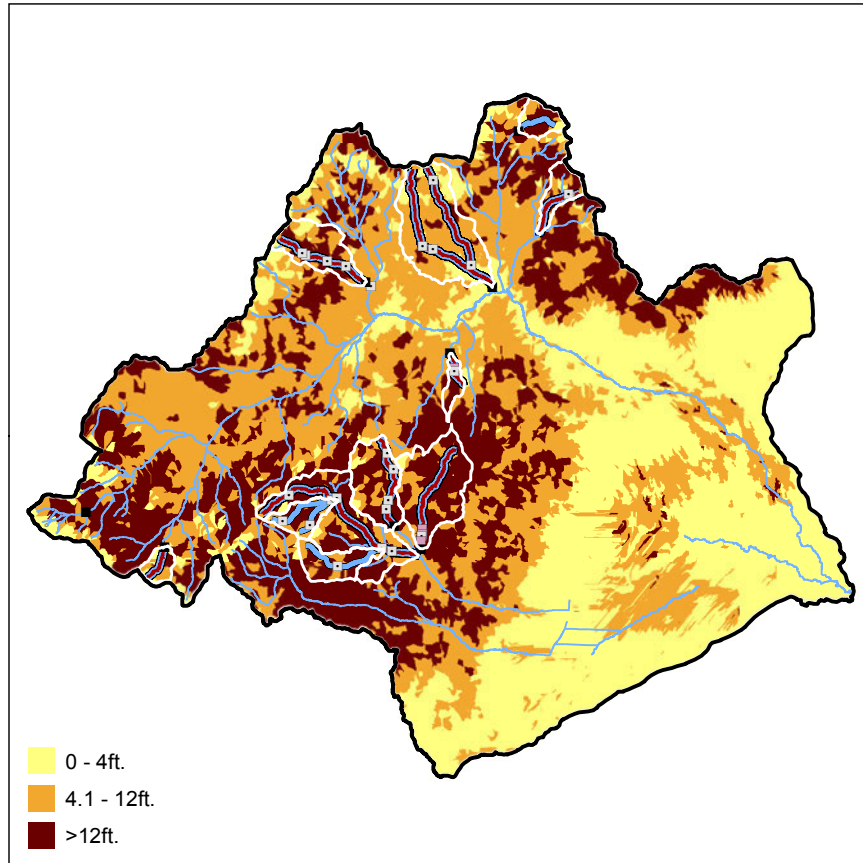
Saguache Watershed (13010004)
Overall Risk from Fire



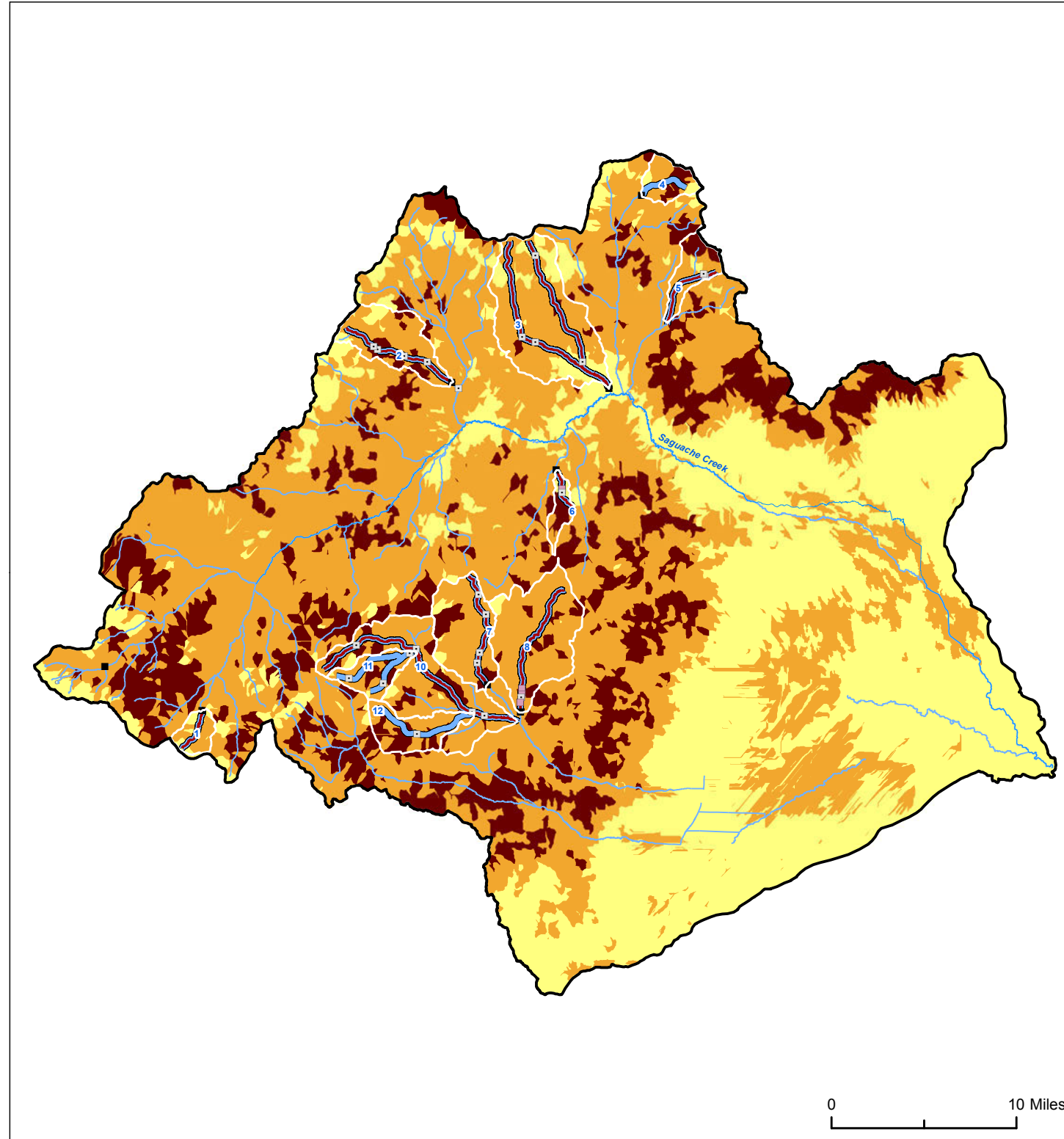
Crown Fire Potential



Flame Length



Overall Wildfire Risk



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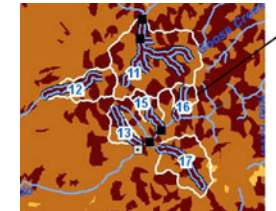
Wildfire Risk

Rio Grande Cutthroat Trout

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- Core Population 65 Mi.
- Historic Distribution 542 Mi.

Barrier

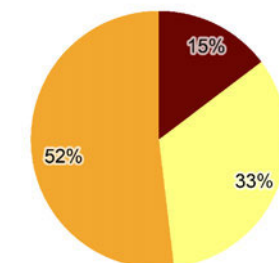
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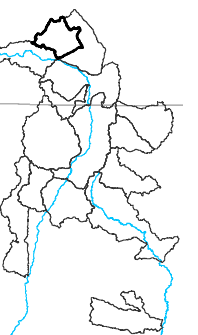
RGCT Subbasin
Contributing area to trout conservation population.

Overall Risk

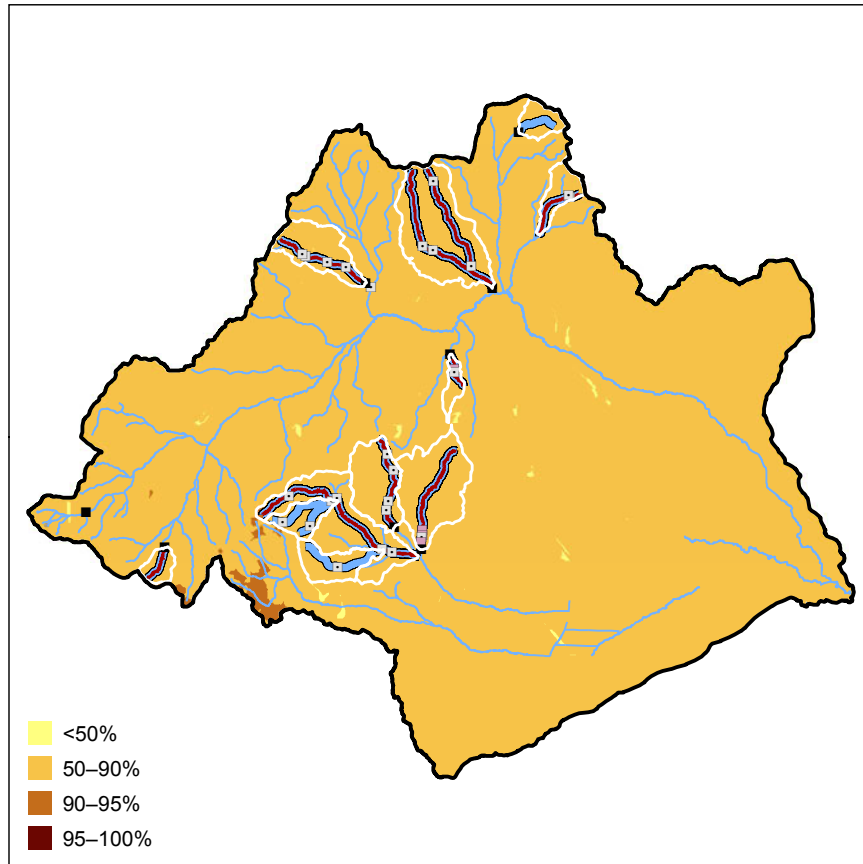
- Low
- Moderate
- High



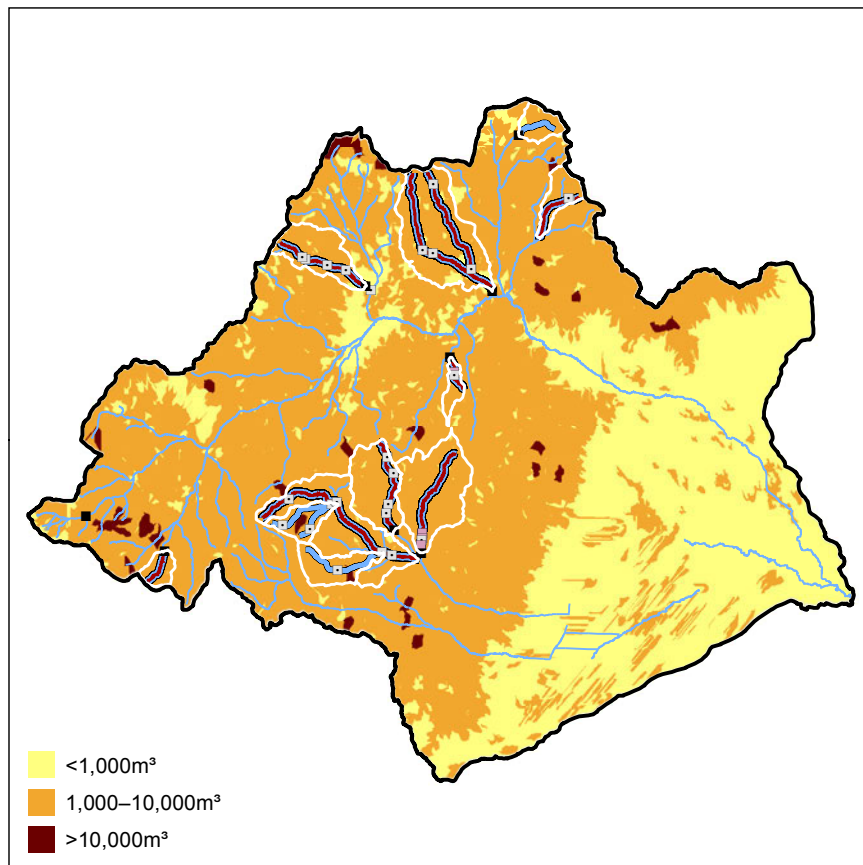
Saguache (13010004) Wildfire Risk



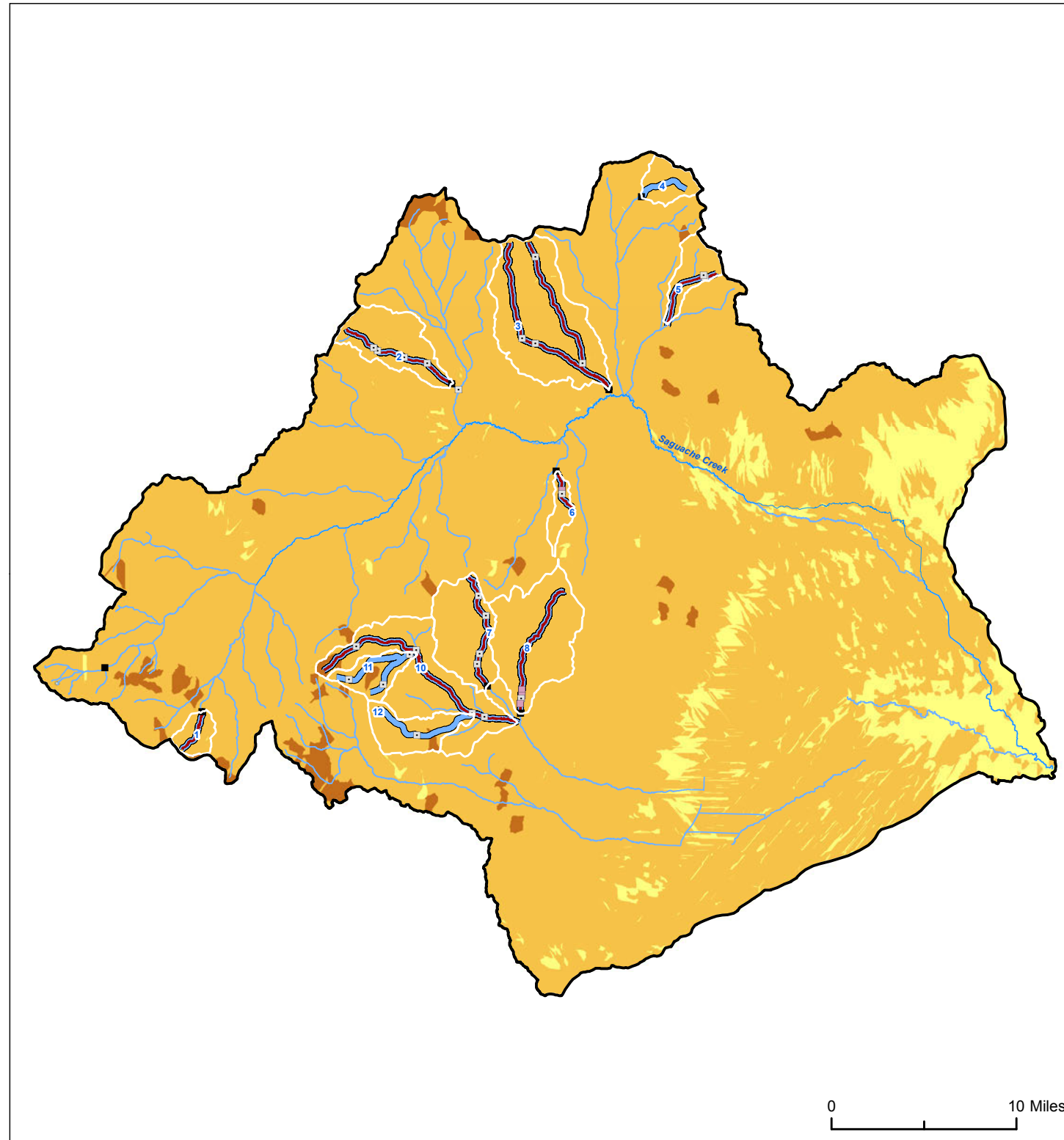
Debris Flow Probability



Debris Flow Volume



Overall Debris Flow Risk



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Estimated probability and volume of a debris flow in response to a 10-year 30-min rainfall. Estimations based on method developed by Cannon et al, 2009.

Debris Flow Risk

Rio Grande Cutthroat Trout

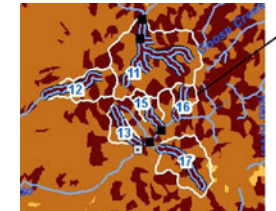
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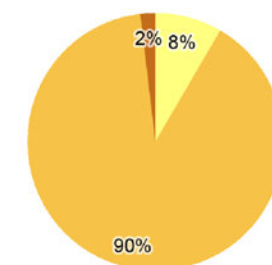
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- Partial
- Unknown

Debris Flow Risk

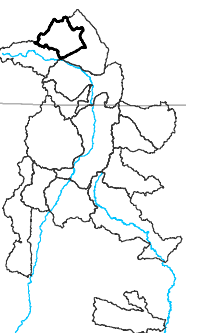
- Low
- Moderate
- High
- Extreme



RGCT Subbasin
Contributing area to trout conservation population.



Saguache (13010004)
Debris Flow Risk

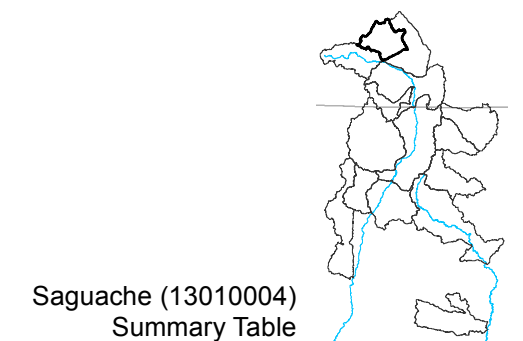


Summary Table

Saguache (13010004)

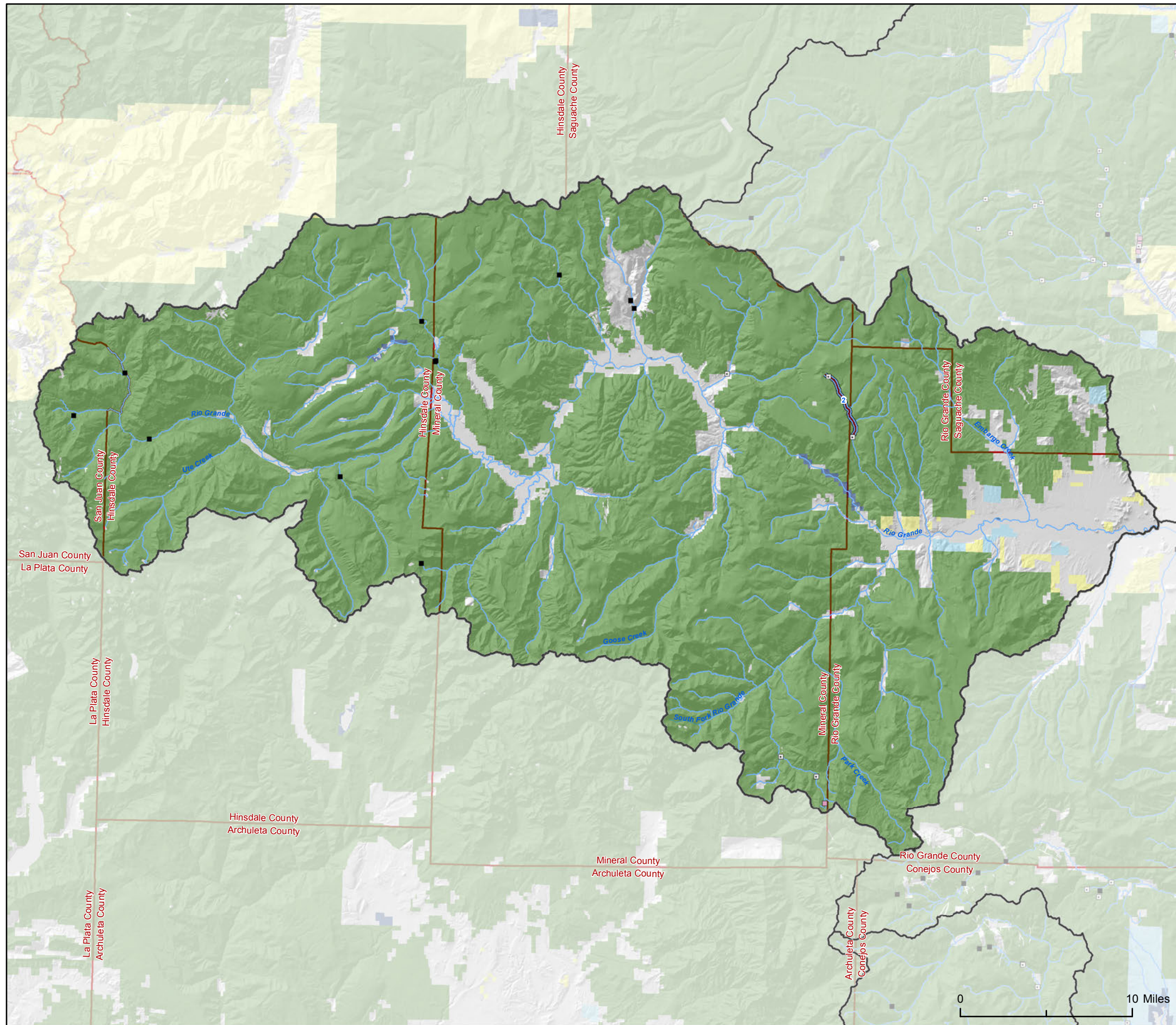
| cpID | Population Class | Area (km2) | Elevation (m) | | | Debris Flow prob. (%) | Debris Flow Volume | | Debris Flow Risk Class (mean) | | | Fire Behavior Risk Class (mean) | | | Overall Risk |
|---|------------------|------------|---------------|-------|-------|-----------------------|--------------------|------------|-------------------------------|--------|----------|---------------------------------|--------------|----------|--------------|
| | | | min | max | range | | mean (m3) | total (m3) | prob | volume | combined | crown fire | flame length | combined | |
| 01 | Core | 10.1 | 3,329 | 3,757 | 428 | 84.07% | 2,467.2 | 44,409.1 | 2.00 | 1.89 | 3.89 | 1 | 1.89 | 2.83 | 6.72 |
| <i>Whale Creek (A)</i> | | | | | | | | | | | | | | | |
| 02 | Core | 37.2 | 2,613 | 3,349 | 736 | 73.64% | 2,399.7 | 175,179.6 | 1.99 | 1.79 | 3.78 | 1 | 2.33 | 3.49 | 7.27 |
| <i>East Pass Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>Unnamed Trib. to East Pass Creek (A)</i> | | | | | | | | | | | | | | | |
| 03 | Core | 88.2 | 2,465 | 3,576 | 1,111 | 77.97% | 2,115.3 | 380,760.8 | 2.00 | 1.76 | 3.76 | 1 | 1.87 | 2.91 | 6.67 |
| <i>Cross Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>Jacks Creek (A)</i> | | | | | | | | | | | | | | | |
| 04 | Conservation | 13.9 | 2,983 | 4,036 | 1,053 | 82.64% | 3,755.5 | 93,887.8 | 2.00 | 1.88 | 3.88 | 1 | 2.44 | 3.84 | 7.72 |
| <i>East Middle Creek (R)</i> | | | | | | | | | | | | | | | |
| 05 | Core | 16.6 | 2,688 | 3,704 | 1,016 | 82.43% | 3,616.3 | 97,639.3 | 2.00 | 1.93 | 3.93 | 1 | 2.44 | 3.70 | 7.63 |
| <i>Tuttle Creek (R)</i> | | | | | | | | | | | | | | | |
| 06 | Core | 8.3 | 2,585 | 3,309 | 724 | 77.11% | 3,814.7 | 57,221.0 | 2.00 | 2.00 | 4.00 | 2 | 2.40 | 3.93 | 7.93 |
| <i>Big Springs Creek (R)</i> | | | | | | | | | | | | | | | |
| 07 | Core | 42.0 | 2,751 | 3,505 | 754 | 82.25% | 3,555.5 | 259,554.6 | 2.00 | 1.93 | 3.93 | 1 | 2.47 | 3.68 | 7.62 |
| <i>Middle Fork Camero Creek (A)</i> | | | | | | | | | | | | | | | |
| 08 | Core | 65.3 | 2,645 | 3,419 | 774 | 81.61% | 3,106.5 | 372,776.1 | 2.00 | 1.92 | 3.92 | 1 | 2.64 | 3.77 | 7.68 |
| <i>North Fork Camero Creek (A)</i> | | | | | | | | | | | | | | | |
| 10 | Core | 73.3 | 2,626 | 3,794 | 1,168 | 80.44% | 3,669.4 | 458,672.6 | 2.00 | 1.93 | 3.93 | 1 | 2.63 | 3.85 | 7.78 |
| <i>South Camero Creek (A)</i> | | | | | | | | | | | | | | | |
| 11 | Conservation | 17.1 | 2,975 | 3,786 | 811 | 85.38% | 4,593.2 | 119,423.8 | 2.00 | 2.00 | 4.00 | 1 | 2.31 | 3.50 | 7.50 |
| <i>Miners Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>Prong Creek (A)</i> | | | | | | | | | | | | | | | |
| 12 | Conservation | 23.7 | 2,755 | 3,784 | 1,029 | 84.21% | 4,437.4 | 186,370.3 | 2.00 | 2.00 | 4.00 | 1 | 2.55 | 4.00 | 8.00 |
| <i>Cave Creek (A)</i> | | | | | | | | | | | | | | | |

(A) and (R) indicate aboriginal and restored populations of trout.



Saguache (13010004)
Summary Table

Rio Grande Headwaters (13010001)



Rio Grande Cutthroat Trout

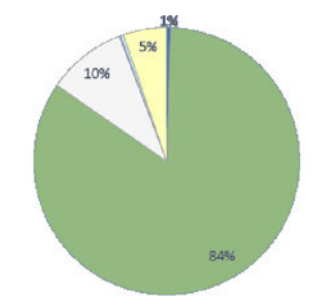
- Conservation Population 4 Mi. (1% of Total Conservation Populations)
- Core Population 4 Mi.
- Historic Distribution 816 Mi.

Barrier

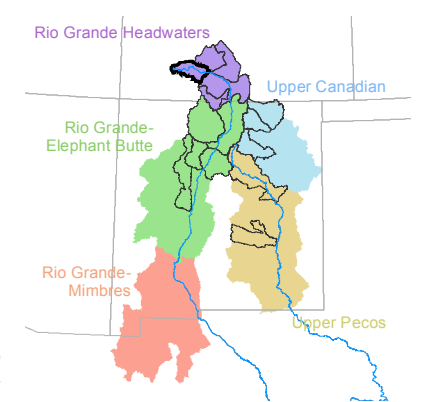
- Complete
- Partial
- Unknown

Ownership

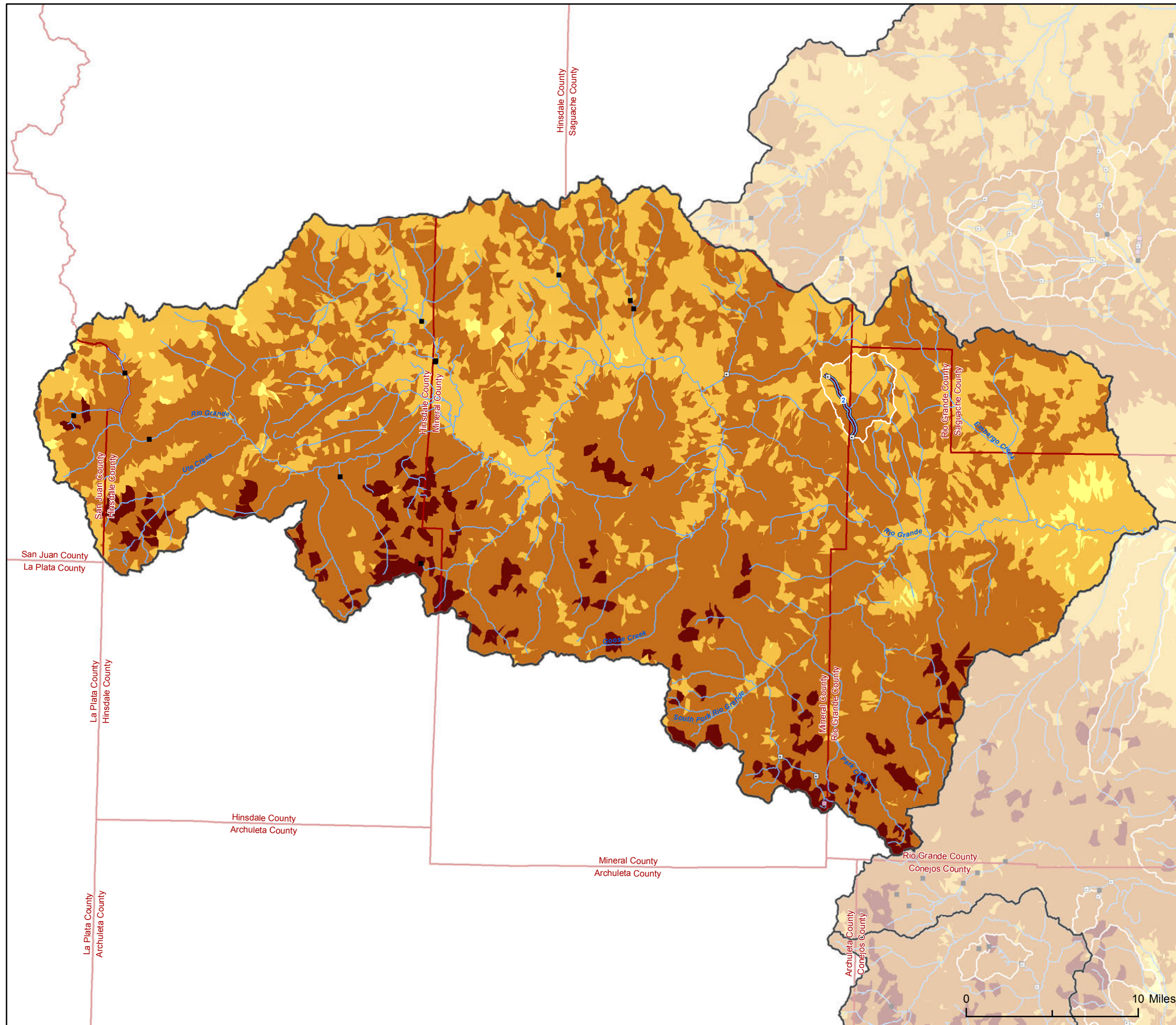
- BLM
- USFS
- State Trust
- State Fish & Wildlife



Rio Grande Headwaters (13010001)
Overview



Overall Risk: Wildfire Risk + Debris Flow Risk



Rio Grande Cutthroat Trout

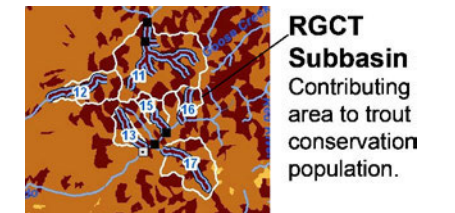
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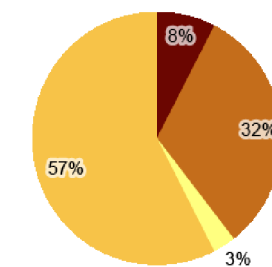
- Complete
- Partial
- Unknown

Overall Risk

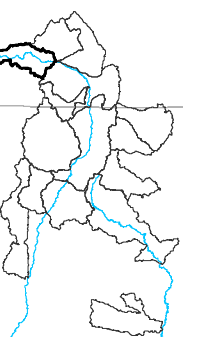
- Low
- Moderate
- High
- Extreme



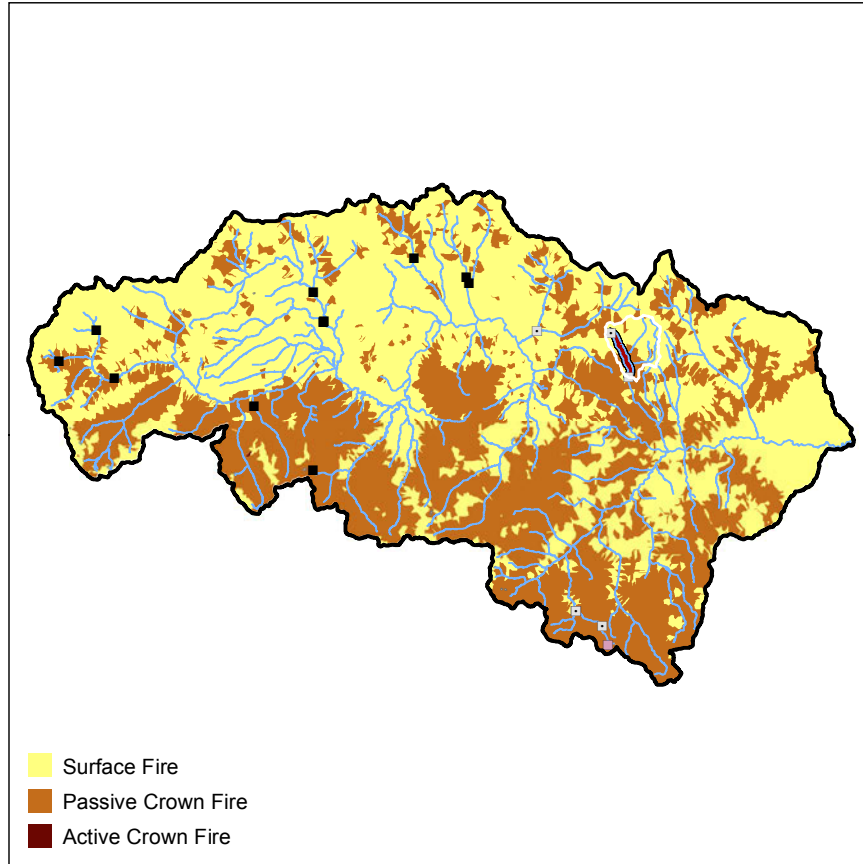
Overall Risk from fire represents the combined hazard from wildfire and debris flows. For example, areas with high overall risk indicate watersheds where if a fire starts, intense fire behavior combined with a high likelihood of and volume of debris flows post fire.



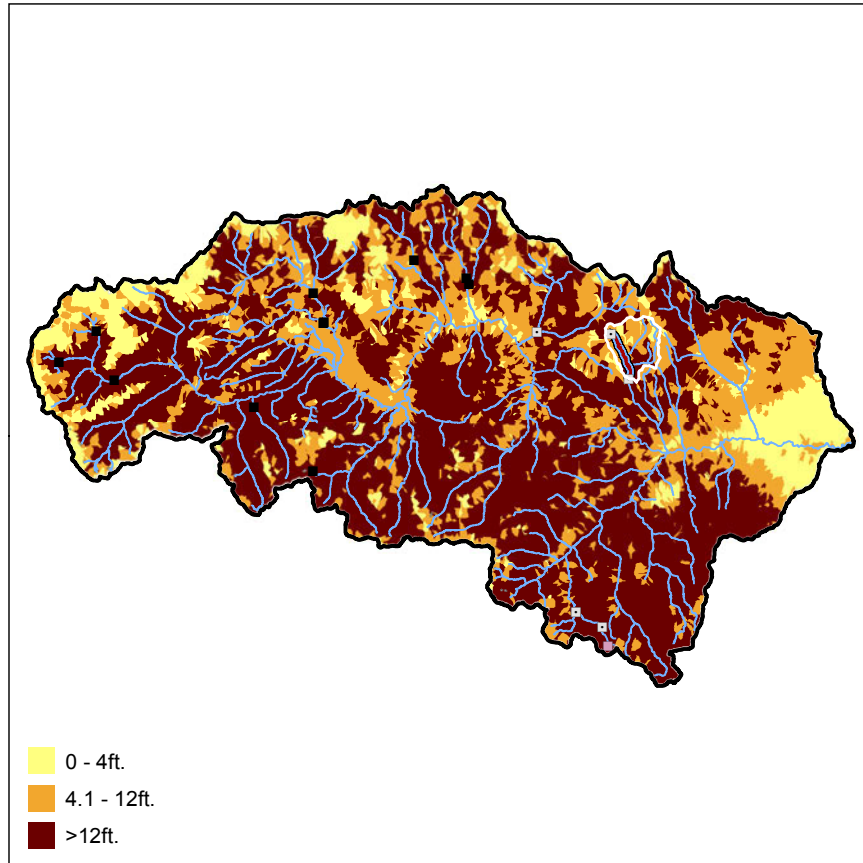
Rio Grande Headwaters (13010001)
Overall Risk from Fire



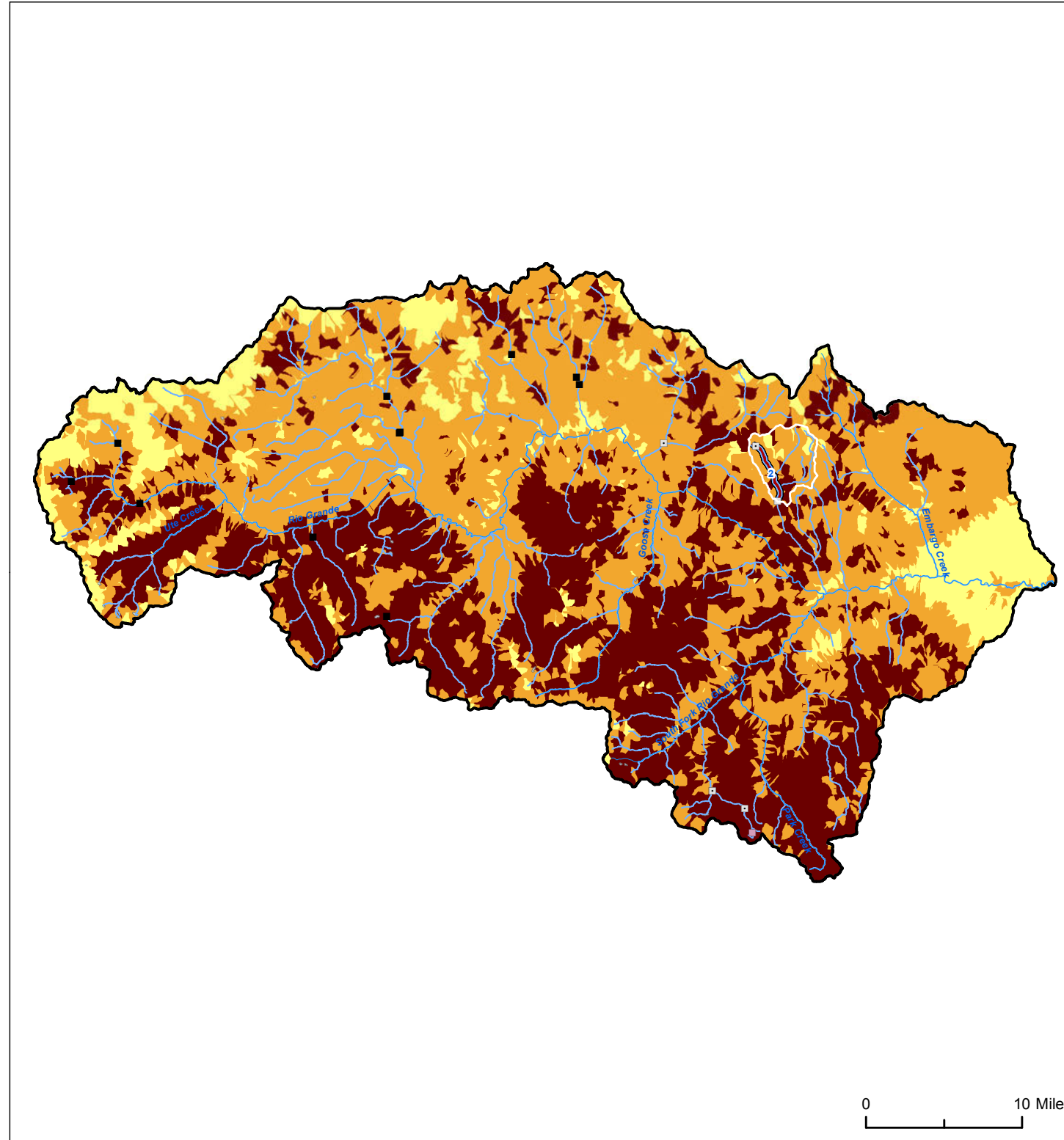
Crown Fire Potential



Flame Length



Overall Wildfire Risk



Overall Wildfire Risk can be considered as the combined hazard of both crown fire potential and flame length. Crown fire is the movement into and through the canopy. Passive crown fires are fires that move through the crown intermittently, and active crown fires are fires that carry continuously through the crowns. Crown fires typically move quickly and are very intense. Flame length is an indicator of fire intensity at the active flaming front and is a good measure of what fire suppression resources can be used on a fire. Flame lengths of <4 feet indicate fires where direct attack is feasible; flame lengths of 4 to 12 feet indicate fires with substantial resistance to control and indirect attack is recommended; flame lengths of >12 feet indicate extreme fires where control of any kind is difficult and safety of firefighters is a concern. The drainage areas at highest risk from wildfire represent areas where the majority of the drainage basin is expected to have the potential for crown fires and flame lengths of >12 feet.

Crown fire potential and expected flame lengths were modeled using FlamMap, an interagency fire behavior mapping and analysis program. Details on the modeling effort can be found in Appendix A.

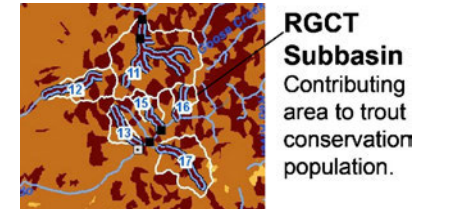
Wildfire Risk

Rio Grande Cutthroat Trout

- Conservation Population 4 Mi. (1% of Total Conservation Populations)
- Core Population 4 Mi.
- Historic Distribution 816 Mi.

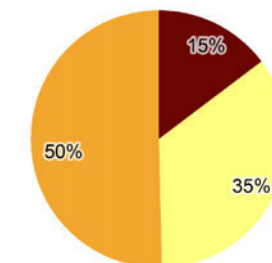
Barrier

- Complete
- Partial
- Unknown

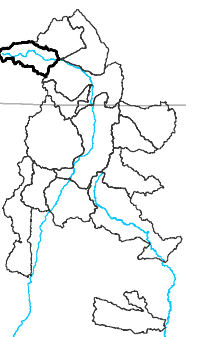


Overall Risk

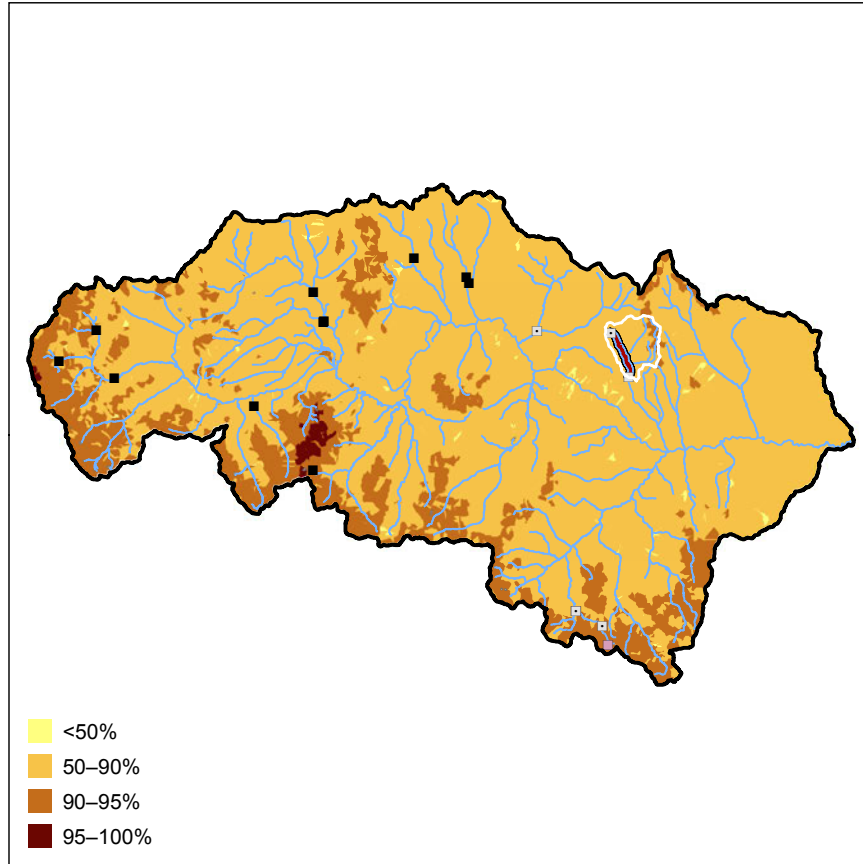
- Low
- Moderate
- High



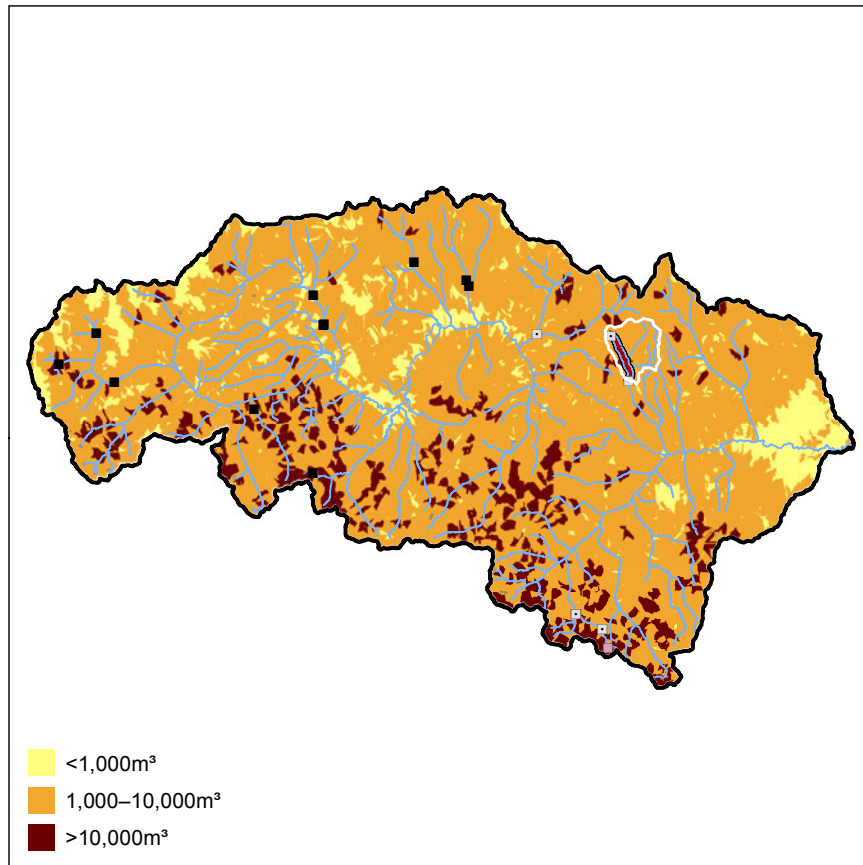
Rio Grande Headwaters (13010001) Wildfire Risk



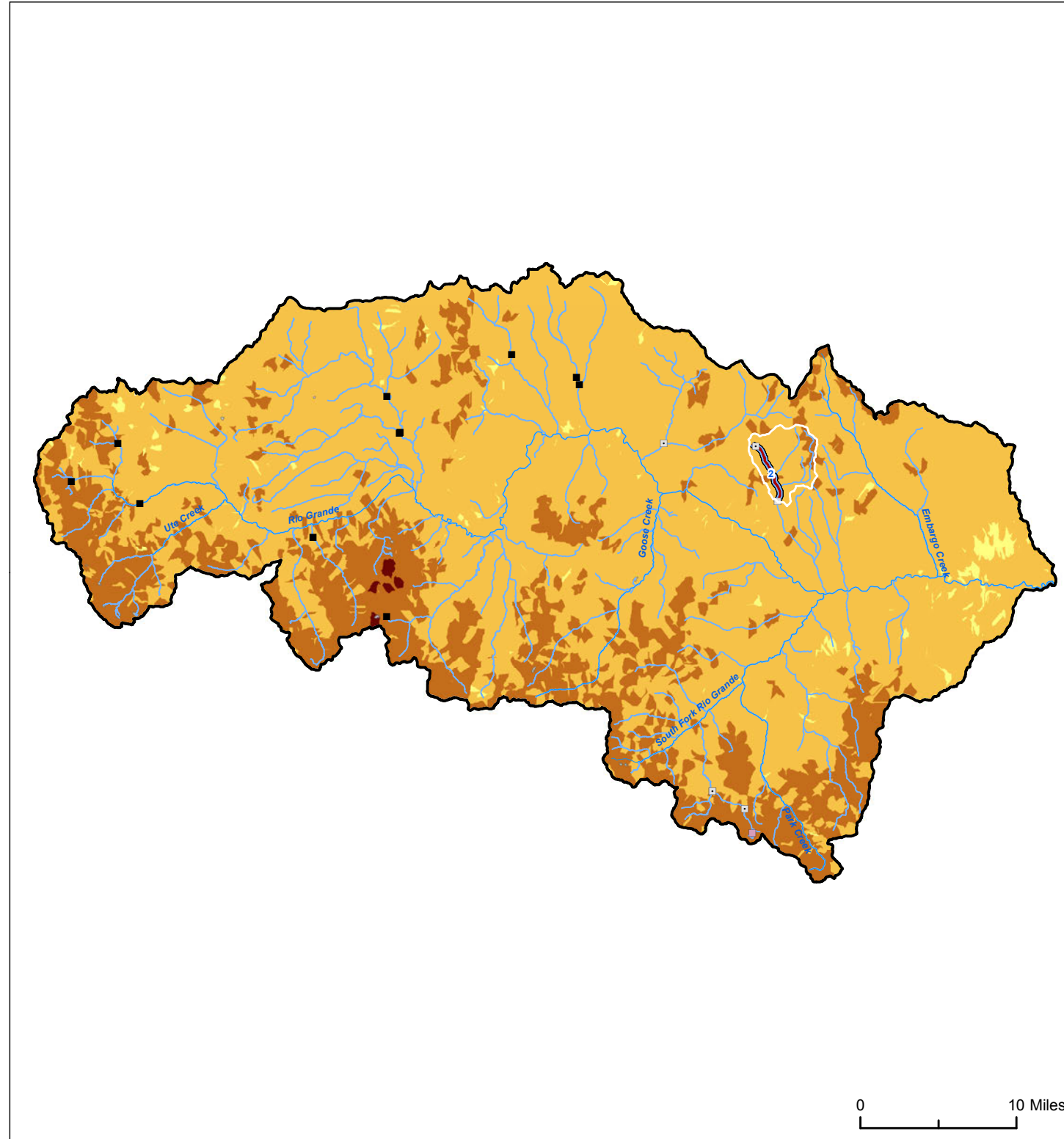
Debris Flow Probability



Debris Flow Volume



Overall Debris Flow Risk



Overall Debris Flow Risk can be considered as the combined hazard of both probability and volume. For example, the most hazardous drainage areas will show both a high probability of occurrence and a large estimated volume of material.

Estimated probability and volume of a debris flow in response to a 10-year 30-min rainfall. Estimations based on method developed by Cannon et al, 2009.

Debris Flow Risk

Rio Grande Cutthroat Trout

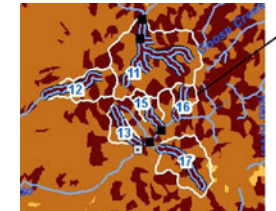
- Conservation Population 4 Mi. (1% of Total Conservation Populations)
- Core Population 4 Mi.
- Historic Distribution 816 Mi.

Barrier

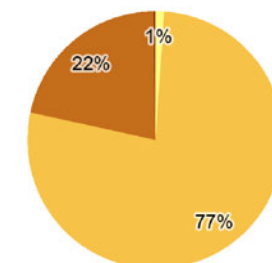
- Complete
- Partial
- Unknown

Debris Flow Risk

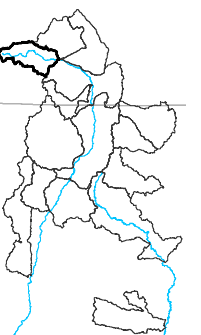
- Low
- Moderate
- High
- Extreme



RGCT Subbasin
Contributing area to trout conservation population.



Rio Grande Headwaters (13010001) Debris Flow Risk

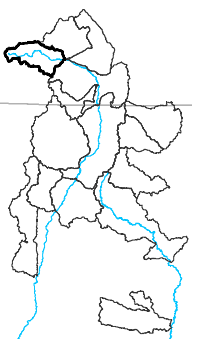


Summary Table

Rio Grande Headwaters (13010001)

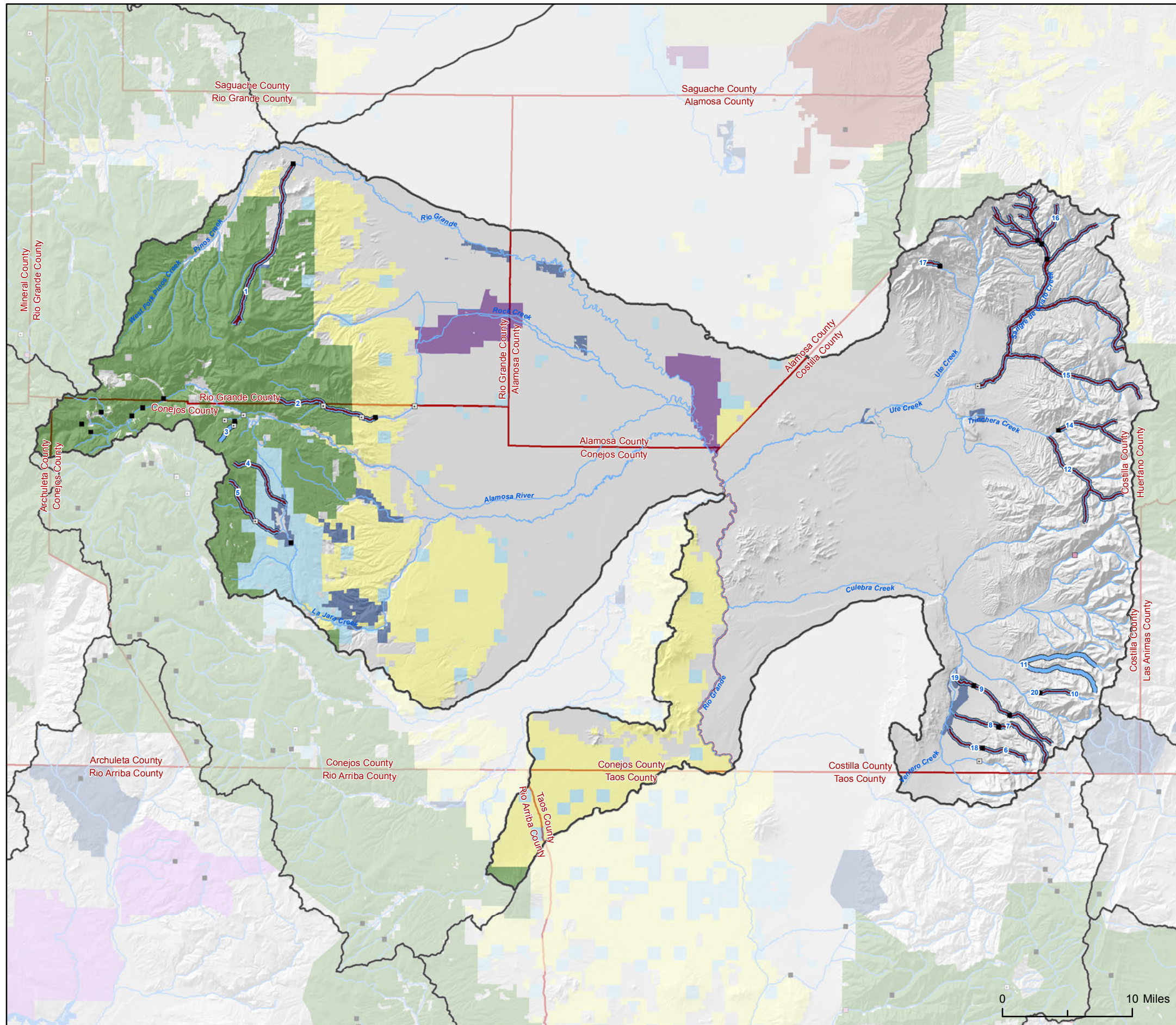
| cpID | Population Class | Area (km2) | Elevation (m) | | | Debris Flow prob. (%) | Debris Flow Volume | | Debris Flow Risk Class (mean) | | | Fire Behavior Risk Class (mean) | | | Overall Risk |
|-----------------------------|------------------|------------|---------------|-------|-------|-----------------------|--------------------|------------|-------------------------------|--------|----------|---------------------------------|--------------|----------|--------------|
| | | | min | max | range | | mean (m3) | total (m3) | prob | volume | combined | crown fire | flame length | combined | |
| 02 | Core | 39.7 | 2,971 | 3,727 | 755 | 86.20% | 3,466.6 | 259,993.5 | 2.15 | 1.92 | 4.07 | 1 | 2.19 | 3.44 | 7.51 |
| <i>West Alder Creek</i> (A) | | | | | | | | | | | | | | | |

(A) and (R) indicate aboriginal and restored populations of trout.



Rio Grande Headwaters (13010001)
Summary Table

Alamosa-Trinchera (13010002)



Rio Grande Cutthroat Trout

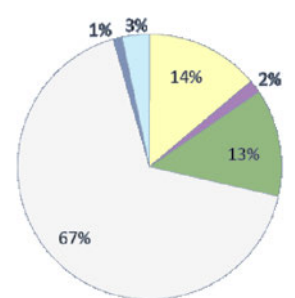
- Conservation Population 183 Mi. (24% of Total Conservation Populations)
- Core Population 167 Mi.
- Historic Distribution 946 Mi.

Barrier

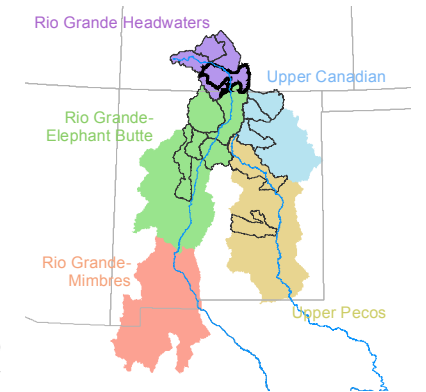
- Complete
- Partial
- Unknown

Ownership

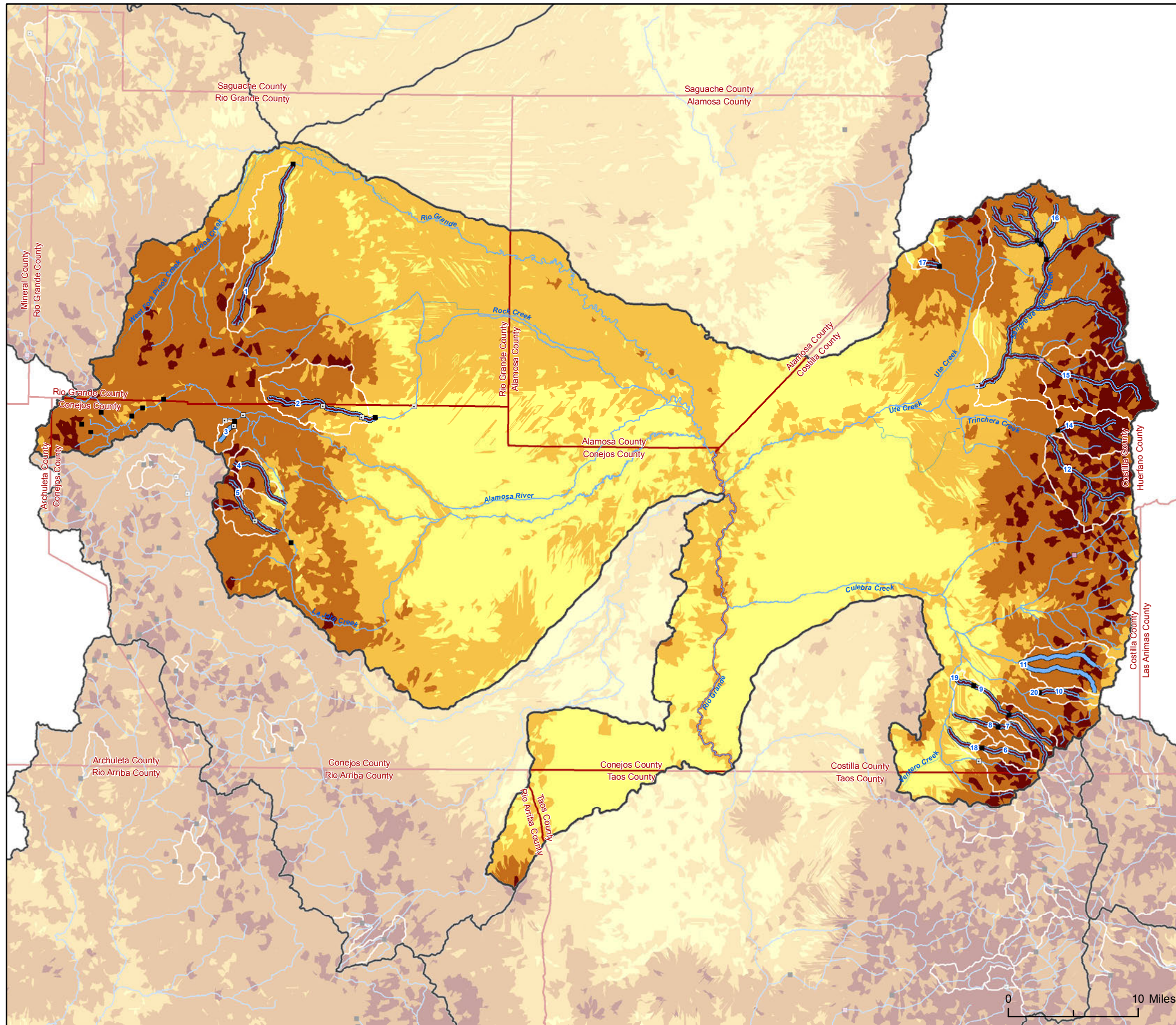
- BLM
- FWS
- USFS
- State Trust
- State Fish & Wildlife



Alamosa-Trinchera (13010002)
Overview



Overall Risk: Wildfire Risk + Debris Flow Risk



Rio Grande Cutthroat Trout

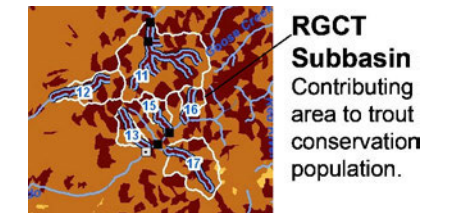
- Conservation Population 183 Mi. (24% of Total Conservation Populations)
- Core Population 167 Mi.
- Historic Distribution 946 Mi.

Barrier

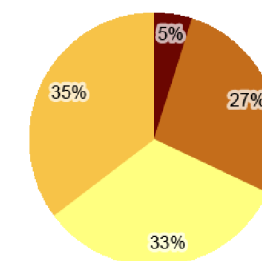
- Complete
- Partial
- Unknown

Overall Risk

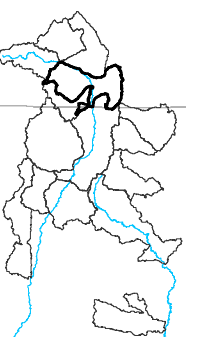
- Low
- Moderate
- High
- Extreme



Overall Risk from fire represents the combined hazard from wildfire and debris flows. For example, areas with high overall risk indicate watersheds where if a fire starts, intense fire behavior combined with a high likelihood of and volume of debris flows post fire.

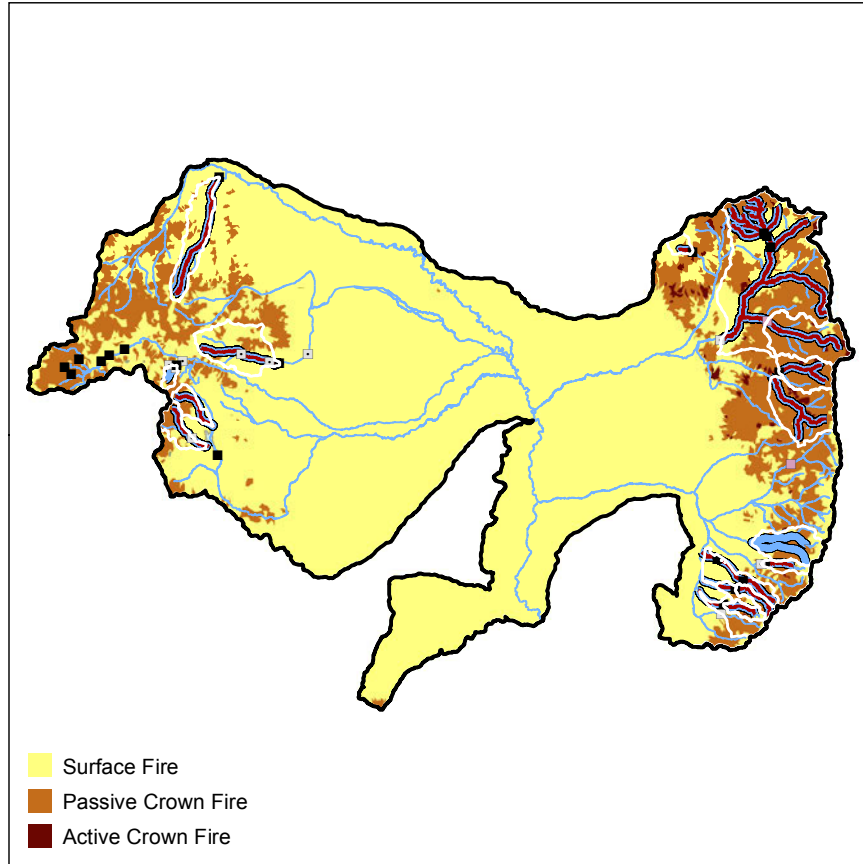


Alamosa-Trinchera (13010002)
Overall Risk from Fire

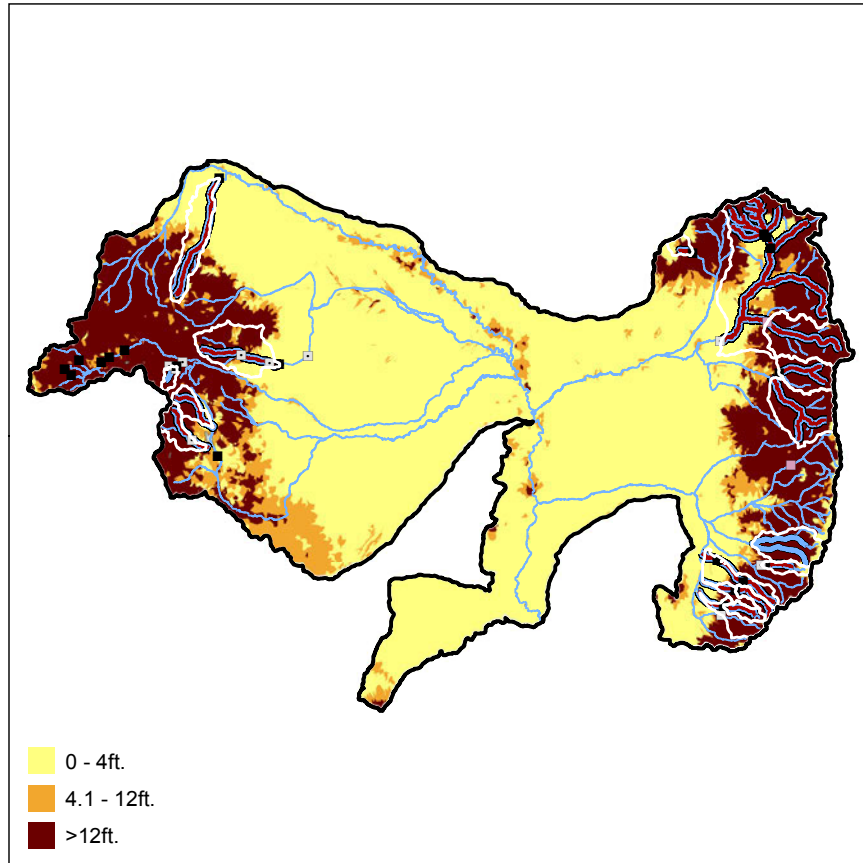


0 10 Miles

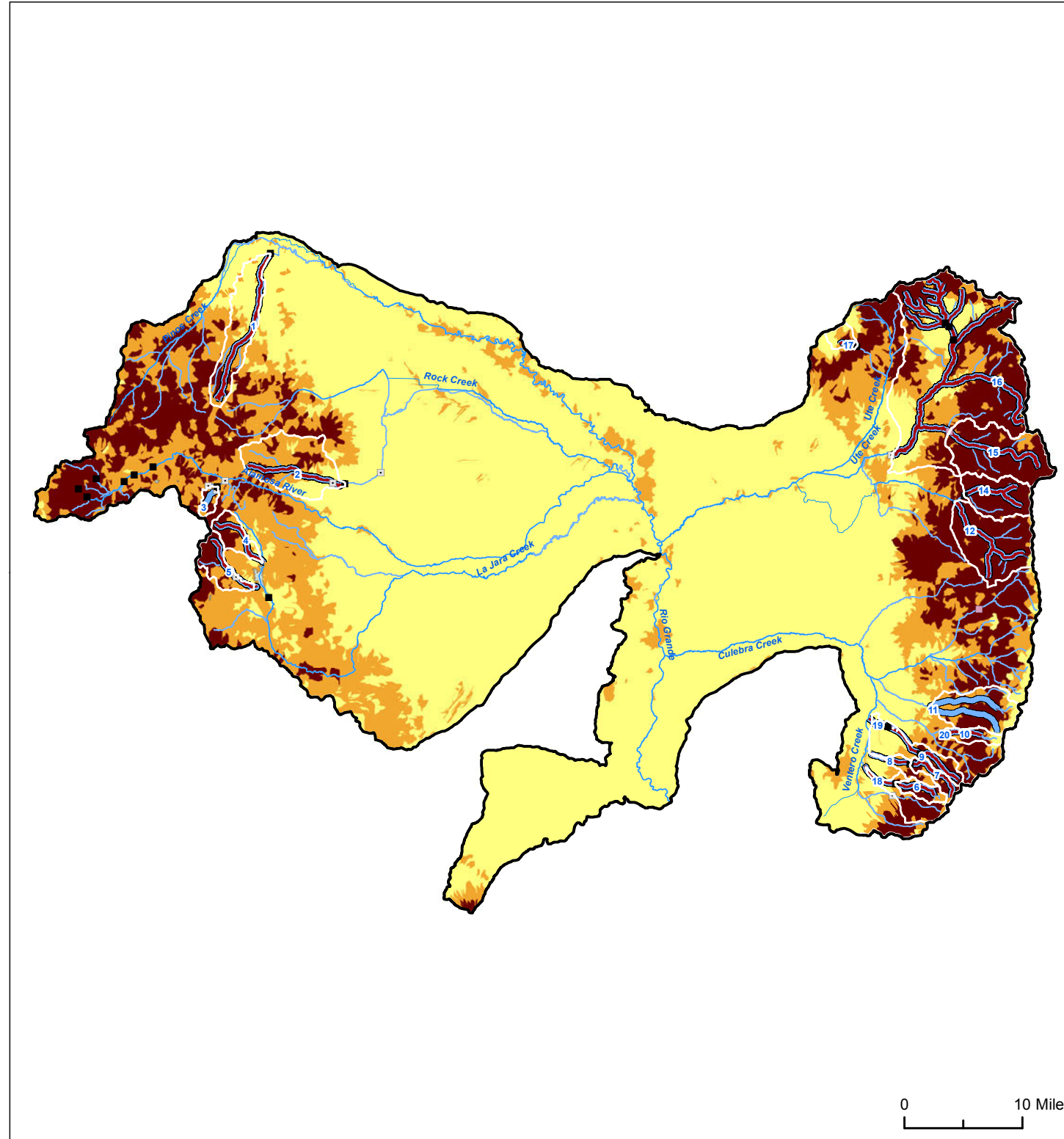
Crown Fire Potential



Flame Length



Overall Wildfire Risk



Overall Wildfire Risk can be considered as the combined hazard of both crown fire potential and flame length. Crown fire is the movement into and through the canopy. Passive crown fires are fires that move through the crown intermittently, and active crown fires are fires that carry continuously through the crowns. Crown fires typically move quickly and are very intense. Flame length is an indicator of fire intensity at the active flaming front and is a good measure of what fire suppression resources can be used on a fire. Flame lengths of <4 feet indicate fires where direct attack is feasible; flame lengths of 4 to 12 feet indicate fires with substantial resistance to control and indirect attack is recommended; flame lengths of >12 feet indicate extreme fires where control of any kind is difficult and safety of firefighters is a concern. The drainage areas at highest risk from wildfire represent areas where the majority of the drainage basin is expected to have the potential for crown fires and flame lengths of >12 feet.

Crown fire potential and expected flame lengths were modeled using FlamMap, an interagency fire behavior mapping and analysis program. Details on the modeling effort can be found in Appendix A.

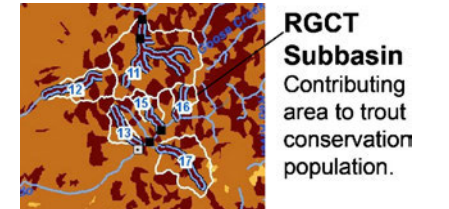
Wildfire Risk

Rio Grande Cutthroat Trout

- Conservation Population 183 Mi. (24% of Total Conservation Populations)
- Core Population 167 Mi.
- Historic Distribution 946 Mi.

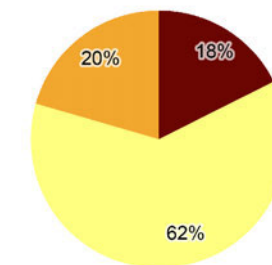
Barrier

- Complete
- Partial
- Unknown

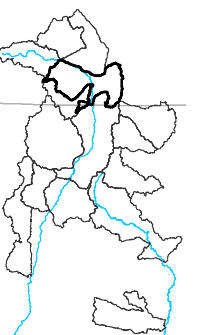


Overall Risk

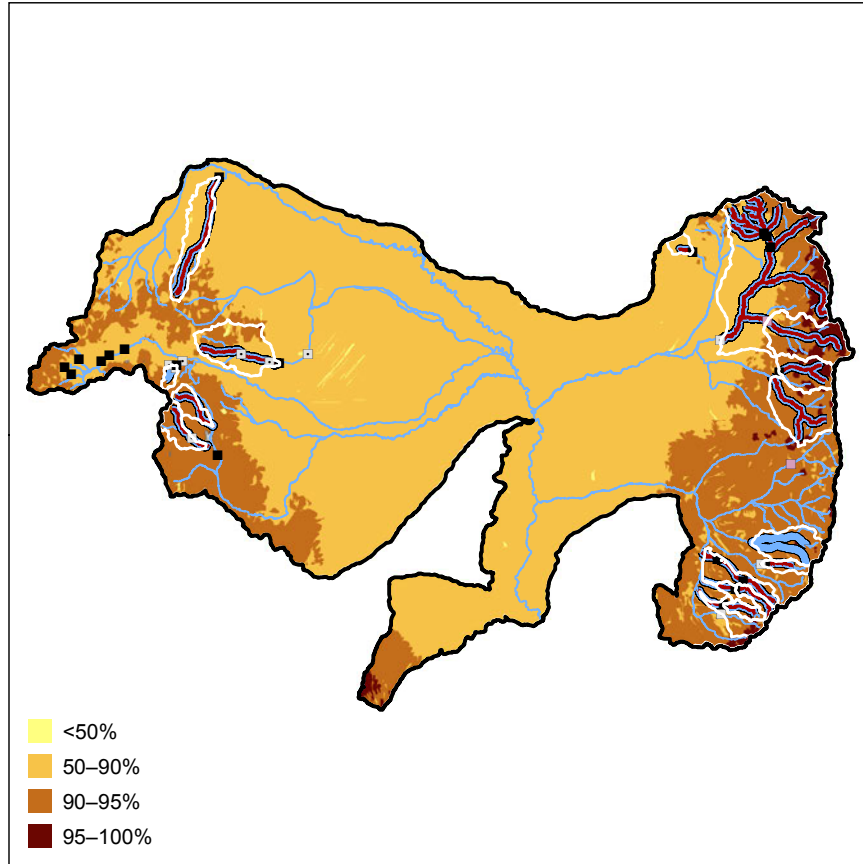
- Low
- Moderate
- High



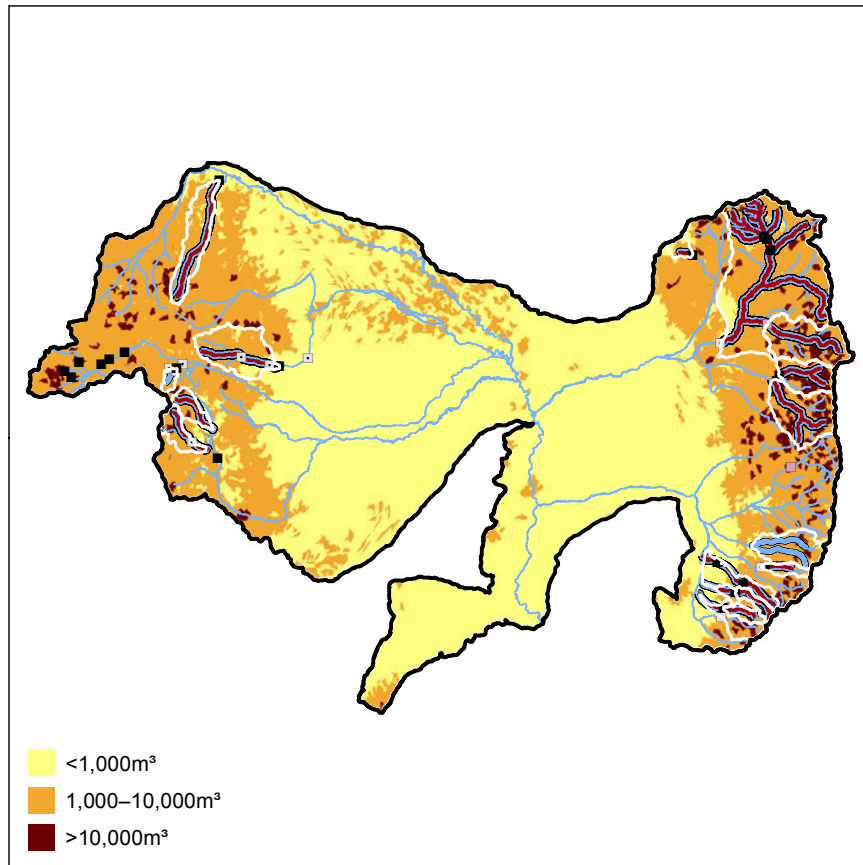
Alamosa-Trinchera (13010002) Wildfire Risk



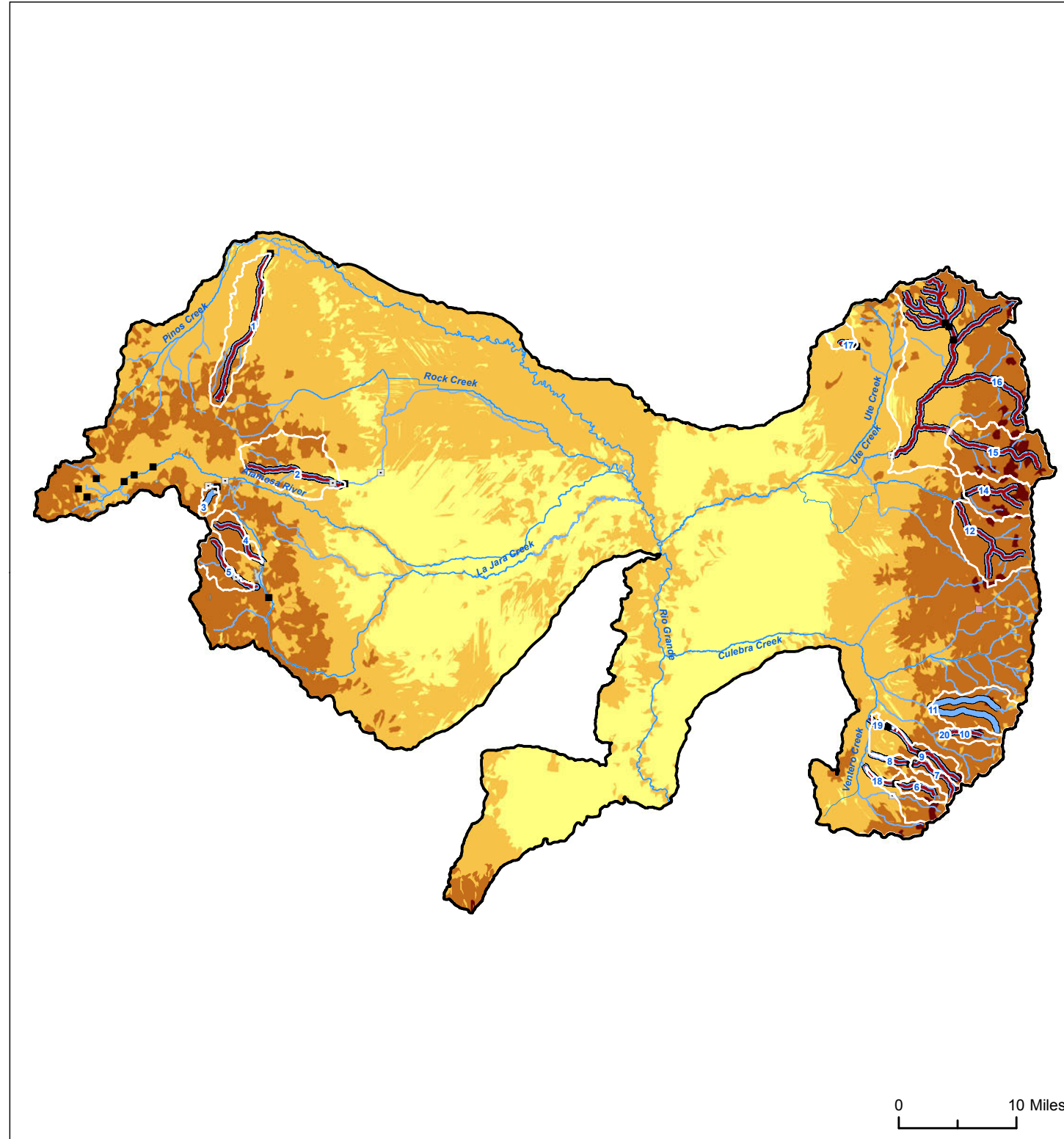
Debris Flow Probability



Debris Flow Volume



Overall Debris Flow Risk



Overall Debris Flow Risk can be considered as the combined hazard of both probability and volume. For example, the most hazardous drainage areas will show both a high probability of occurrence and a large estimated volume of material.

Estimated probability and volume of a debris flow in response to a 10-year 30-min rainfall. Estimations based on method developed by Cannon et al, 2009.

Debris Flow Risk

Rio Grande Cutthroat Trout

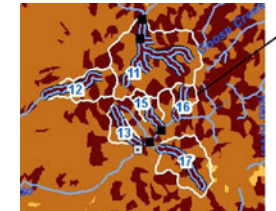
- Conservation Population 183 Mi. (24% of Total Conservation Populations)
- Core Population 167 Mi.
- Historic Distribution 946 Mi.

Barrier

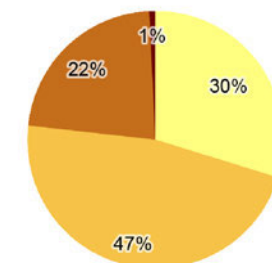
- Complete
- Partial
- Unknown

Debris Flow Risk

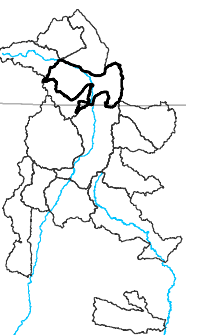
- Low
- Moderate
- High
- Extreme



RGCT Subbasin
Contributing area to trout conservation population.



Alamosa-Trinchera (13010002) Debris Flow Risk

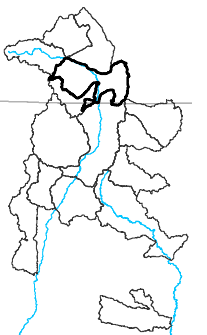


Summary Table

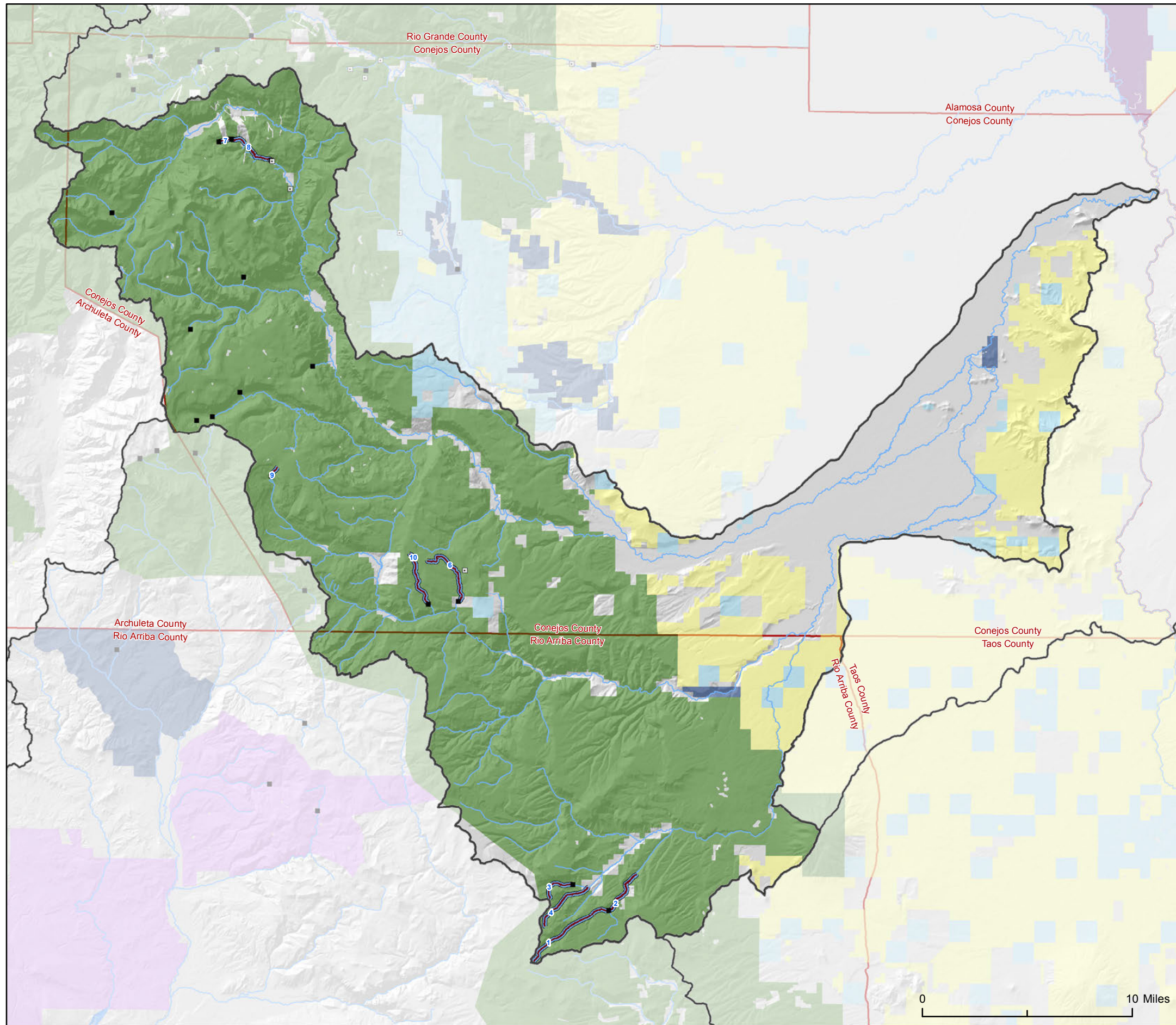
Alamosa-Trinchera (13010002)

| cpID | Population Class | Area (km2) | Elevation (m) | | | Debris Flow prob. (%) | Debris Flow Volume | | Debris Flow Risk Class (mean) | | | Fire Behavior Risk Class (mean) | | | Overall Risk |
|--|------------------|------------|---------------|-------|-------|-----------------------|--------------------|-------------|-------------------------------|--------|----------|---------------------------------|--------------|----------|--------------|
| | | | min | max | range | | mean (m3) | total (m3) | prob | volume | combined | crown fire | flame length | combined | |
| 01 | Core | 67.6 | 2,398 | 4,026 | 1,628 | 84.74% | 2,582.0 | 426,027.4 | 2.19 | 1.76 | 3.95 | 1 | 1.70 | 2.87 | 6.82 |
| <i>San Francisco Creek, Middle Fork San Francisco Creek (R)</i> | | | | | | | | | | | | | | | |
| 02 | Core | 84.7 | 2,487 | 3,638 | 1,151 | 87.77% | 2,673.1 | 483,829.2 | 2.29 | 1.64 | 3.93 | 1 | 2.27 | 3.39 | 7.32 |
| <i>Cat Creek, South Fork Cat Creek (R)</i> | | | | | | | | | | | | | | | |
| 03 | Conservation | 7.6 | 2,949 | 3,668 | 719 | 90.91% | 4,847.0 | 72,704.3 | 2.80 | 2.00 | 4.80 | 2 | 3.00 | 4.60 | 9.40 |
| <i>Rhodes Gulch (R)</i> | | | | | | | | | | | | | | | |
| 04 | Core | 21.2 | 2,966 | 3,627 | 661 | 91.79% | 4,701.2 | 169,241.8 | 2.94 | 1.89 | 4.83 | 1 | 2.72 | 4.14 | 8.97 |
| <i>Torsido Creek (R)</i> | | | | | | | | | | | | | | | |
| 05 | Core | 27.1 | 2,958 | 3,627 | 669 | 93.00% | 5,917.0 | 254,431.0 | 2.95 | 2.07 | 5.02 | 1 | 2.88 | 4.37 | 9.40 |
| <i>Jim Creek (R)</i> | | | | | | | | | | | | | | | |
| 06 | Core | 12.9 | 2,642 | 3,893 | 1,251 | 92.97% | 6,475.8 | 142,467.0 | 2.91 | 2.05 | 4.95 | 2 | 3.00 | 4.73 | 9.68 |
| <i>Cuates Creek (A)</i> | | | | | | | | | | | | | | | |
| 07 | Core | 13.8 | 2,714 | 3,918 | 1,204 | 92.75% | 6,222.3 | 136,891.0 | 2.95 | 2.14 | 5.09 | 2 | 2.95 | 4.50 | 9.59 |
| <i>Jaroso Creek (A)</i> | | | | | | | | | | | | | | | |
| 08 | Core | 10.3 | 2,546 | 3,527 | 981 | 92.03% | 2,719.1 | 78,853.7 | 2.90 | 1.72 | 4.62 | 1 | 2.52 | 3.69 | 8.31 |
| <i>Jaroso Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>Torcido Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>Alamosito Creek (A)</i> | | | | | | | | | | | | | | | |
| 11 | Conservation | 55.0 | 2,629 | 4,262 | 1,633 | 92.26% | 5,154.9 | 567,038.7 | 2.95 | 1.97 | 4.92 | 2 | 2.76 | 4.32 | 9.24 |
| <i>Vallejos Creek, North Vallejos Creek (A)</i> | | | | | | | | | | | | | | | |
| 12 | Core | 84.0 | 2,622 | 4,115 | 1,492 | 93.14% | 7,879.1 | 1,197,625.8 | 3.01 | 2.26 | 5.27 | 2 | 2.95 | 4.97 | 10.24 |
| <i>Deep Canyon (R)</i> | | | | | | | | | | | | | | | |
| <i>Trinchera Creek, South Fork Trinchera Creek (R)</i> | | | | | | | | | | | | | | | |
| 14 | Core | 45.7 | 2,659 | 3,734 | 1,076 | 94.41% | 9,122.7 | 665,959.6 | 3.29 | 2.33 | 5.62 | 2 | 2.96 | 5.00 | 10.62 |
| <i>North Fork Trinchera Creek (R)</i> | | | | | | | | | | | | | | | |
| 15 | Core | 87.9 | 2,536 | 3,534 | 997 | 93.36% | 6,993.8 | 1,195,935.6 | 3.17 | 2.14 | 5.31 | 2 | 2.94 | 4.93 | 10.24 |
| <i>West Indian Creek, South Fork West Indian Creek (A)</i> | | | | | | | | | | | | | | | |
| 16 | Core | 363.4 | 2,428 | 3,751 | 1,323 | 88.36% | 3,870.0 | 3,347,593.0 | 2.48 | 1.83 | 4.31 | 2 | 2.14 | 3.65 | 7.97 |
| <i>Grayback Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>Placer Creek, Middle Fork Placer Creek, South Fork Placer Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>Sangre de Cristo Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>Wagon Creek (A)</i> | | | | | | | | | | | | | | | |
| <i>West Indian Creek (A)</i> | | | | | | | | | | | | | | | |
| 17 | Core | 10.4 | 3,175 | 4,370 | 1,195 | 84.96% | 4,426.4 | 70,823.2 | 2.06 | 1.69 | 3.75 | 1 | 2.31 | 3.56 | 7.31 |
| <i>Little Ute Creek (R)</i> | | | | | | | | | | | | | | | |
| 18 | Core | 25.7 | 2,537 | 3,920 | 1,383 | 90.55% | 4,916.6 | 255,662.8 | 2.88 | 1.60 | 4.48 | 1 | 2.33 | 3.60 | 8.08 |
| <i>Cuates Creek (A)</i> | | | | | | | | | | | | | | | |
| 19 | Core | 38.5 | 2,521 | 3,596 | 1,075 | 91.61% | 1,821.9 | 187,656.9 | 2.90 | 0.80 | 3.70 | 1 | 1.58 | 2.25 | 5.95 |
| <i>Torcido Creek (A)</i> | | | | | | | | | | | | | | | |
| 20 | Core | 13.5 | 2,796 | 4,167 | 1,371 | 92.69% | 5,733.9 | 131,880.7 | 3.00 | 2.04 | 5.04 | 2 | 2.61 | 4.17 | 9.22 |
| <i>Alamosito Creek (A)</i> | | | | | | | | | | | | | | | |

(A) and (R) indicate aboriginal and restored populations of trout.



Conejos Watershed (13010005)



Rio Grande Cutthroat Trout

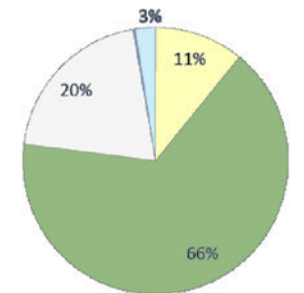
- Conservation Population 23 Mi. (3% of Total Conservation Populations)
- Core Population 23 Mi.
- Historic Distribution 465 Mi.

Barrier

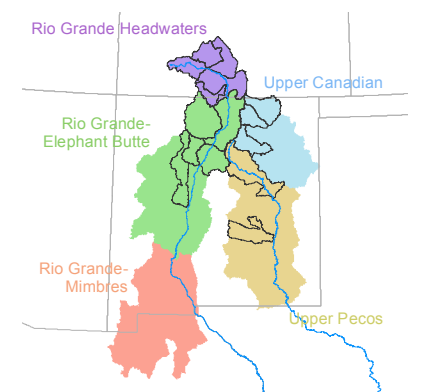
- Complete
- ◻ Partial
- ◻ Unknown

Ownership

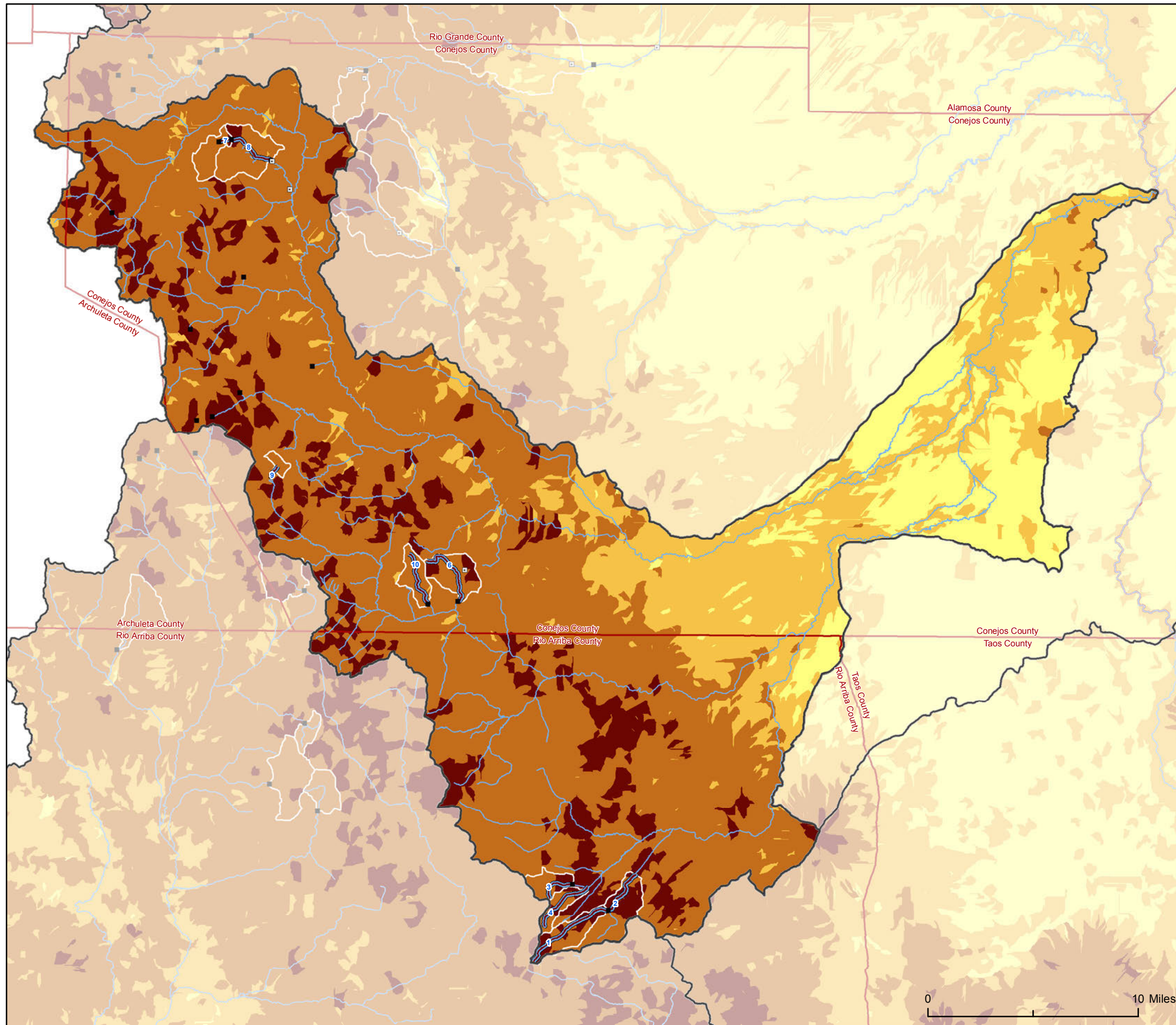
- BLM
- USFS
- State Trust
- State Fish & Wildlife



Conejos Watershed (13010005)
Overview



Overall Risk: Wildfire Risk + Debris Flow Risk



Rio Grande Cutthroat Trout

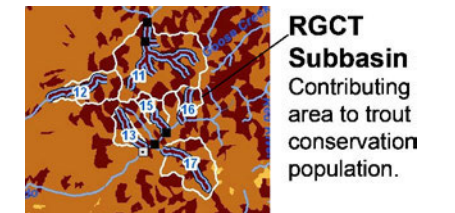
- Conservation Population 23 Mi. (3% of Total Conservation Populations)
- Core Population 23 Mi.
- Historic Distribution 465 Mi.

Barrier

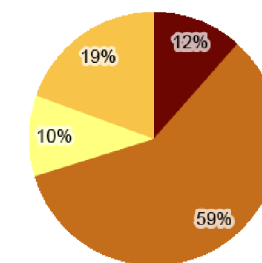
- Complete
- Partial
- Unknown

Overall Risk

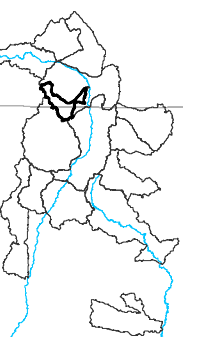
- Low
- Moderate
- High
- Extreme



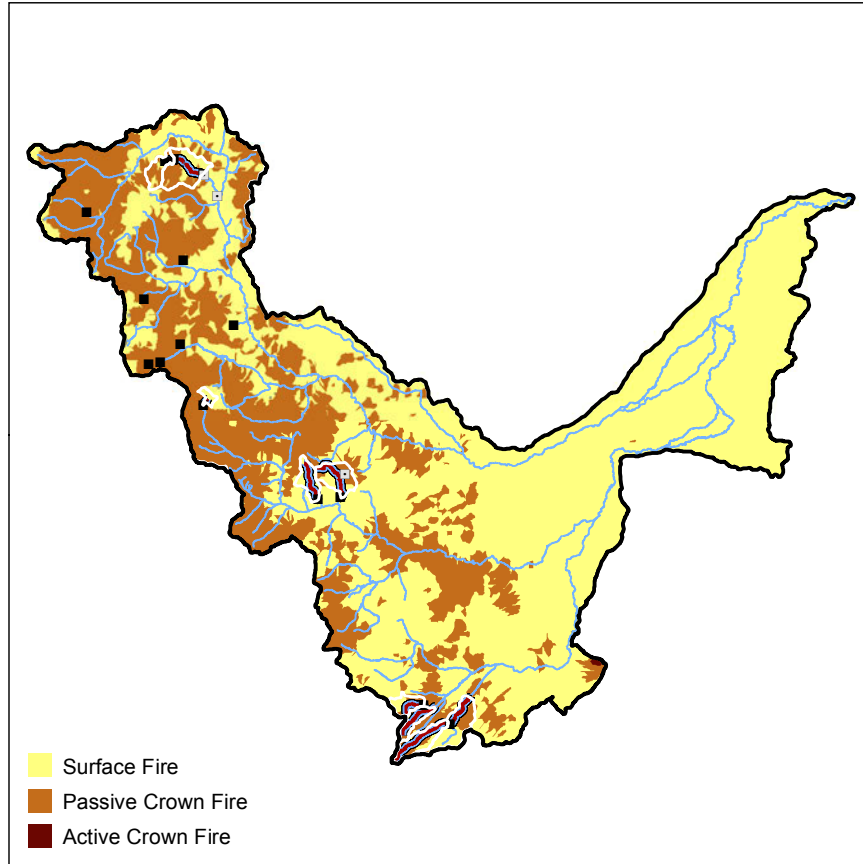
Overall Risk from fire represents the combined hazard from wildfire and debris flows. For example, areas with high overall risk indicate watersheds where if a fire starts, intense fire behavior combined with a high likelihood of and volume of debris flows post fire.



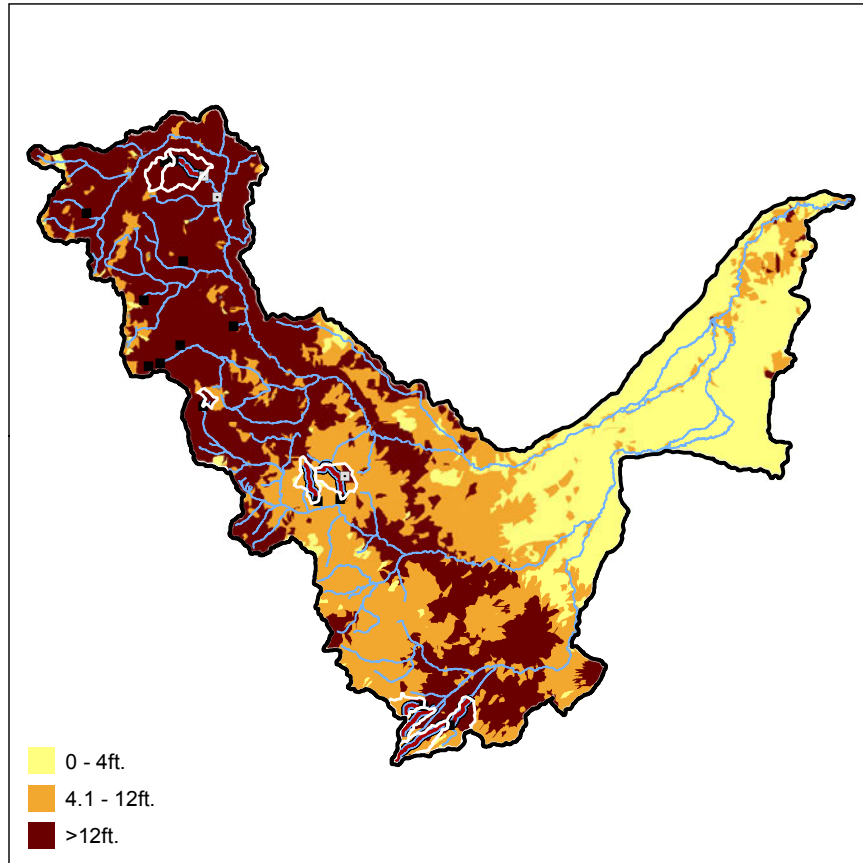
Conejos Watershed (13010005)
Overall Risk from Fire



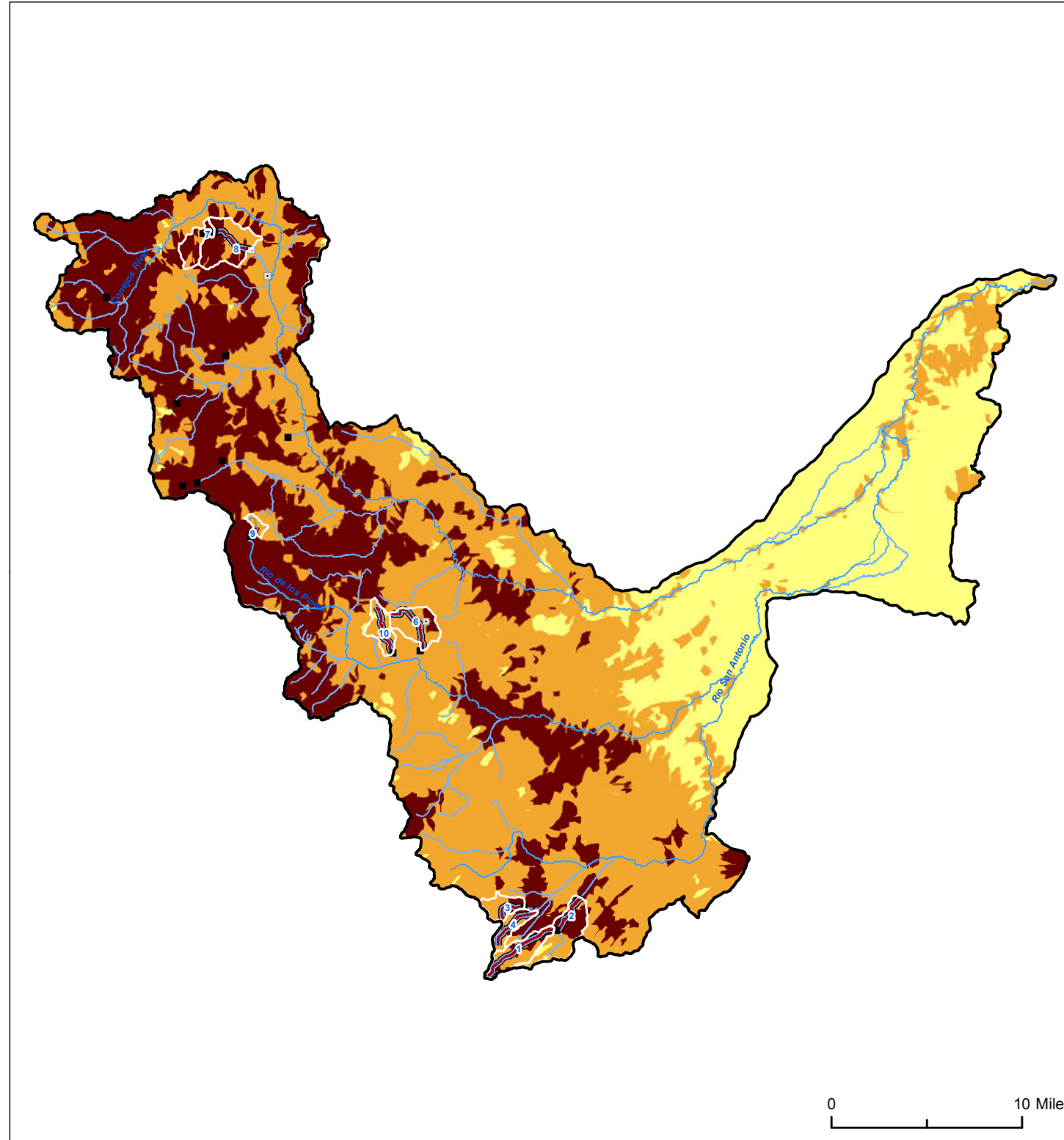
Crown Fire Potential



Flame Length



Overall Wildfire Risk



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Crown fire potential and expected flame lengths were modeled using FlamMap, an interagency fire behavior mapping and analysis program. Details on the modeling effort can be found in Appendix A.

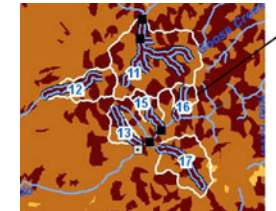
Wildfire Risk

Rio Grande Cutthroat Trout

- Conservation Population 23 Mi. (3% of Total Conservation Populations)
- Core Population 23 Mi.
- Historic Distribution 465 Mi.

Barrier

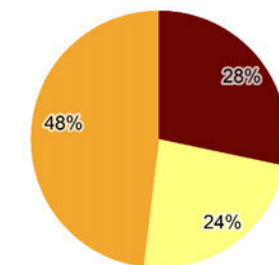
- Complete
- Partial
- Unknown



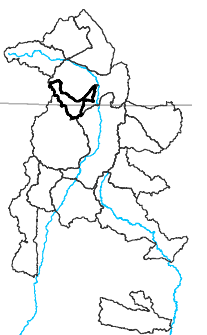
RGCT Subbasin
Contributing area to trout conservation population.

Overall Risk

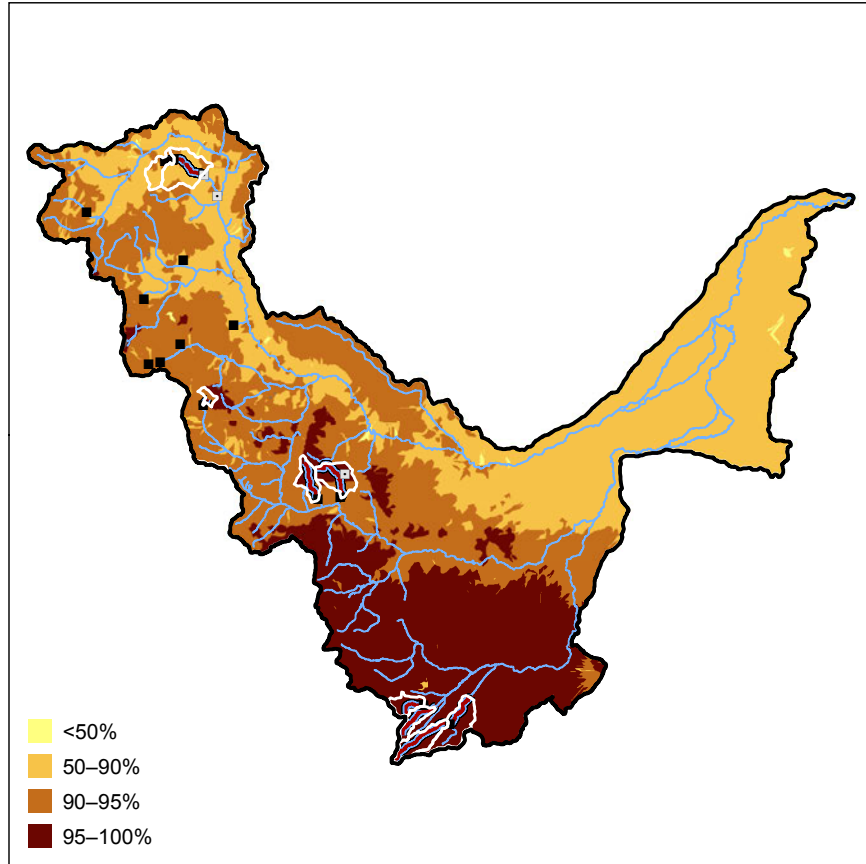
- Low
- Moderate
- High



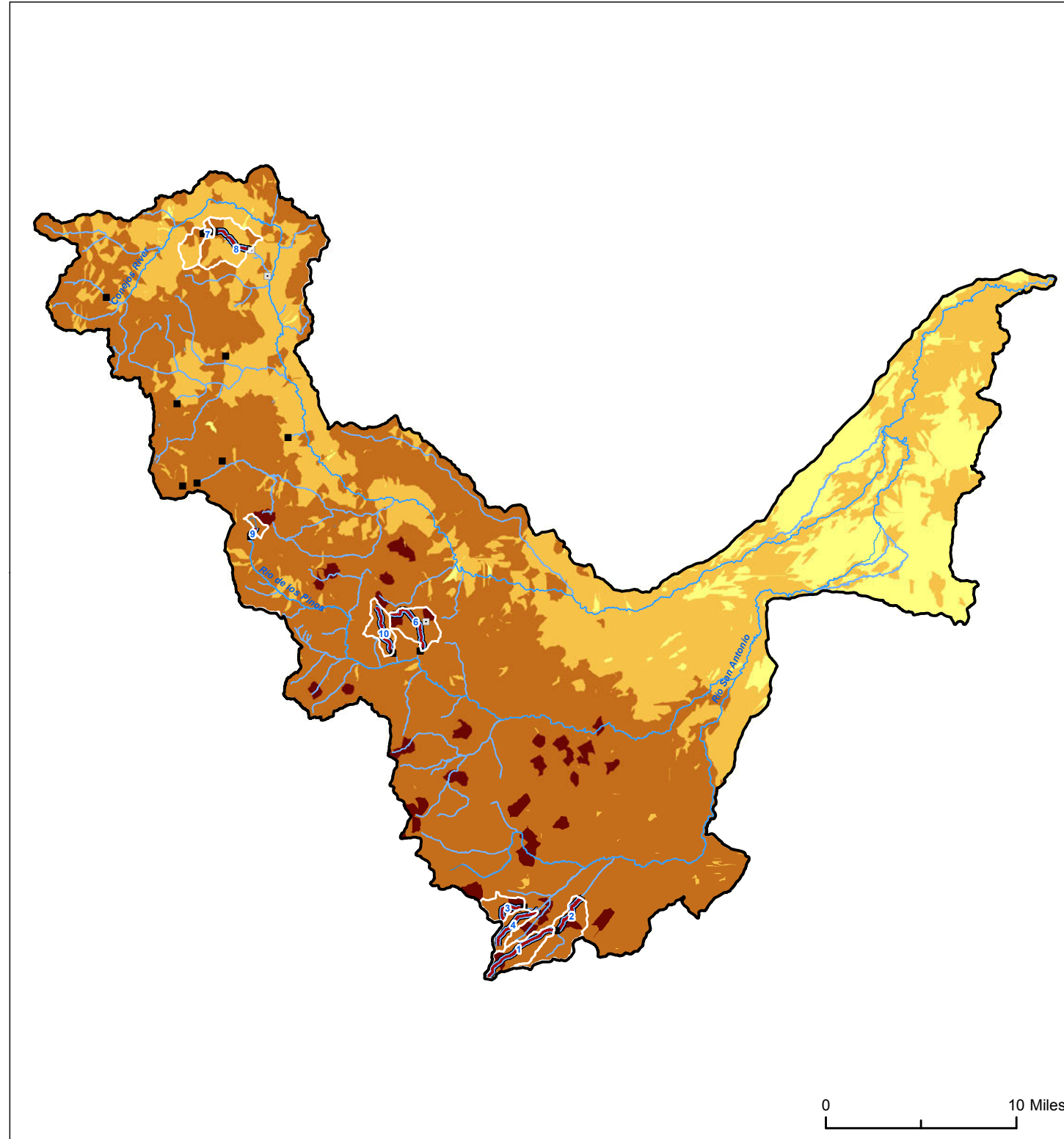
Conejos (13010005) Wildfire Risk



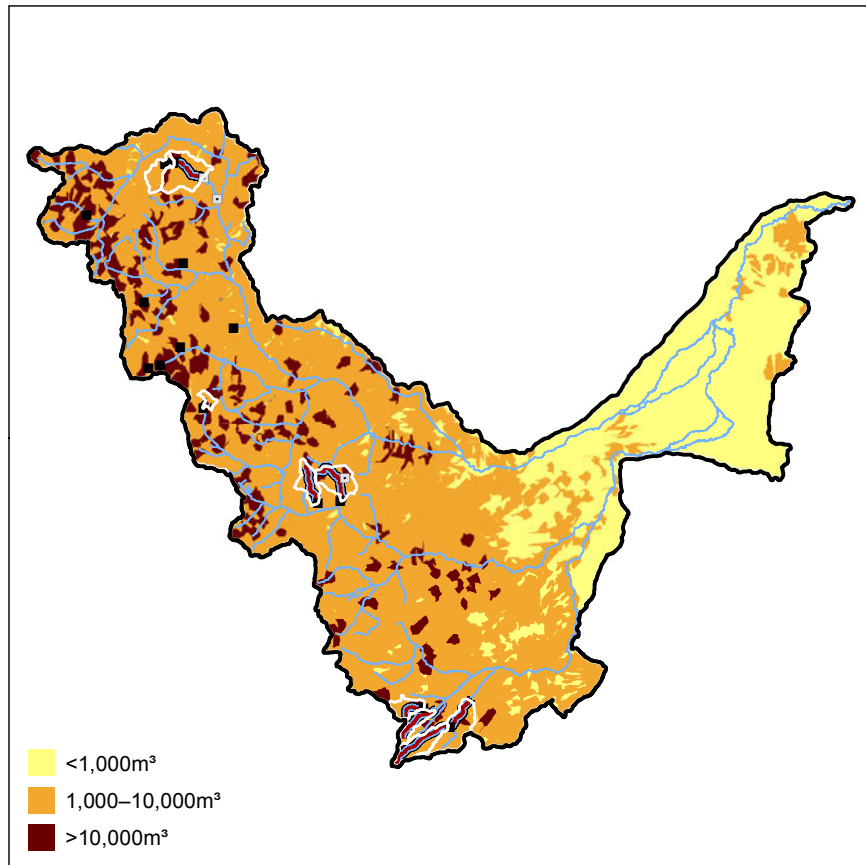
Debris Flow Probability



Overall Debris Flow Risk



Debris Flow Volume



Overall Debris Flow Risk can be considered as the combined hazard of both probability and volume. For example, the most hazardous drainage areas will show both a high probability of occurrence and a large estimated volume of material.

Estimated probability and volume of a debris flow in response to a 10-year 30-min rainfall. Estimations based on method developed by Cannon et al, 2009.

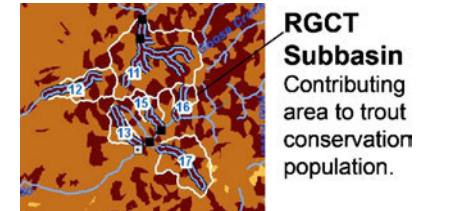
Debris Flow Risk

Rio Grande Cutthroat Trout

- Conservation Population 23 Mi. (3% of Total Conservation Populations)
- Core Population 23 Mi.
- Historic Distribution 465 Mi.

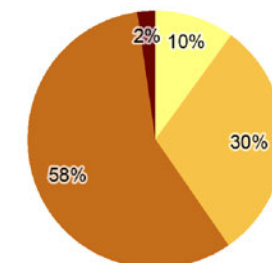
Barrier

- Complete
- Partial
- Unknown

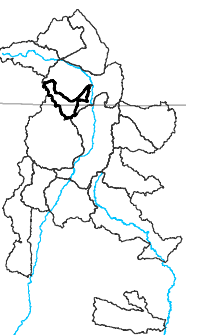


Debris Flow Risk

- Low
- Moderate
- High
- Extreme



Conejos (13010005) Debris Flow Risk



Summary Table

Conejos (13010005)

| cpID | Population Class | Area (km2) | Elevation (m) | | | Debris Flow prob. (%) | Debris Flow Volume | | Debris Flow Risk Class (mean) | | | Fire Behavior Risk Class (mean) | | | Overall Risk |
|------------------------------------|------------------|------------|---------------|-------|-------|-----------------------|--------------------|------------|-------------------------------|--------|----------|---------------------------------|--------------|----------|--------------|
| | | | min | max | range | | mean (m3) | total (m3) | prob | volume | combined | crown fire | flame length | combined | |
| 01 | Core | 9.4 | 2,814 | 3,256 | 442 | 97.54% | 5,258.6 | 115,689.9 | 4.00 | 2.05 | 6.05 | 2 | 2.45 | 4.09 | 10.14 |
| <i>Tio Grande</i> (A) | | | | | | | | | | | | | | | |
| 02 | Core | 12.7 | 2,756 | 3,157 | 401 | 97.60% | 4,603.7 | 133,507.2 | 4.00 | 2.00 | 6.00 | 1 | 2.34 | 3.79 | 9.79 |
| <i>Tio Grande</i> (A) | | | | | | | | | | | | | | | |
| 03 | Core | 5.3 | 2,809 | 3,175 | 365 | 97.43% | 7,133.7 | 57,069.9 | 4.00 | 2.13 | 6.13 | 1 | 2.13 | 3.50 | 9.63 |
| <i>Tanques Creek</i> (A) | | | | | | | | | | | | | | | |
| 04 | Core | 4.8 | 2,796 | 3,159 | 363 | 97.40% | 6,449.8 | 58,048.4 | 4.00 | 2.00 | 6.00 | 2 | 2.22 | 4.11 | 10.11 |
| <i>Rio Nutritas</i> (A) | | | | | | | | | | | | | | | |
| 06 | Core | 10.2 | 2,929 | 3,275 | 346 | 95.17% | 5,484.3 | 87,748.5 | 3.63 | 2.00 | 5.63 | 1 | 2.13 | 3.50 | 9.13 |
| <i>Osier Creek</i> (A) | | | | | | | | | | | | | | | |
| 07 | Core | 5.8 | 3,098 | 3,929 | 831 | 87.66% | 3,993.6 | 59,904.1 | 2.33 | 2.00 | 4.33 | 2 | 3.00 | 4.73 | 9.07 |
| <i>Lake Fork Conejos River</i> (R) | | | | | | | | | | | | | | | |
| 08 | Core | 14.0 | 2,955 | 3,747 | 792 | 87.19% | 4,756.4 | 137,936.7 | 2.21 | 2.03 | 4.24 | 2 | 3.00 | 4.59 | 8.83 |
| <i>Lake Fork Conejos River</i> (R) | | | | | | | | | | | | | | | |
| 09 | Core | 1.8 | 3,422 | 3,609 | 187 | 94.43% | 3,671.9 | 14,687.5 | 3.00 | 1.50 | 4.50 | 1 | 2.75 | 3.75 | 8.25 |
| <i>Rio de los Pinos</i> (R) | | | | | | | | | | | | | | | |
| 10 | Core | 6.8 | 2,949 | 3,334 | 385 | 94.59% | 5,130.4 | 46,173.4 | 3.56 | 1.89 | 5.44 | 1 | 1.89 | 2.89 | 8.33 |
| <i>Cascade Creek</i> (A) | | | | | | | | | | | | | | | |

(A) and (R) indicate aboriginal and restored populations of trout.

