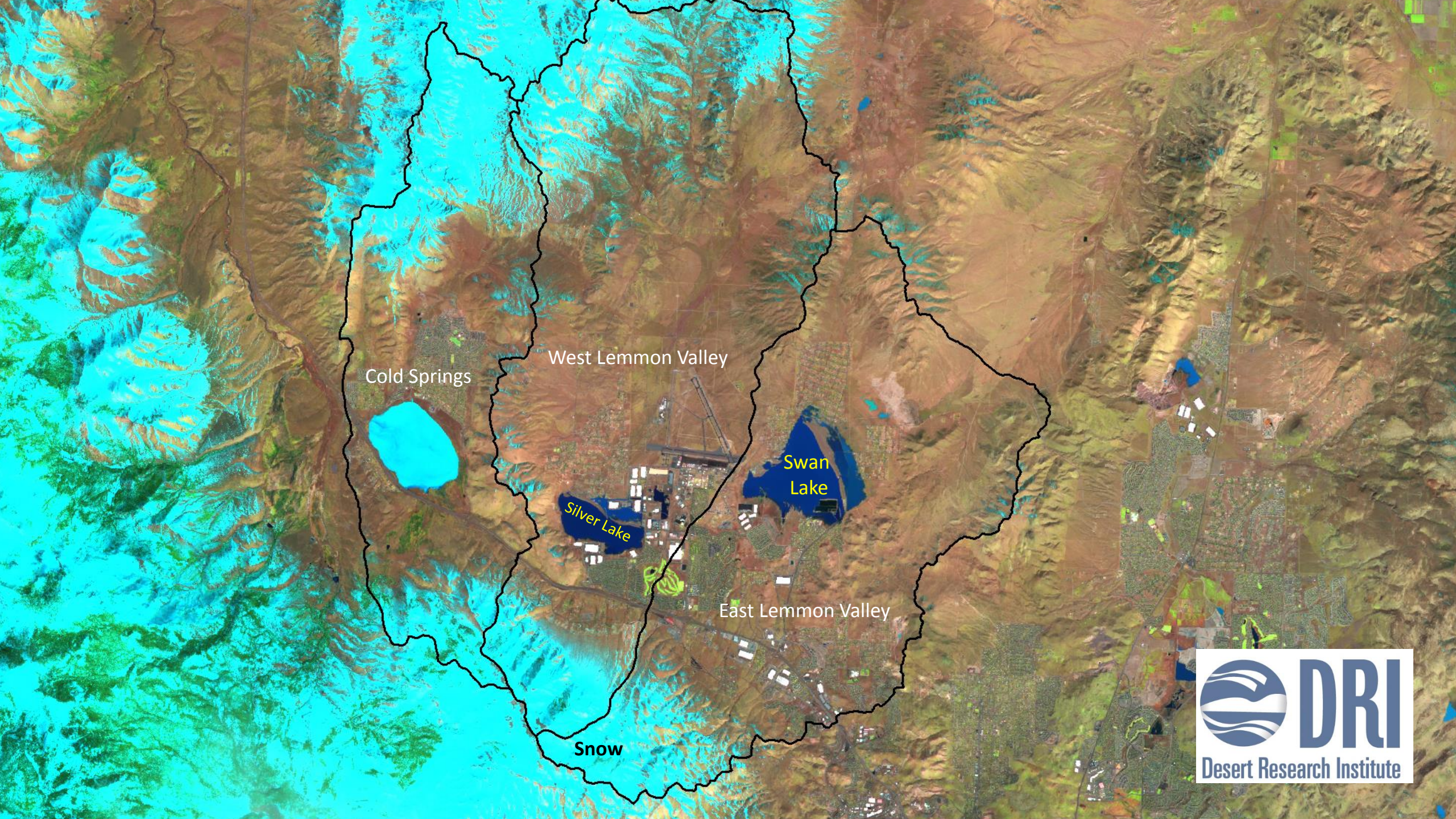


Lemmon Valley Runoff Analysis

March 14, 2017

Chris Garner
Tim Bardsley
Greg Pohll





Cold Springs

West Lemmon Valley

Silver Lake

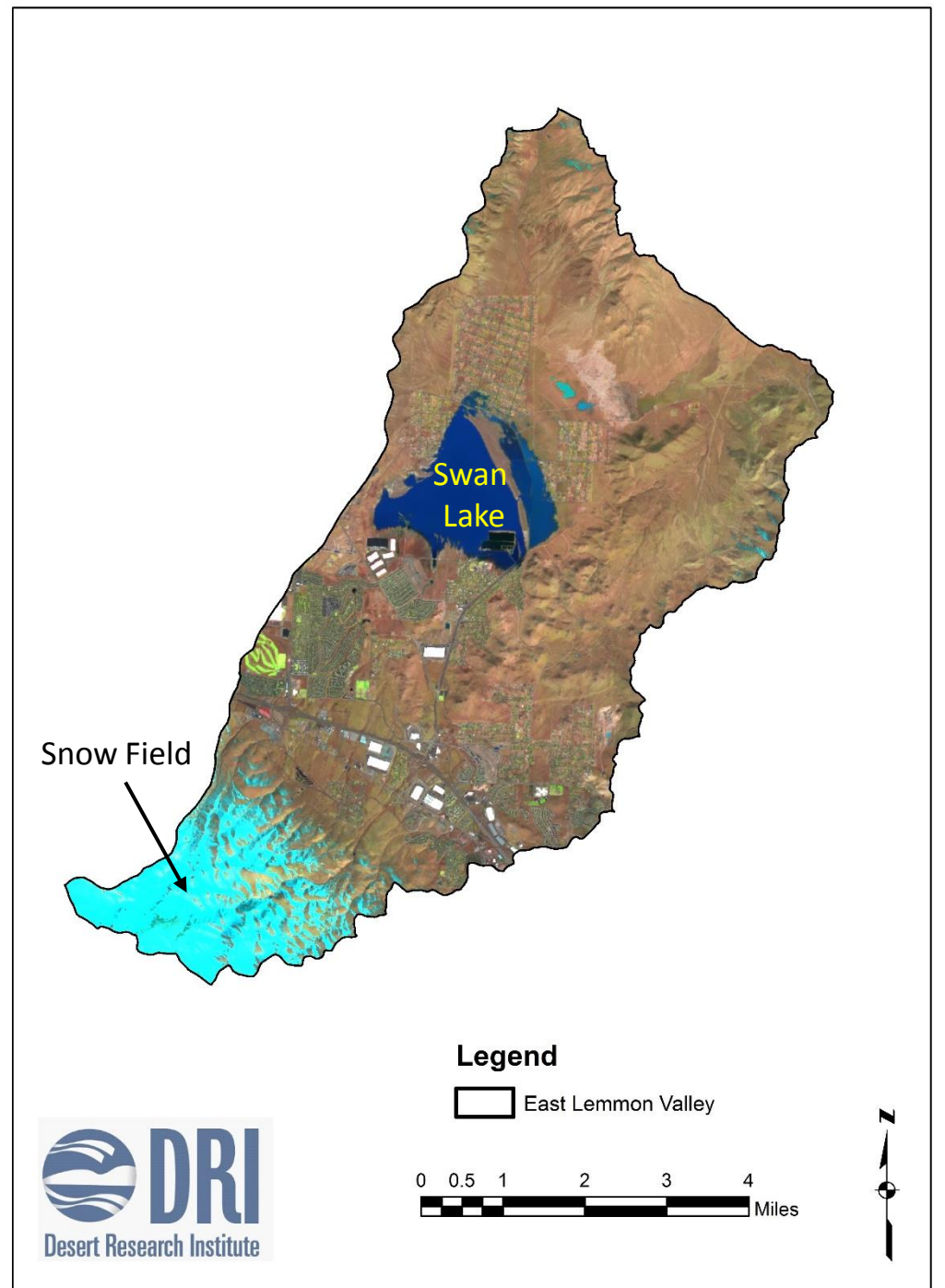
Swan Lake

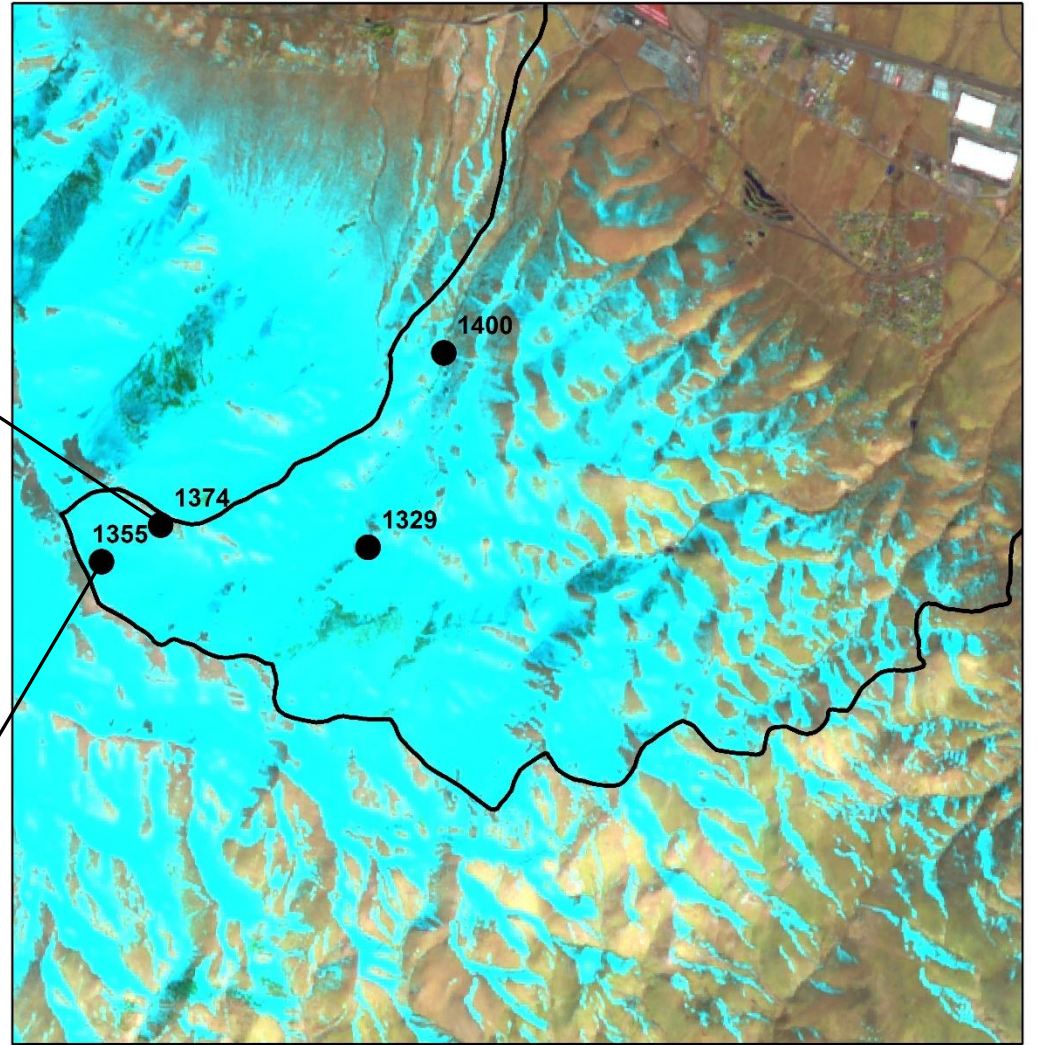
East Lemmon Valley

Snow



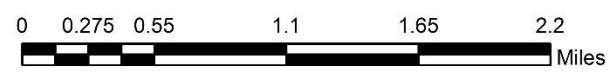
East Lemmon Valley

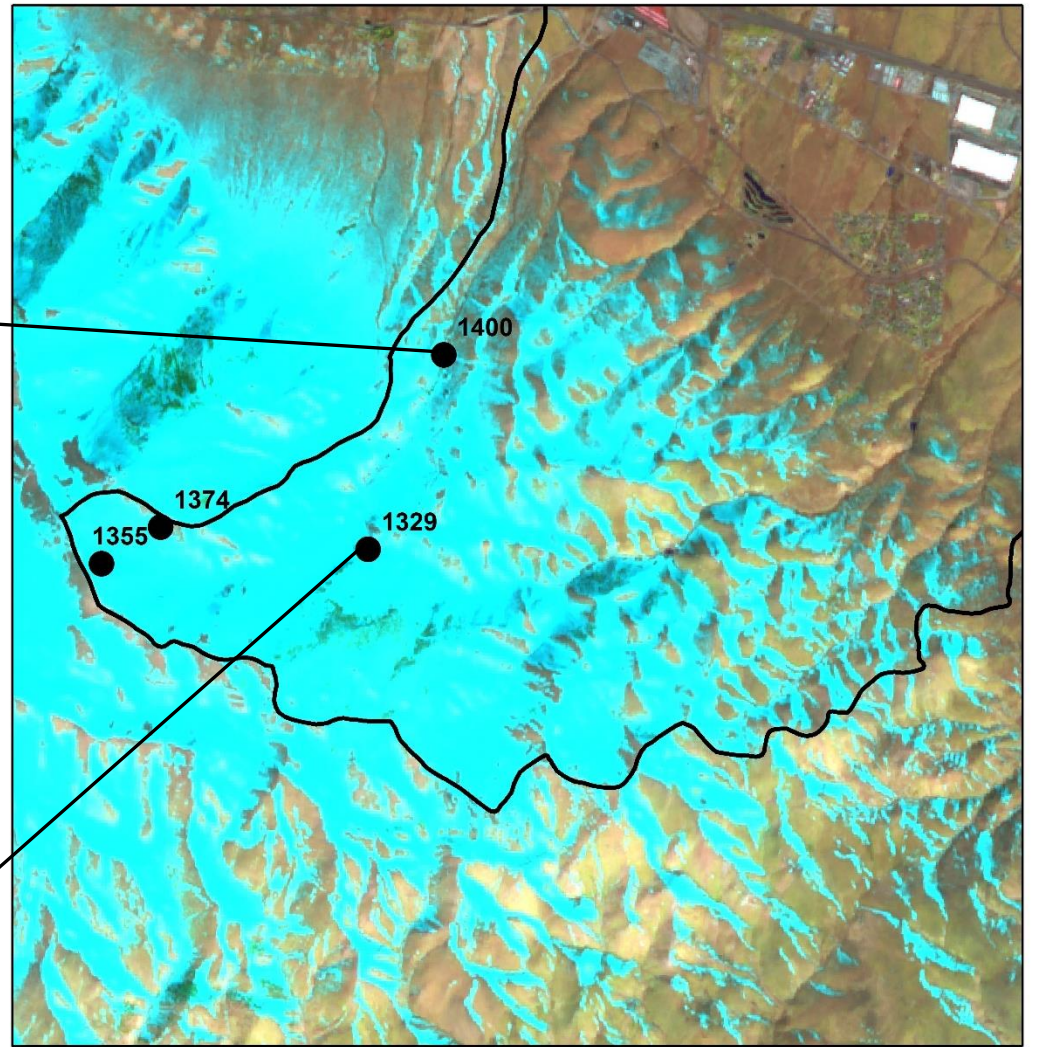




Legend

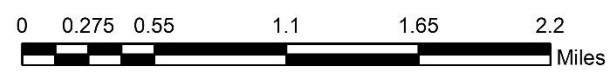
- Picture Locations
- East Lemmon Valley



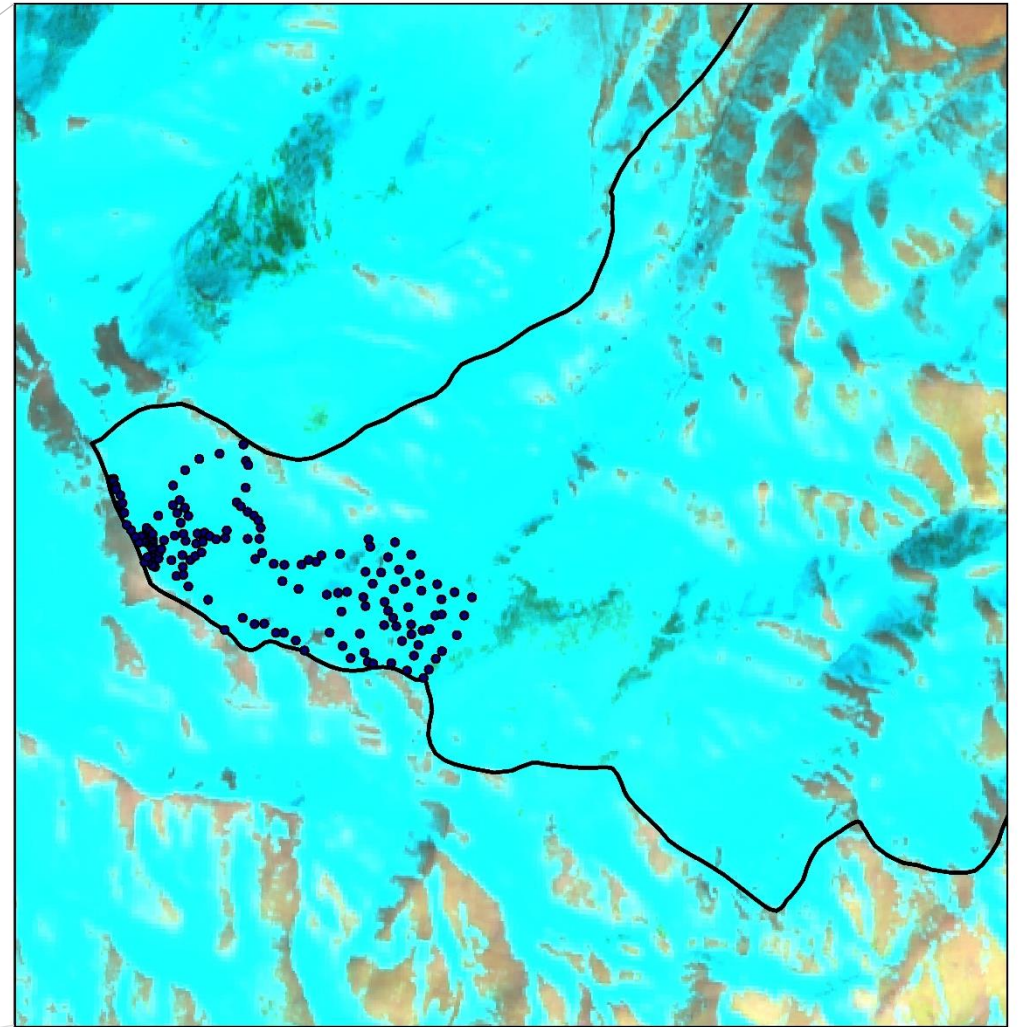
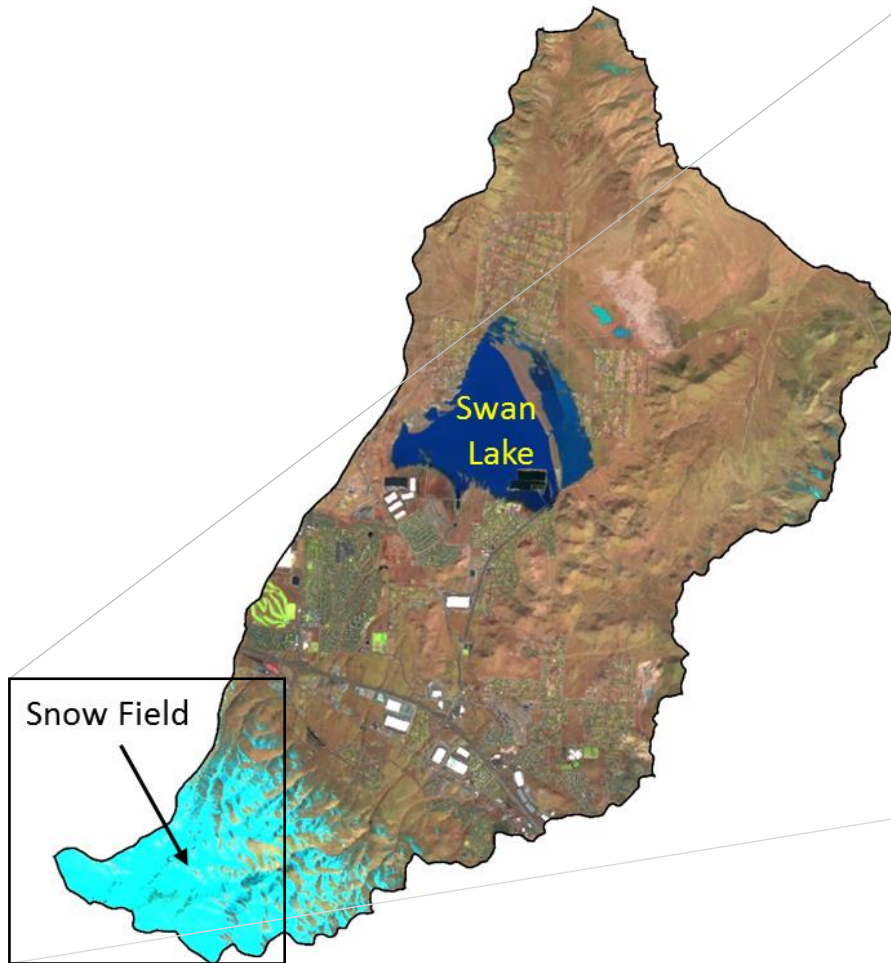


Legend

- Picture Locations
- ▭ East Lemmon Valley



Snow Measurements



Legend

- Snow Measurements
- East Lemmon Valley



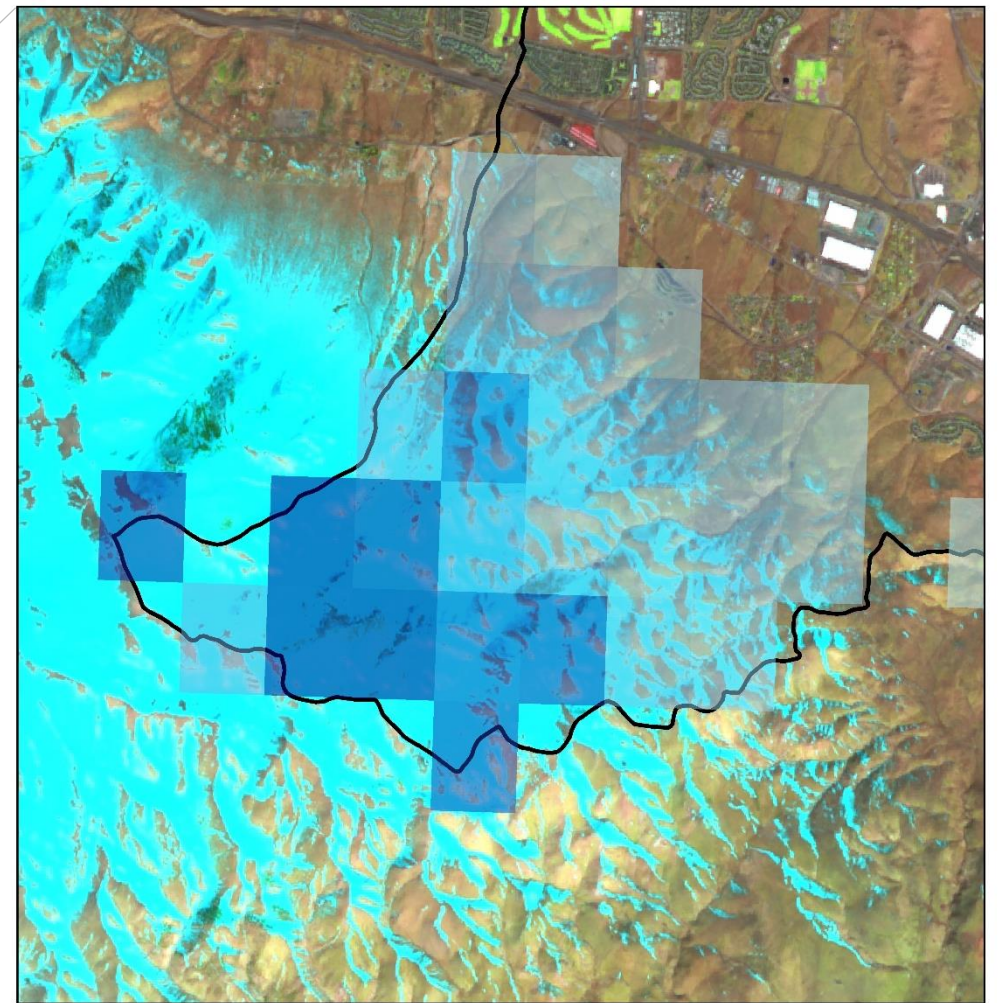
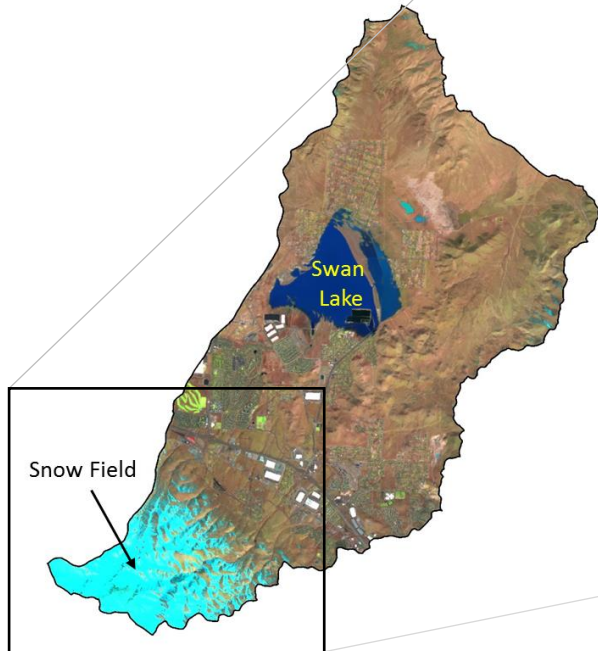
Snow Volume Estimates

- Estimate #1 - SNODAS
 - Coarse grid and no nearby SNOTEL station
 - Biased low based on field measurements
- Estimate #2 - SWE Gradient Downslope
 - Requires assumptions of SWE downslope
- Estimate #3 - Product of Average SWE and Snow Area
 - Does not account for SWE gradient downslope



Estimate #1 SNODAS

Total Snow Water Volume = 700 acre-feet



Legend

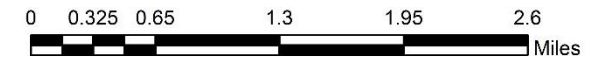
 East Lemmon Valley

SNODAS

SWE (ft)

 0.5

 0.006

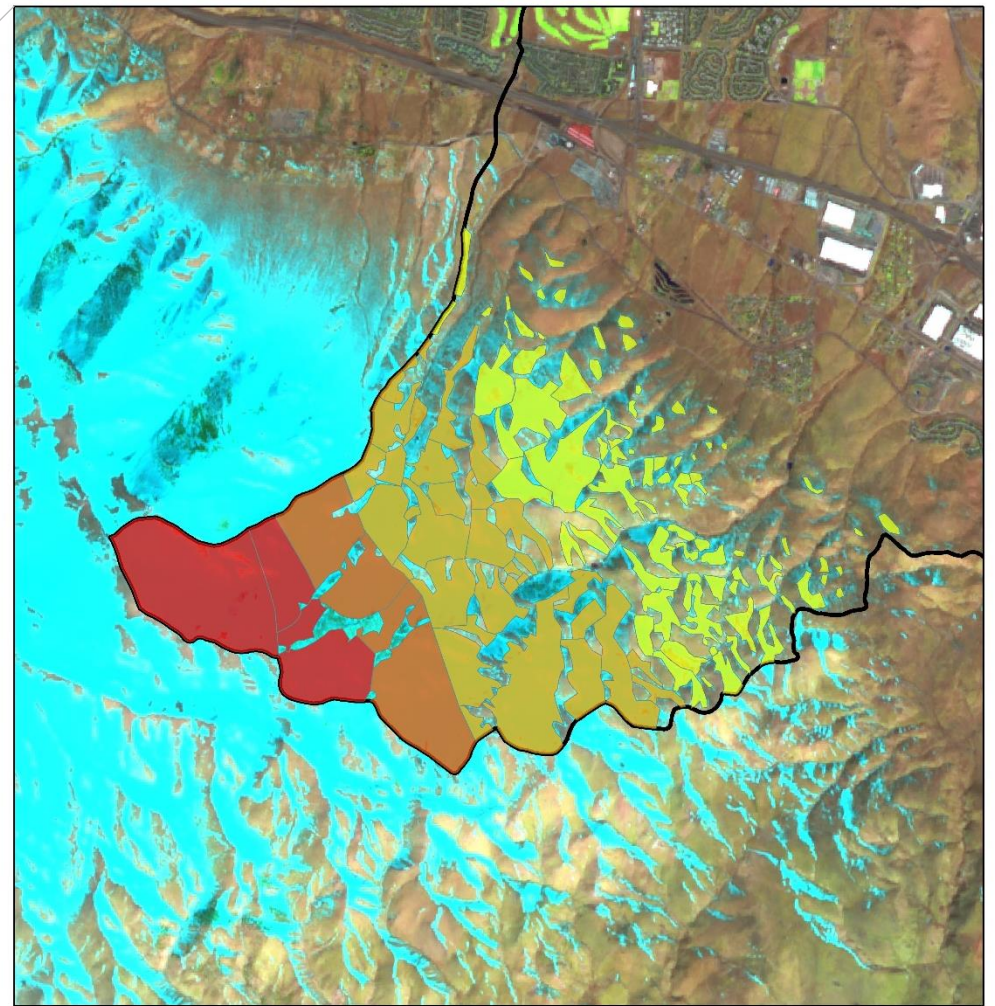
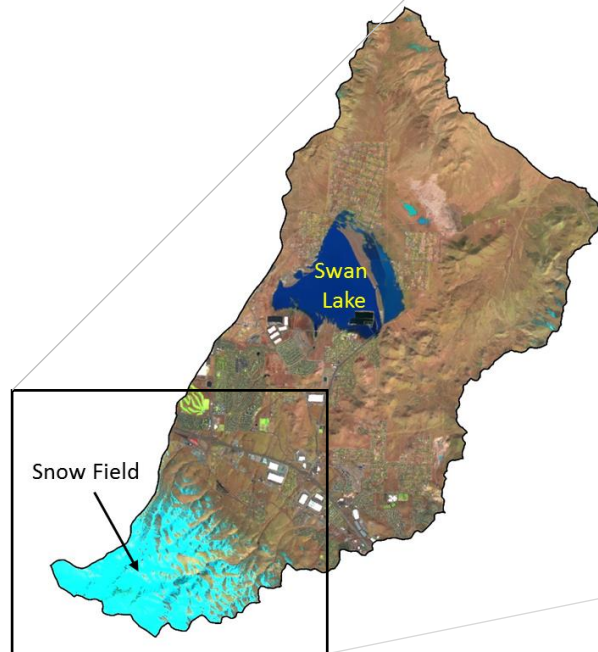


Estimate #2 SWE Gradient Downslope

Area = 2,100 acres

Snow Water Equivalent – varies by zone

Total Snow Water Volume = 1,500 acre-feet



Legend

Snow Water Eq. (ft)

0.25

0.5

1.0

1.8

East Lemmon Valley

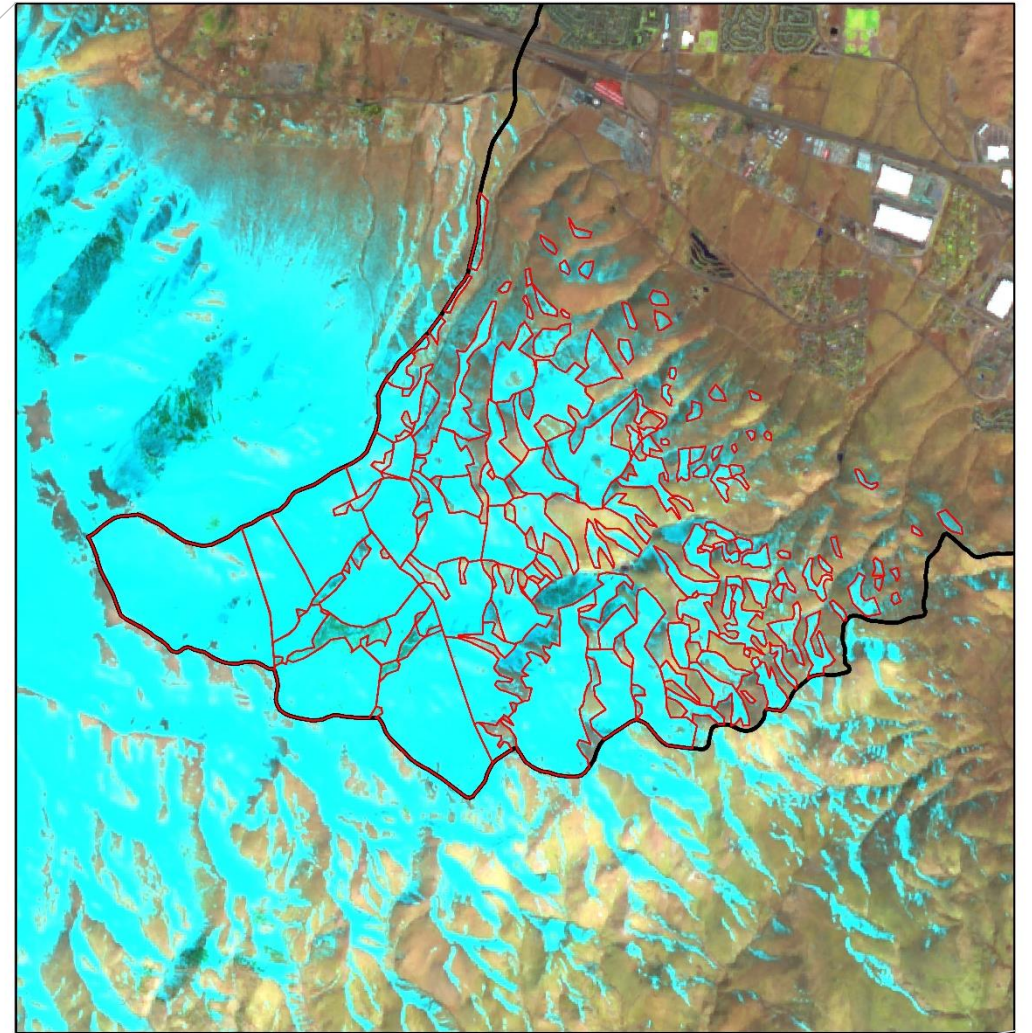
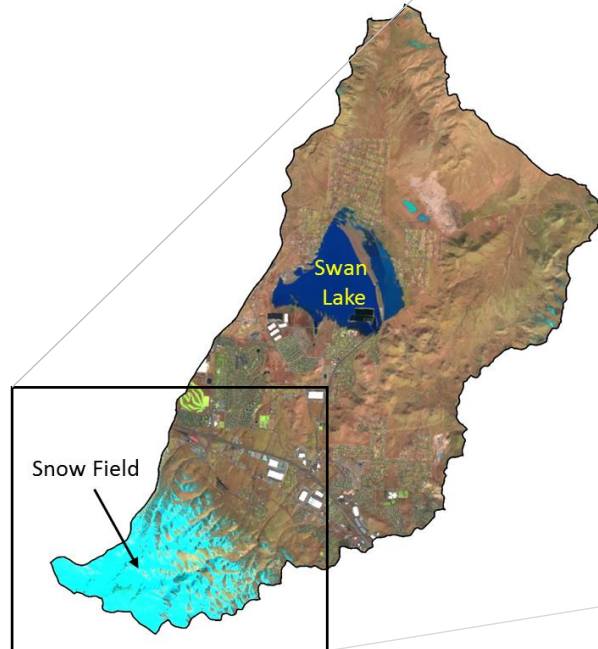


Estimate #3 Product of Average SWE and Snow Area

Area = 2,100 acres

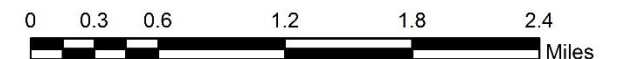
Average Snow Water Content = 1.8 feet

Total Snow Water Volume = 3,800 acre-feet



Legend

-  Snow Covered Areas
-  East Lemmon Valley



East Lemmon Valley Snow Volume Summary

#	Method	Volume (acre-feet)
1	SNODAS	700
2	SWE Gradient Downslope	1,500
3	Average SWE * Snow Area	3,800

Best Estimate

