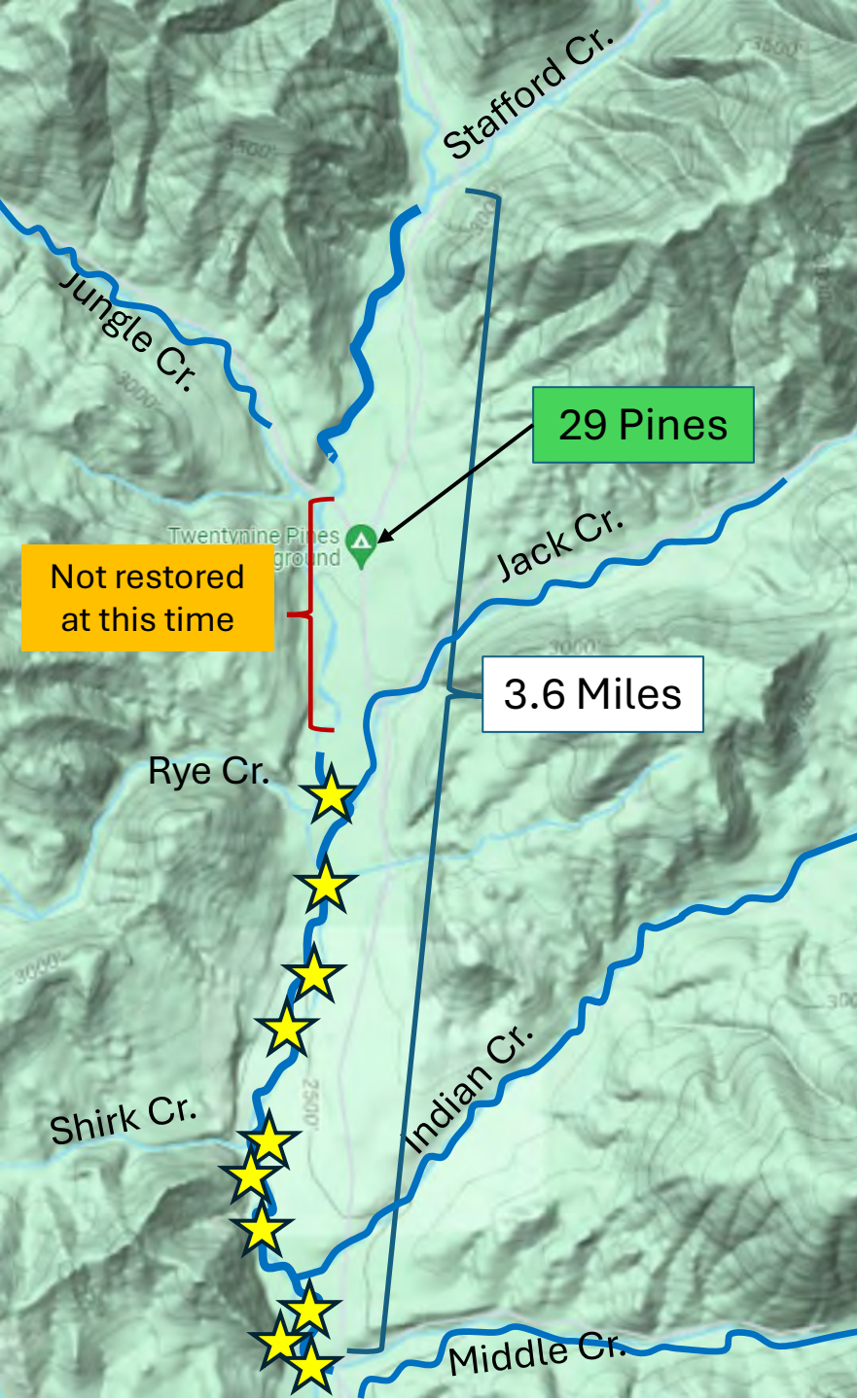


NF Teanaway River Restoration Monitoring

2019 Construction



NFT Restoration



= Restoration reaches with
over 2,000 ~40 ft logs in
just the NFT



= Engineered Log Jams





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2019



2019



2019



NFT upstream of 29 Pines

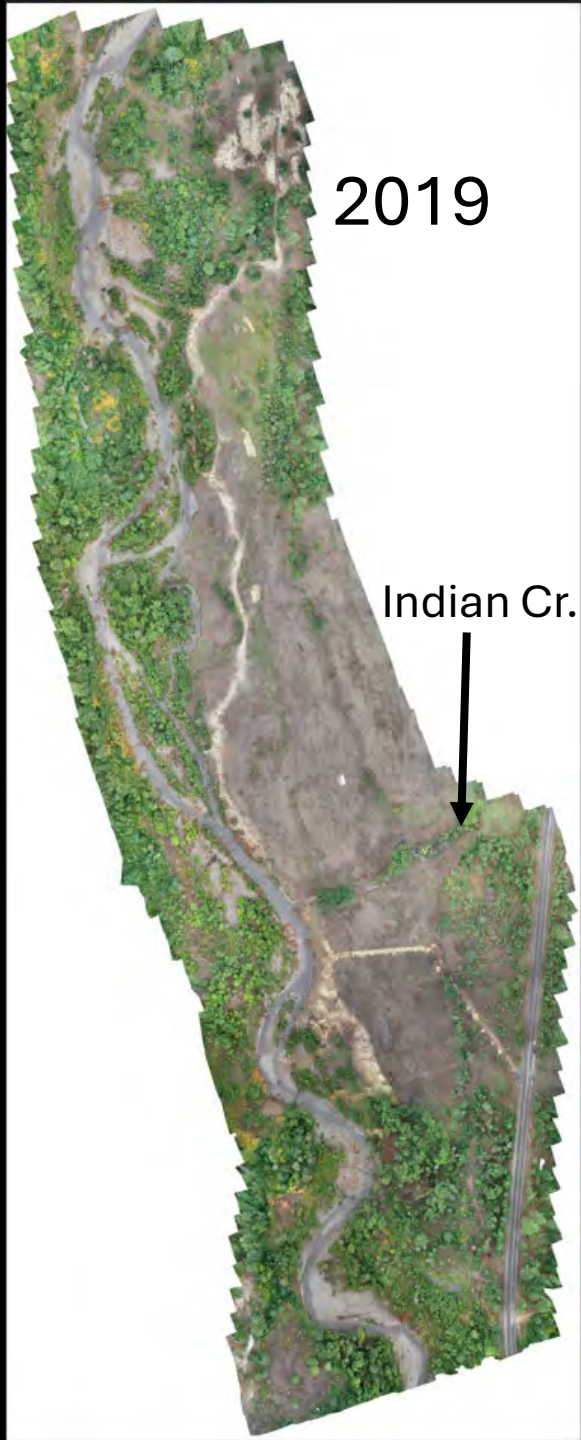
Immediately after logs were added

2019



So, remember we said we'd monitor?

- We tagged all the trees
- We took pictures
- We flew drone imagery



2019

Indian Cr.

Ryan Deknikker, YN

Drone flight immediately
after construction

Autel Evo2 Drone

WDFW Region 3

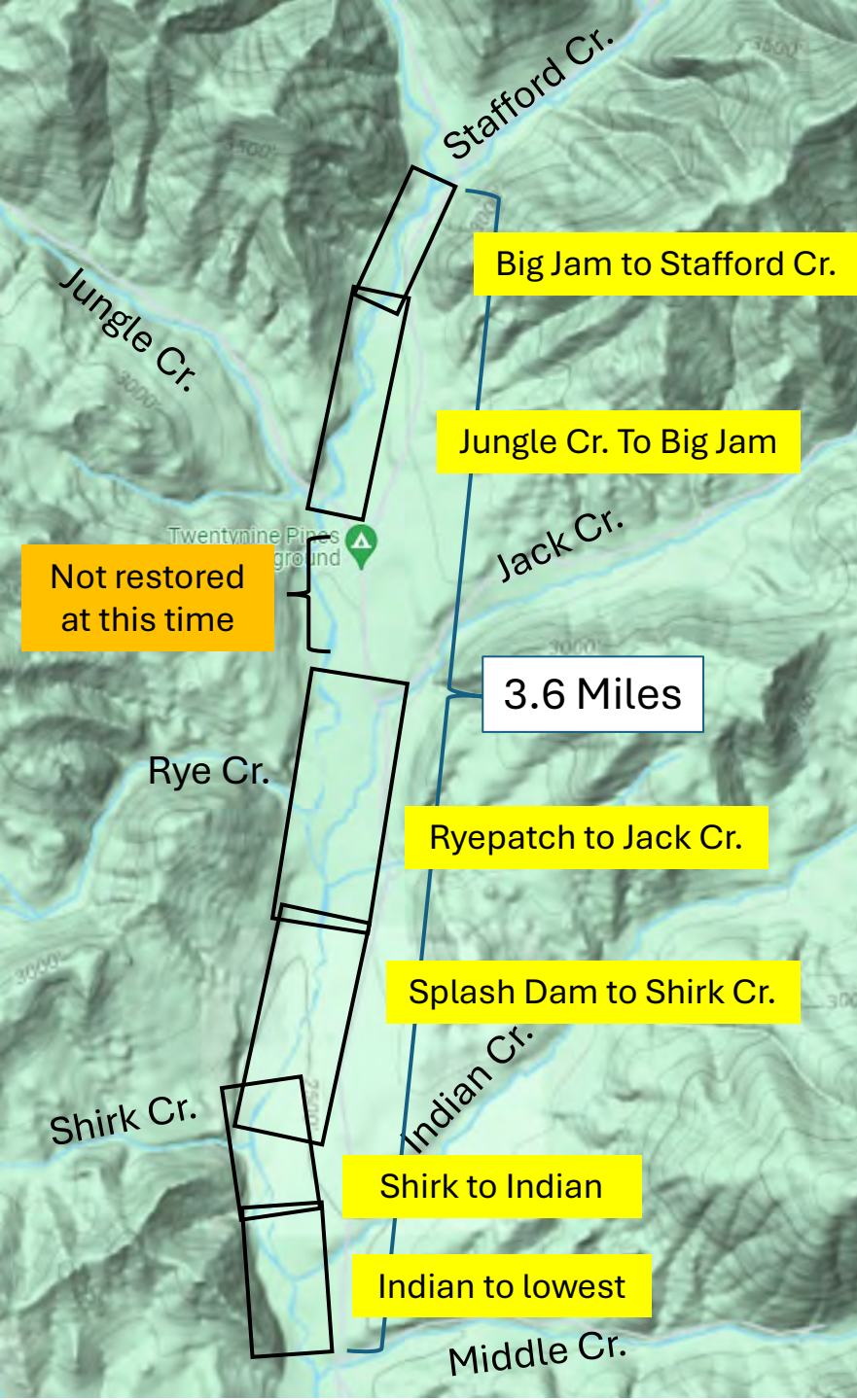
2023



Autel Controller & Mission Planning:

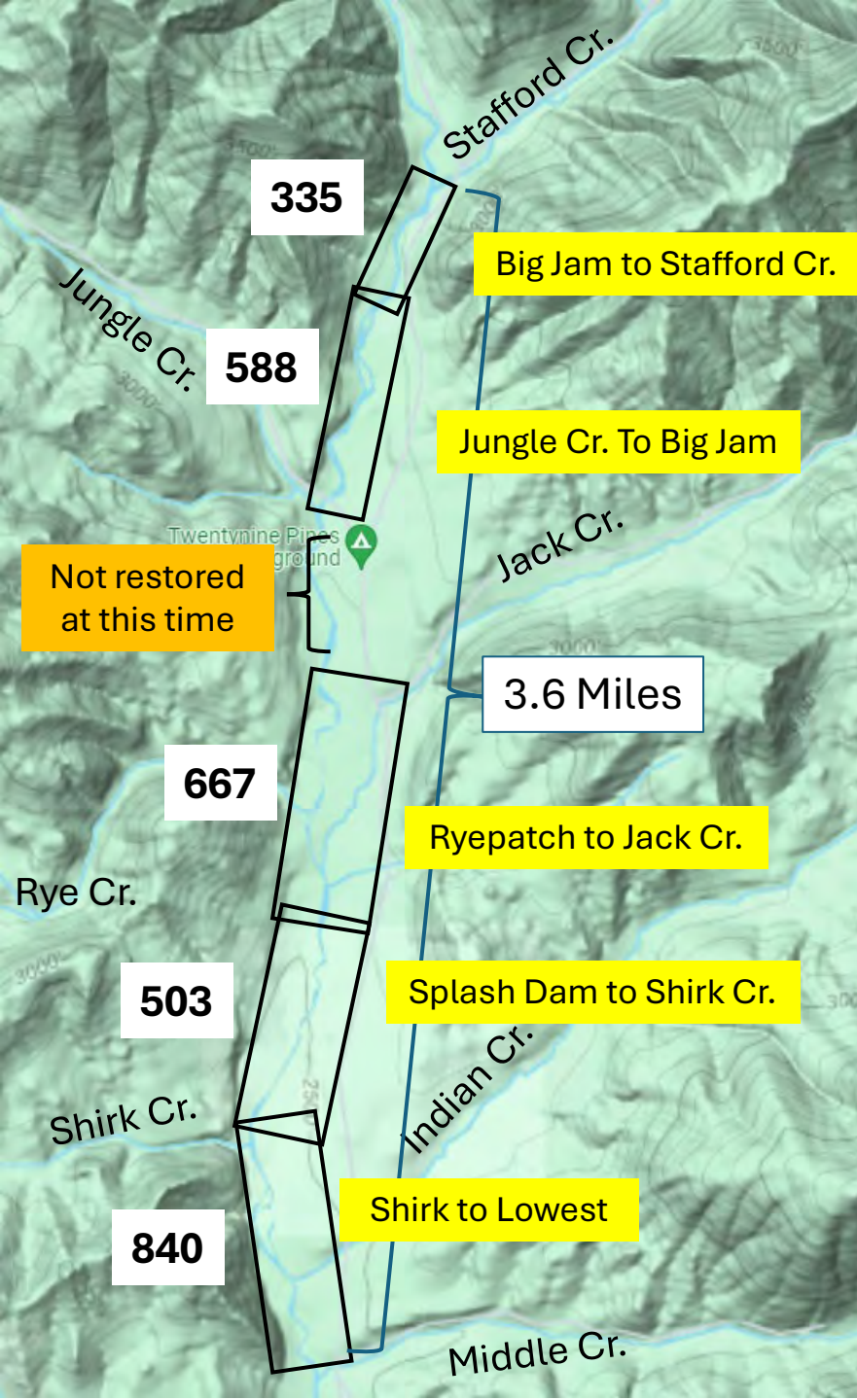


6 NFT Restoration Reach Drone Flights Fall 2023

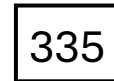


= Drone flight missions of restoration reaches

5 NFT Restoration Reach orthophotos Fall 2023



= Drone flight missions of restoration reaches



= # of pictures in each flight area

2,933 images for
all 5 missions!

Mission Planning

- Image processing in Pix4D

Photo overlap:

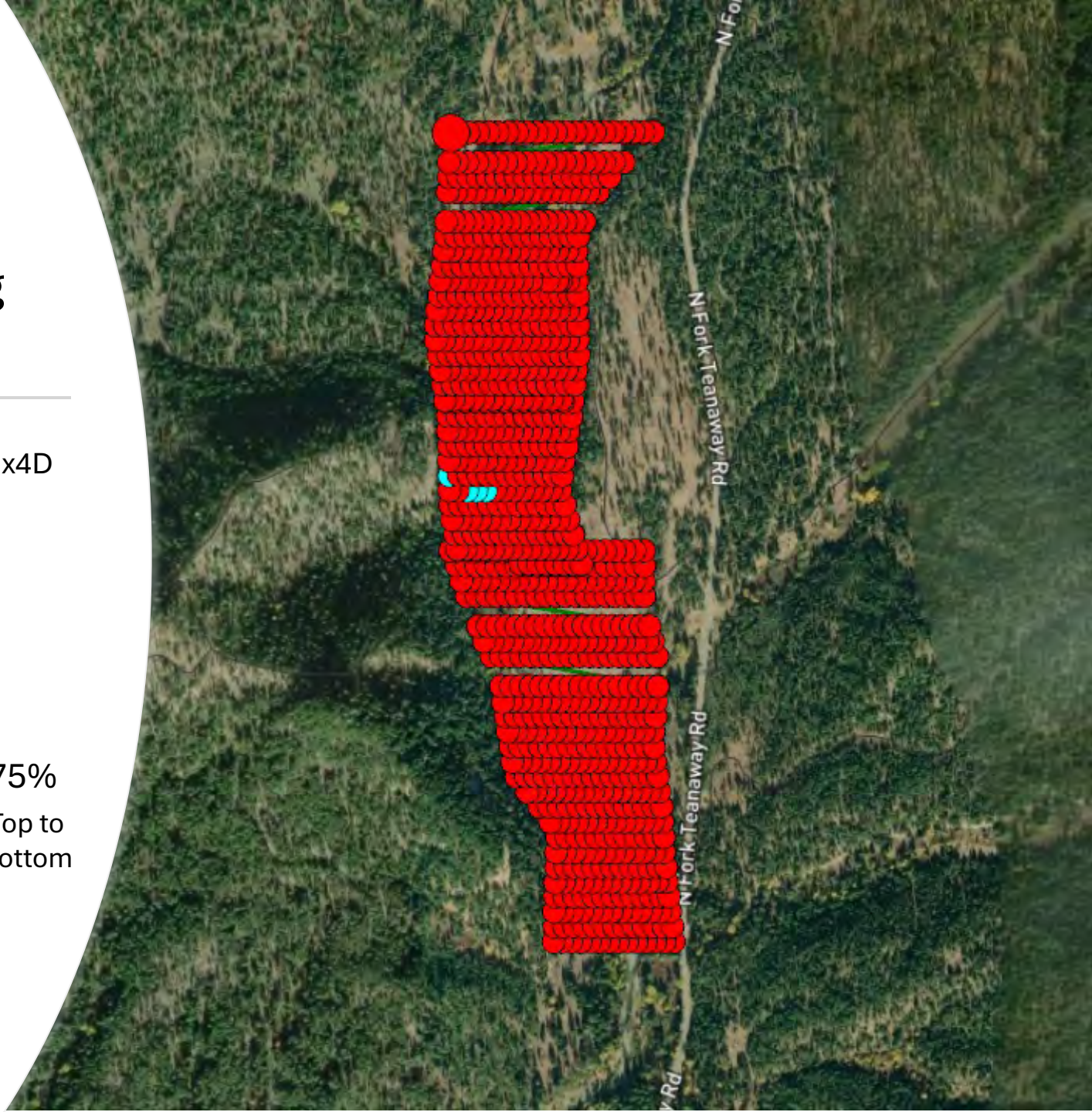
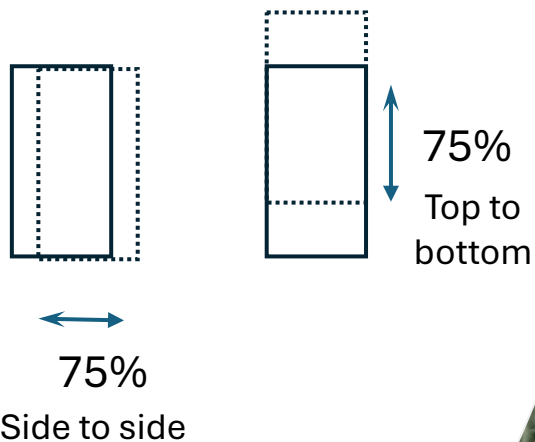
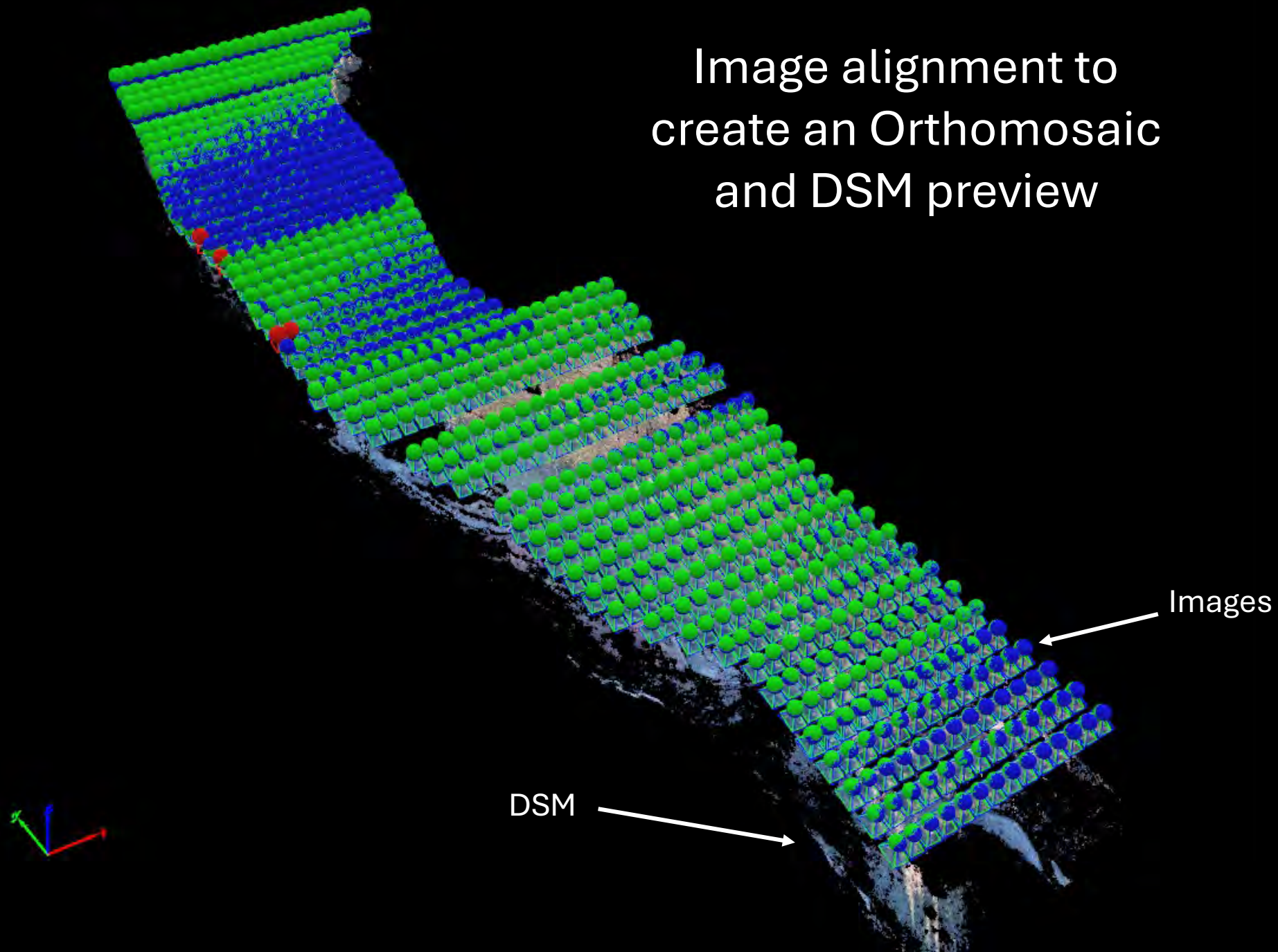
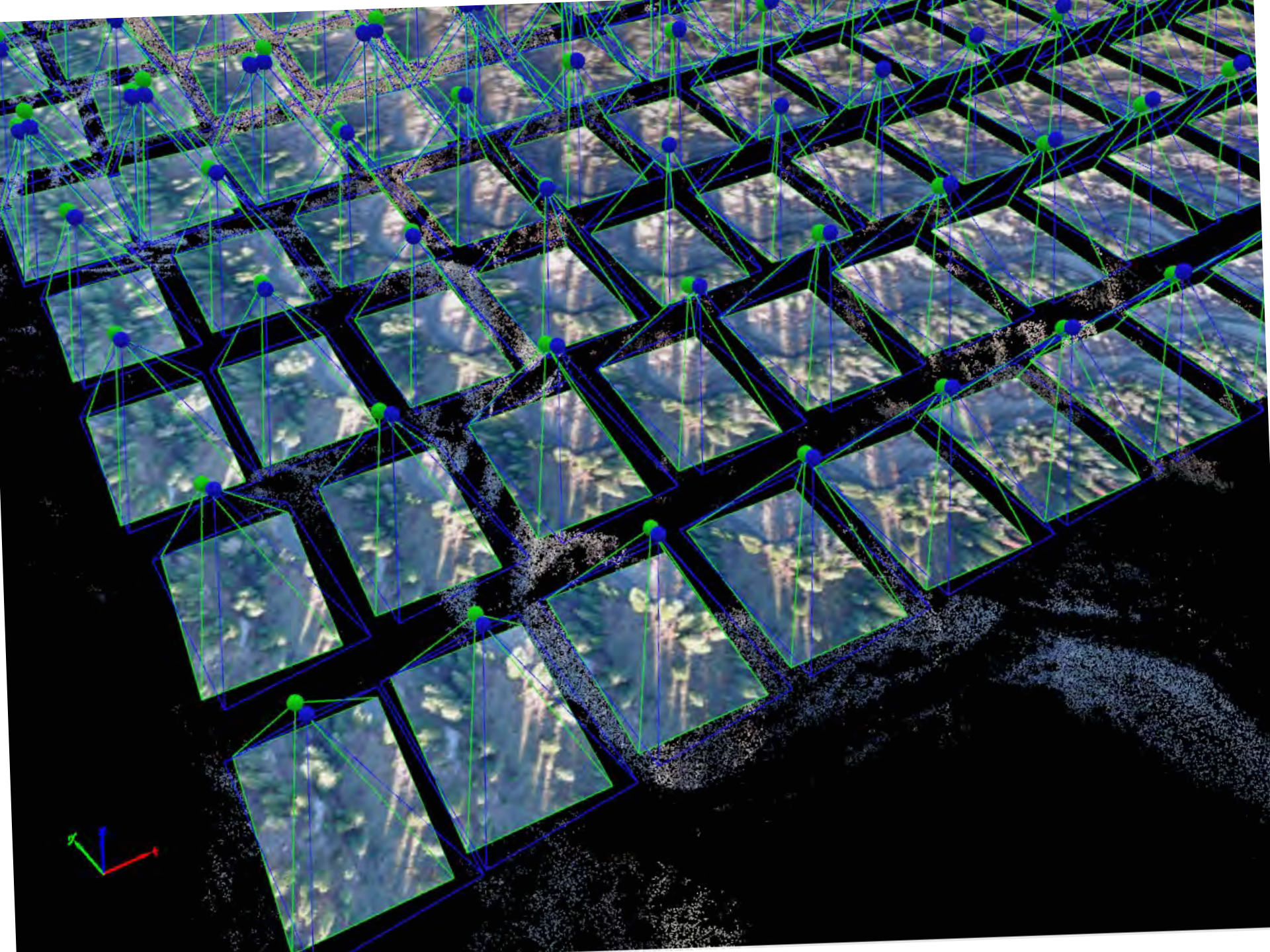
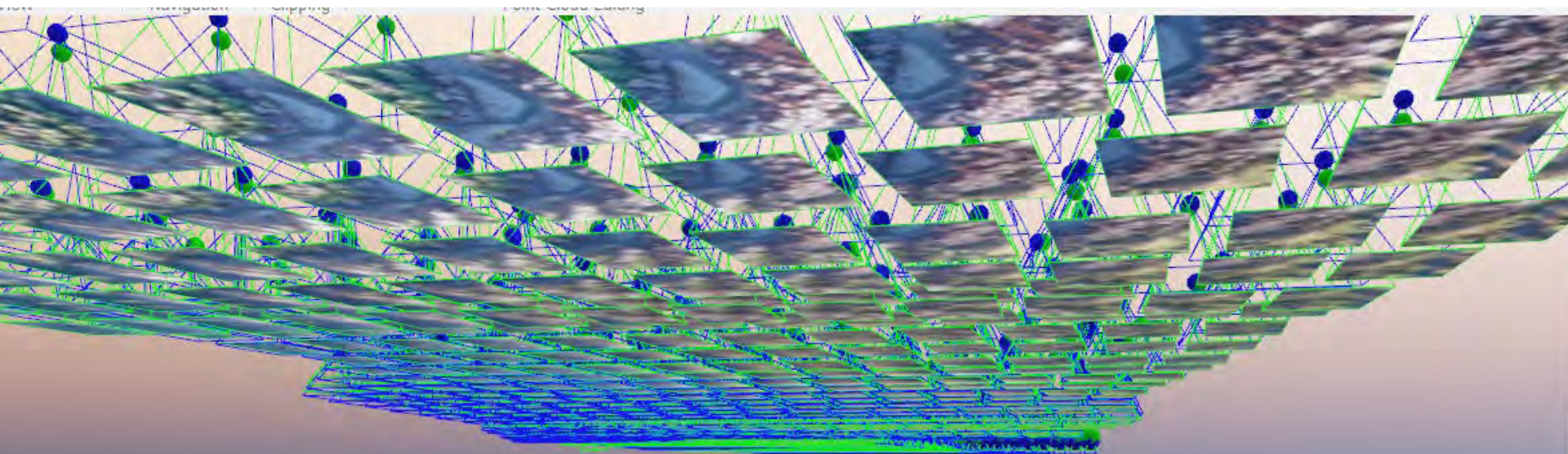


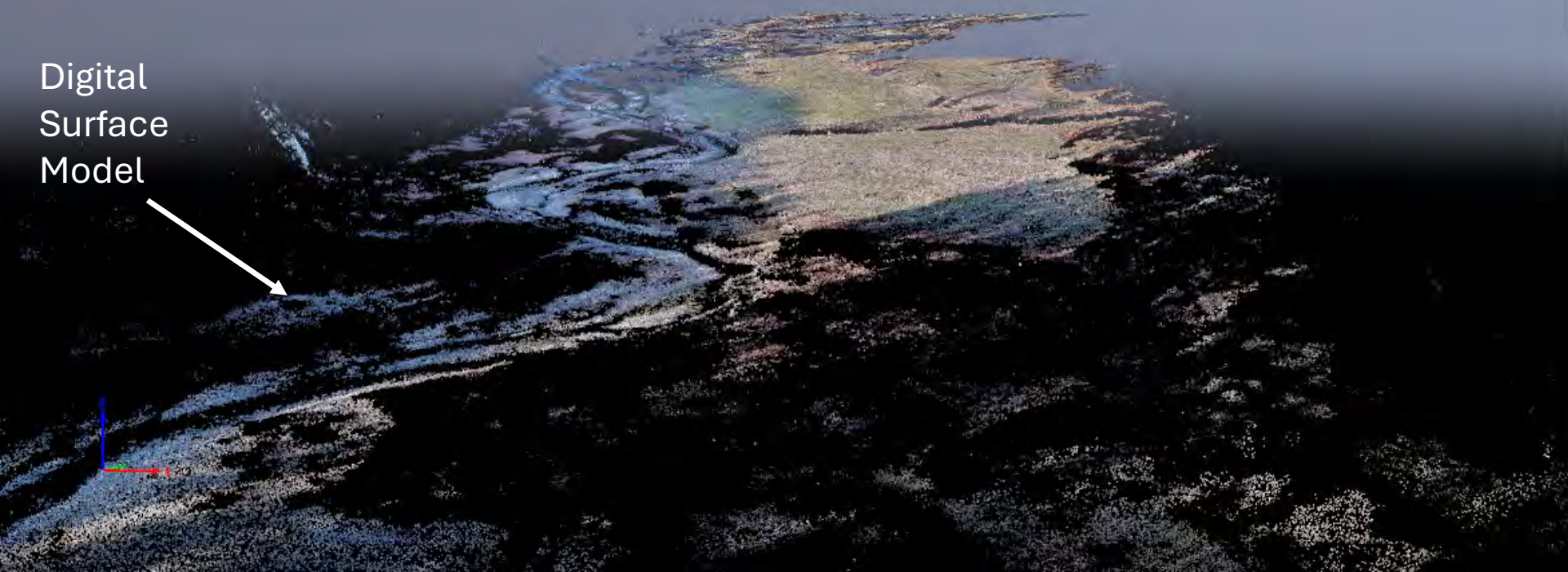
Image alignment to
create an Orthomosaic
and DSM preview



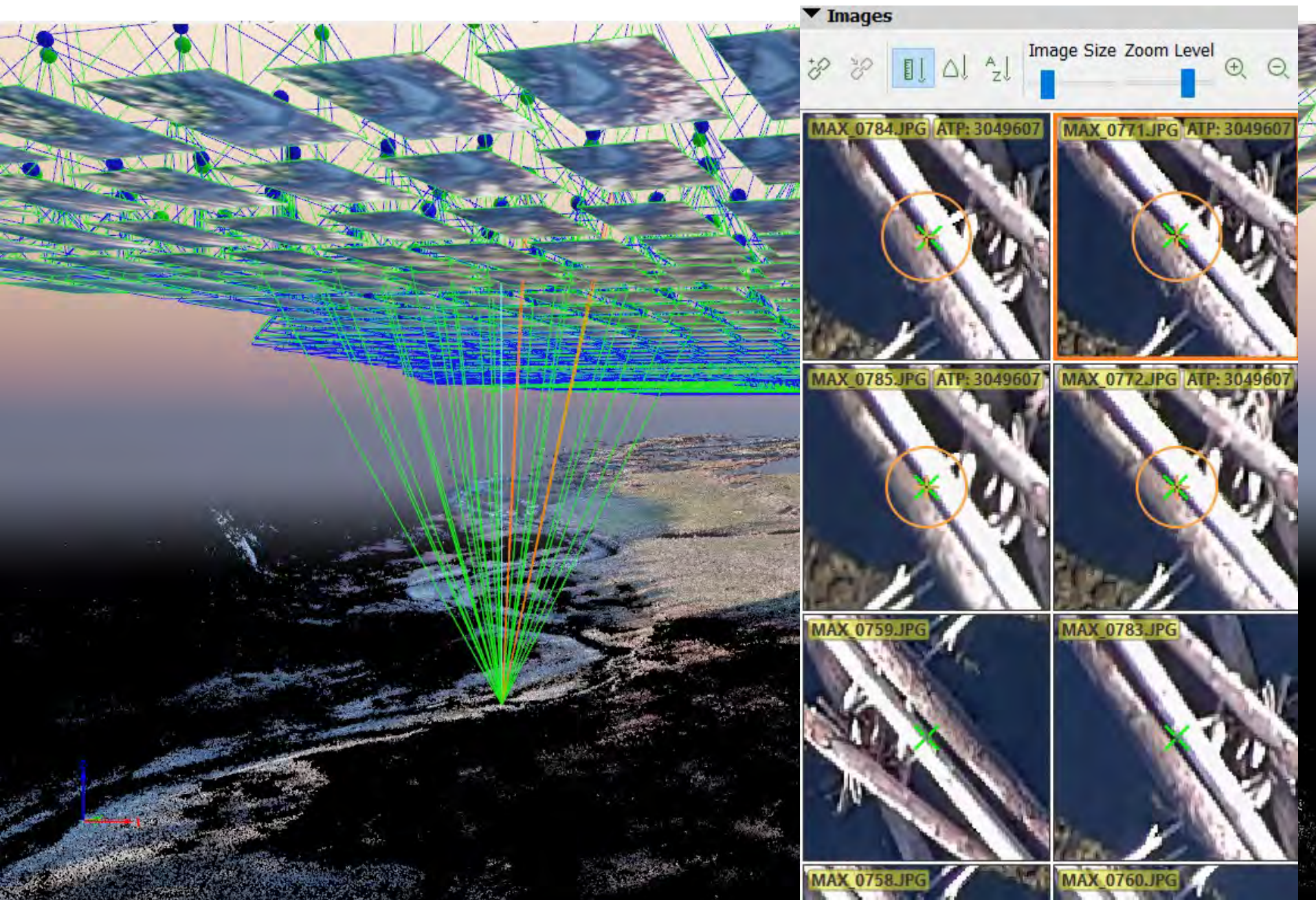




Digital
Surface
Model



Number of images a single point is visible (27)



Pix4D software flow and GIS processing

Pix4D

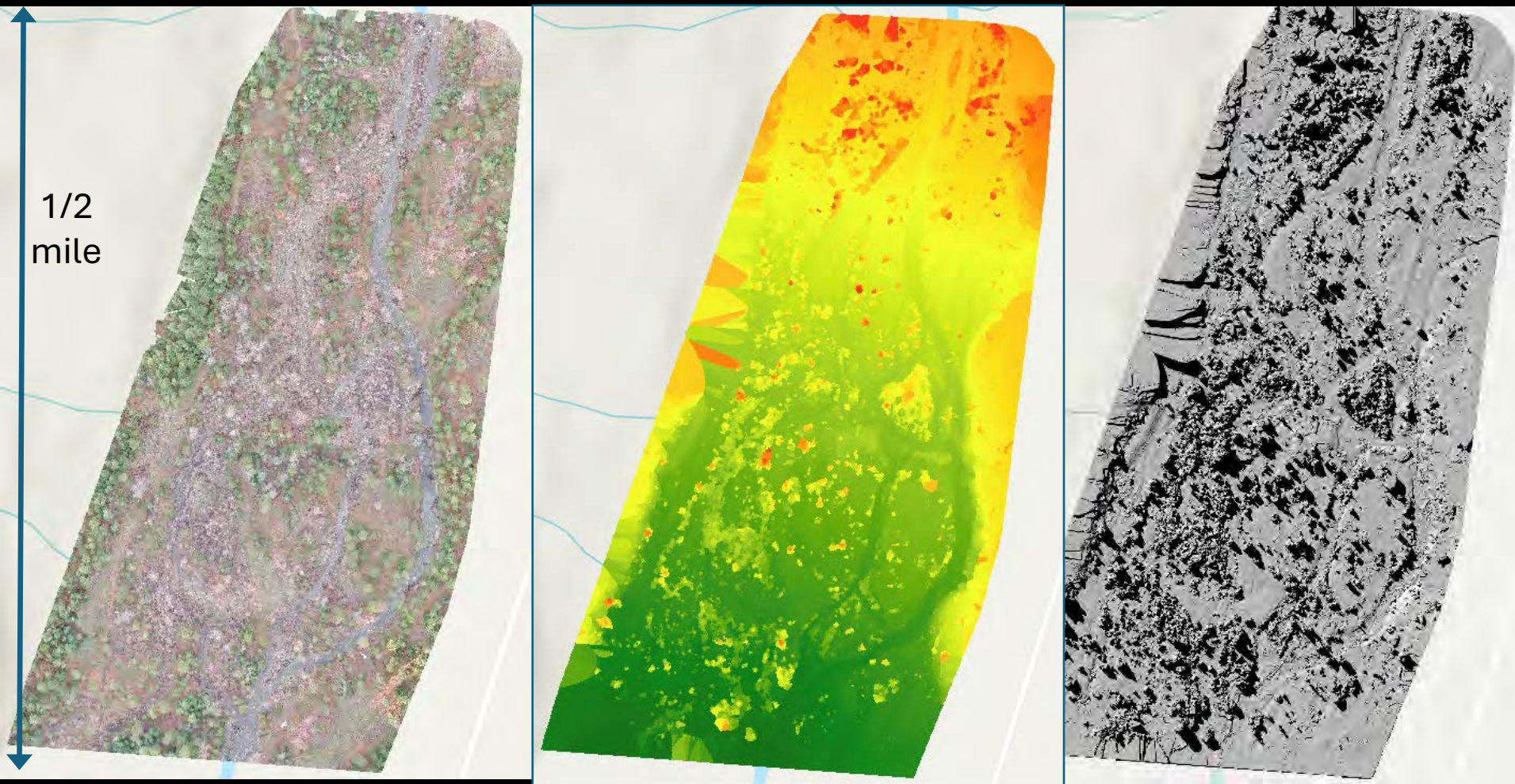
Pix4D

GIS

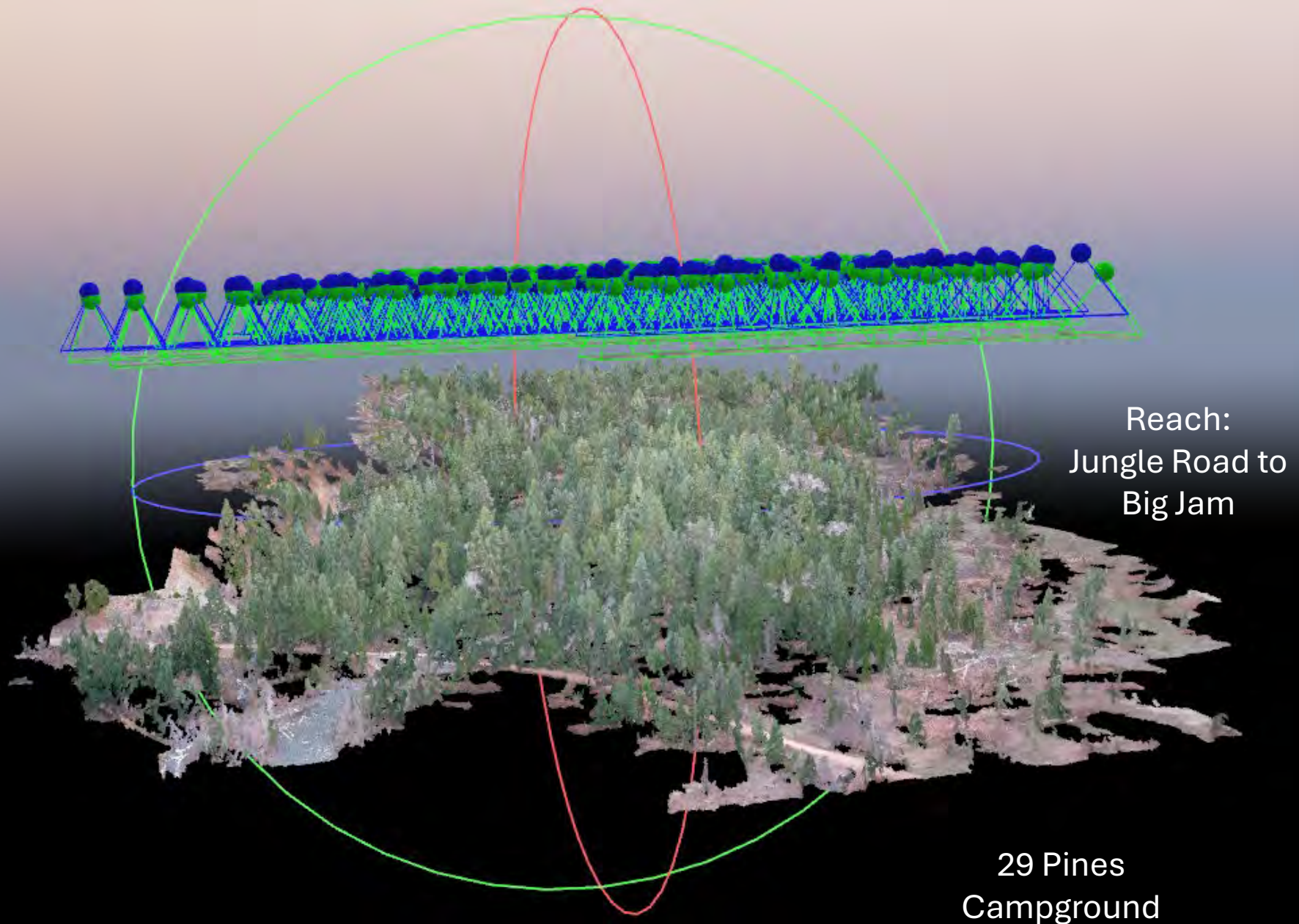
Orthomosaic

Digital Surface Model

Hillshade surface



Pix4D: 3D Surface in First Person Navigation mode





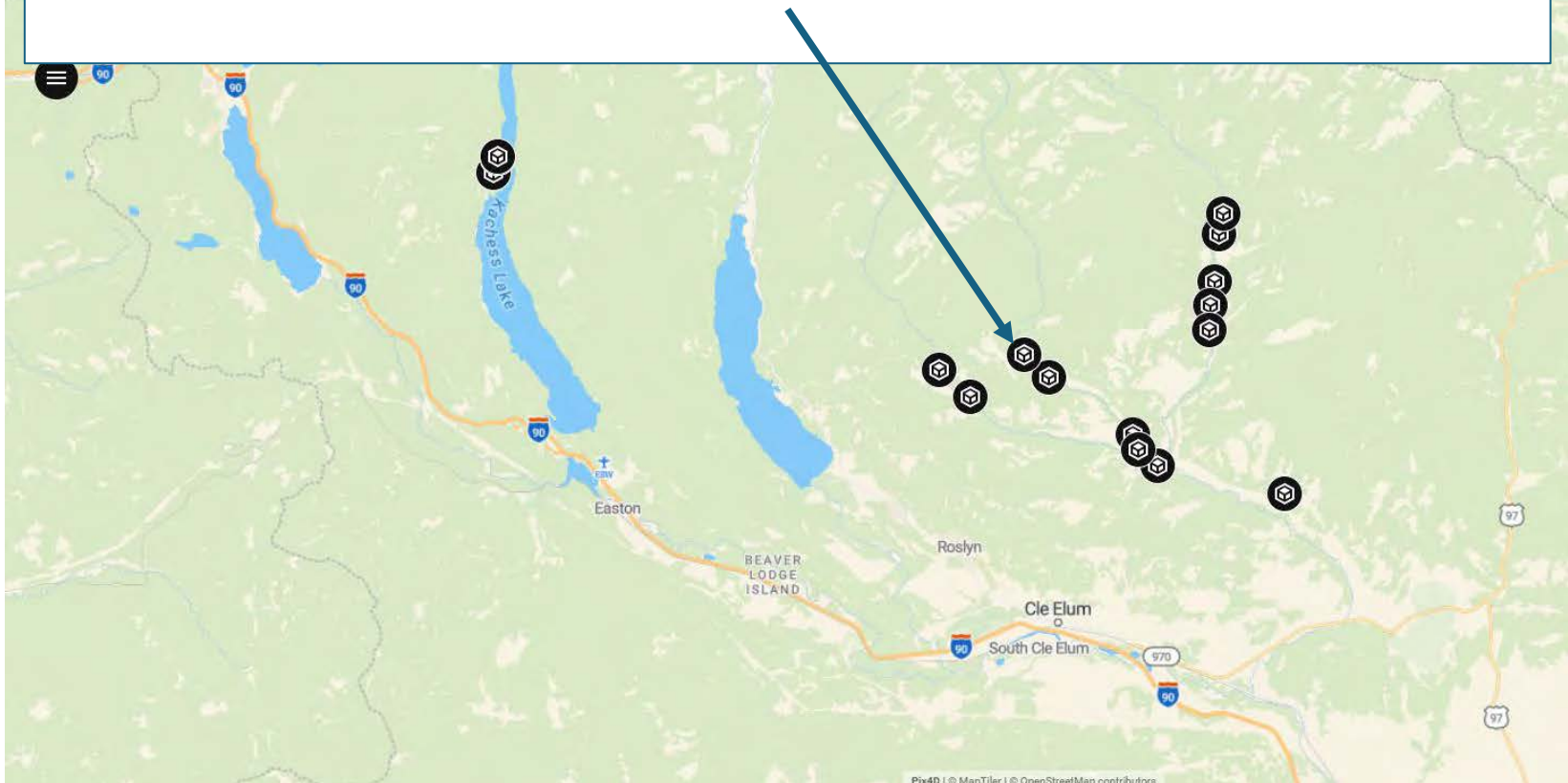
Pix4Dcloud



Mission Planner

Cloud Link:

<https://cloud.pix4d.com/dataset/2177451/map?shareToken=dbc7a866-a298-4b13-8017-d7de600d0dde>

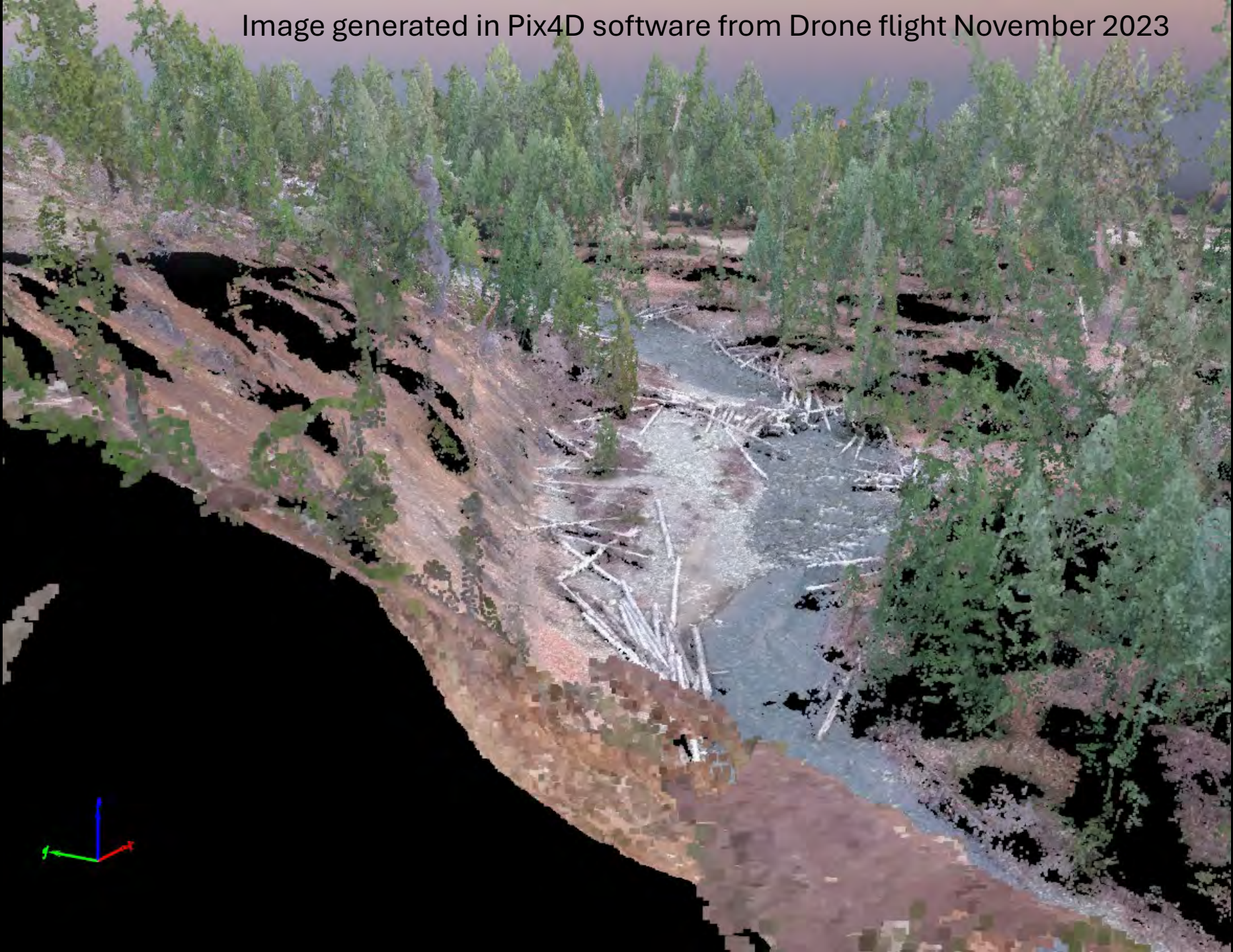


NFT upstream of 29 Pines

Immediately after logs were added



Image generated in Pix4D software from Drone flight November 2023



Snowshoe Trip March 3, 2024

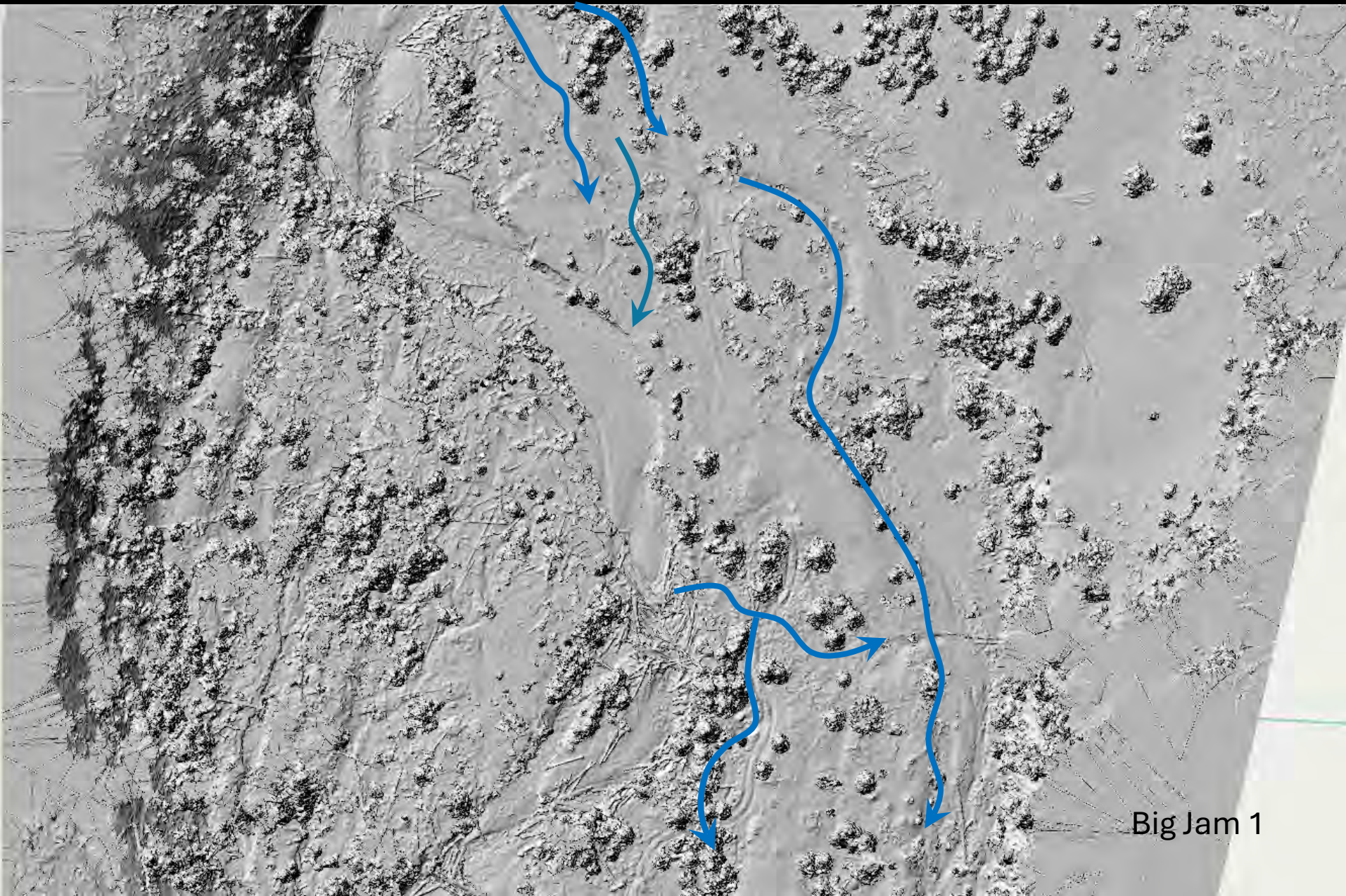


Drone Orthomosaic Nov. 2023



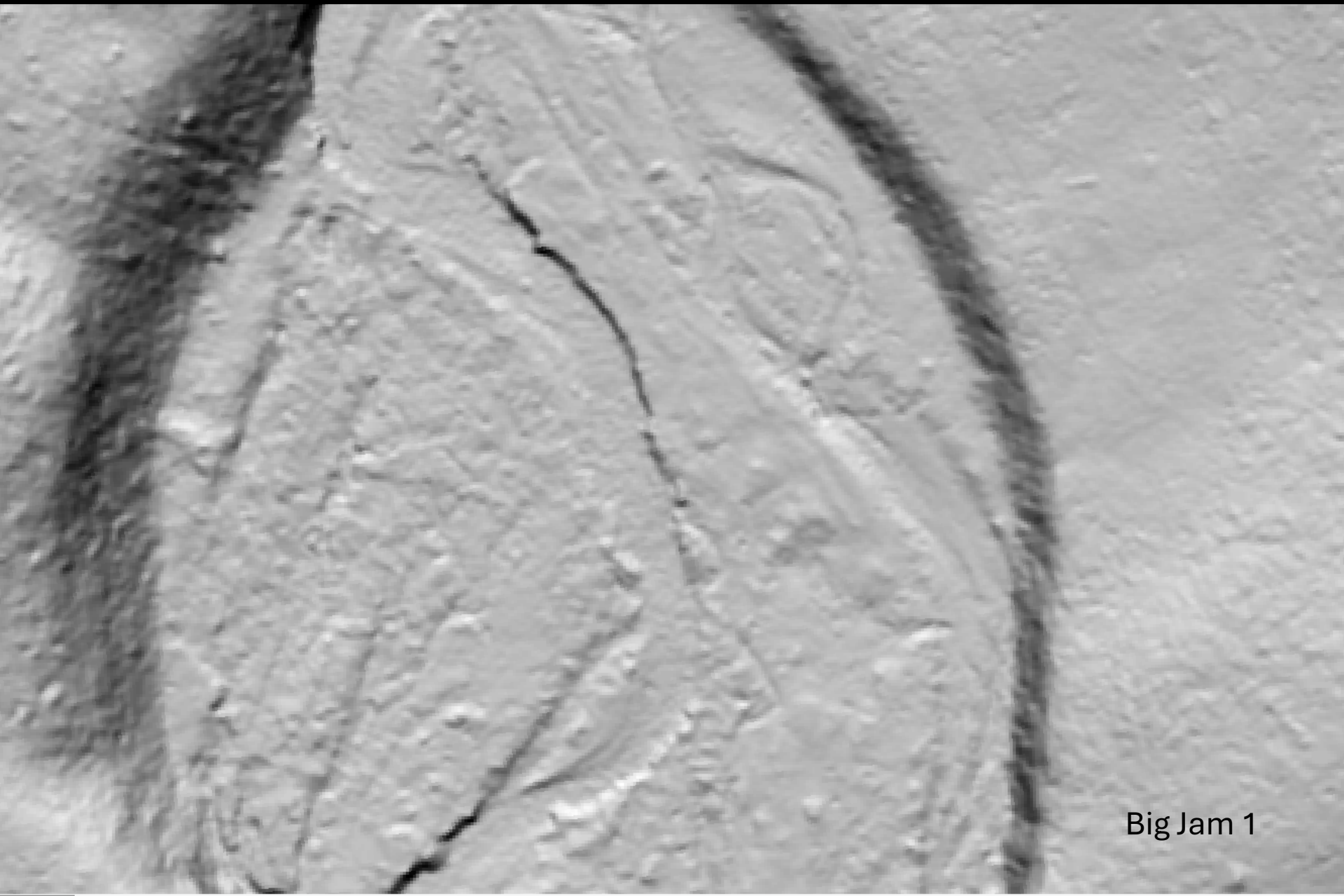
Big Jam 1

Drone hillshade Nov. 2023



Big Jam 1

Lidar 2015



Big Jam 1



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and [HERE](#) (part 2)**

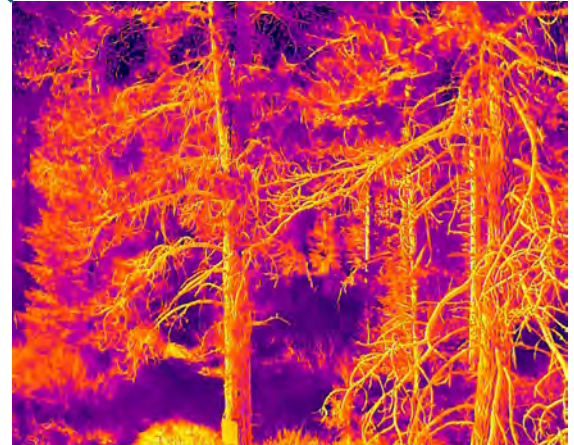
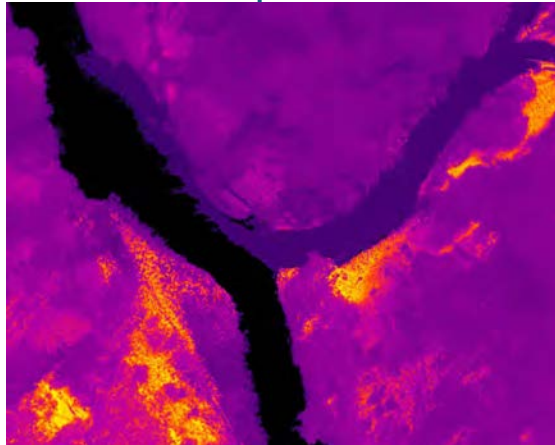
https://yakamafish-nsn.gov/sites/default/files/William_Meyer_Video2_compressed_part1.mp4

https://yakamafish-nsn.gov/sites/default/files/William_Meyer_Video2_compressed_part2.mp4

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Autel Evo Max4T XE Drone – May 2025



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To play video 5 from this presentation, click [HERE](#).

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The End

