

Background

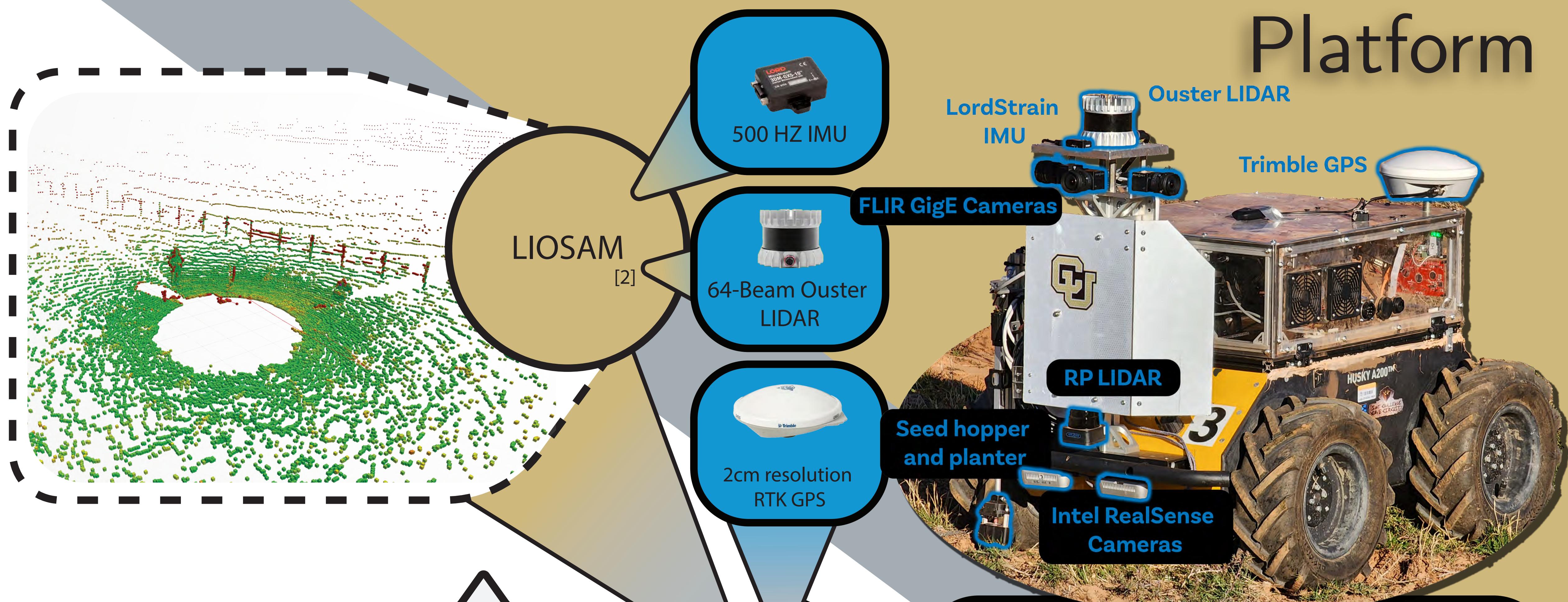


Degraded vs non-degraded rangeland



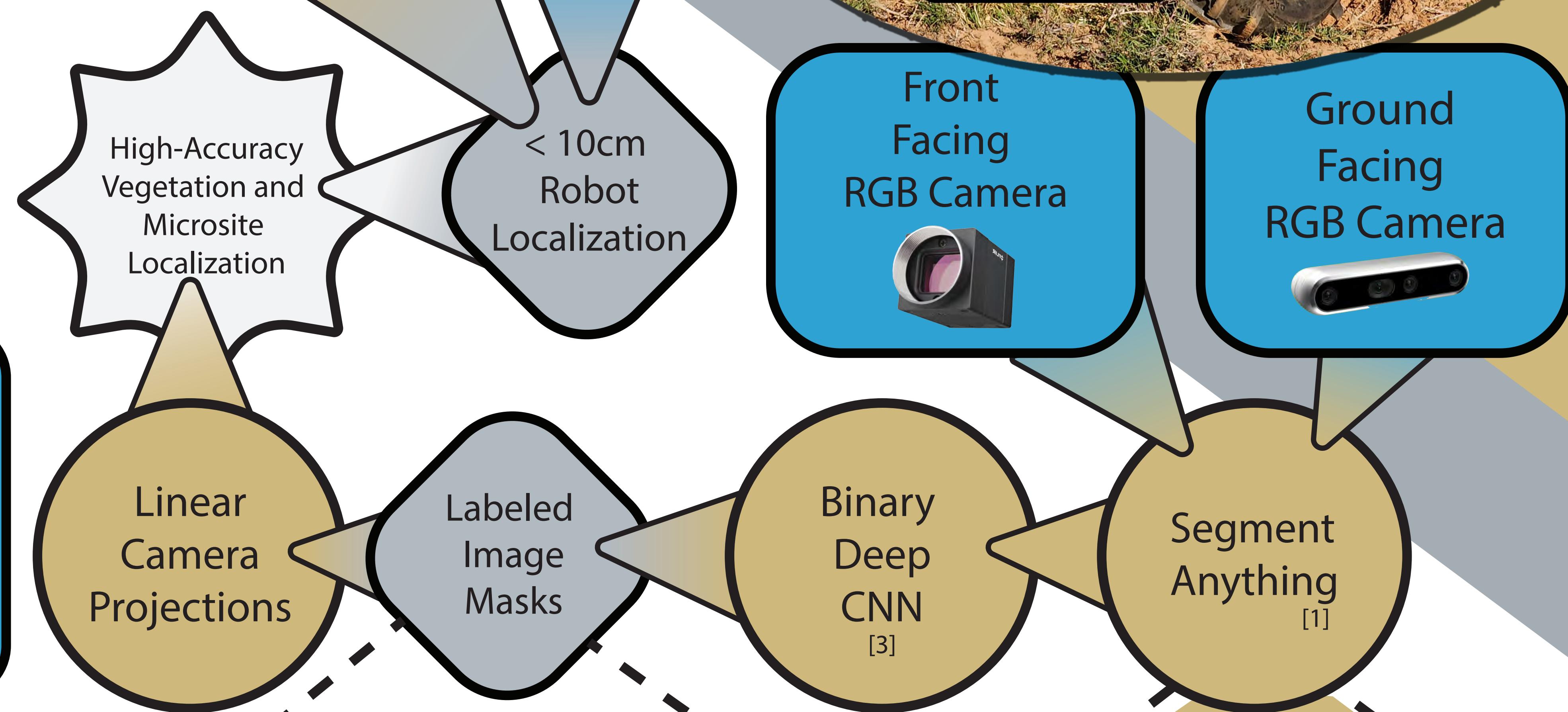
ConMod creates the necessary microsite conditions for germination and growth. These images were taken just 2 years apart!

USGS/Becky Mann and NPS/Liz Ballenger

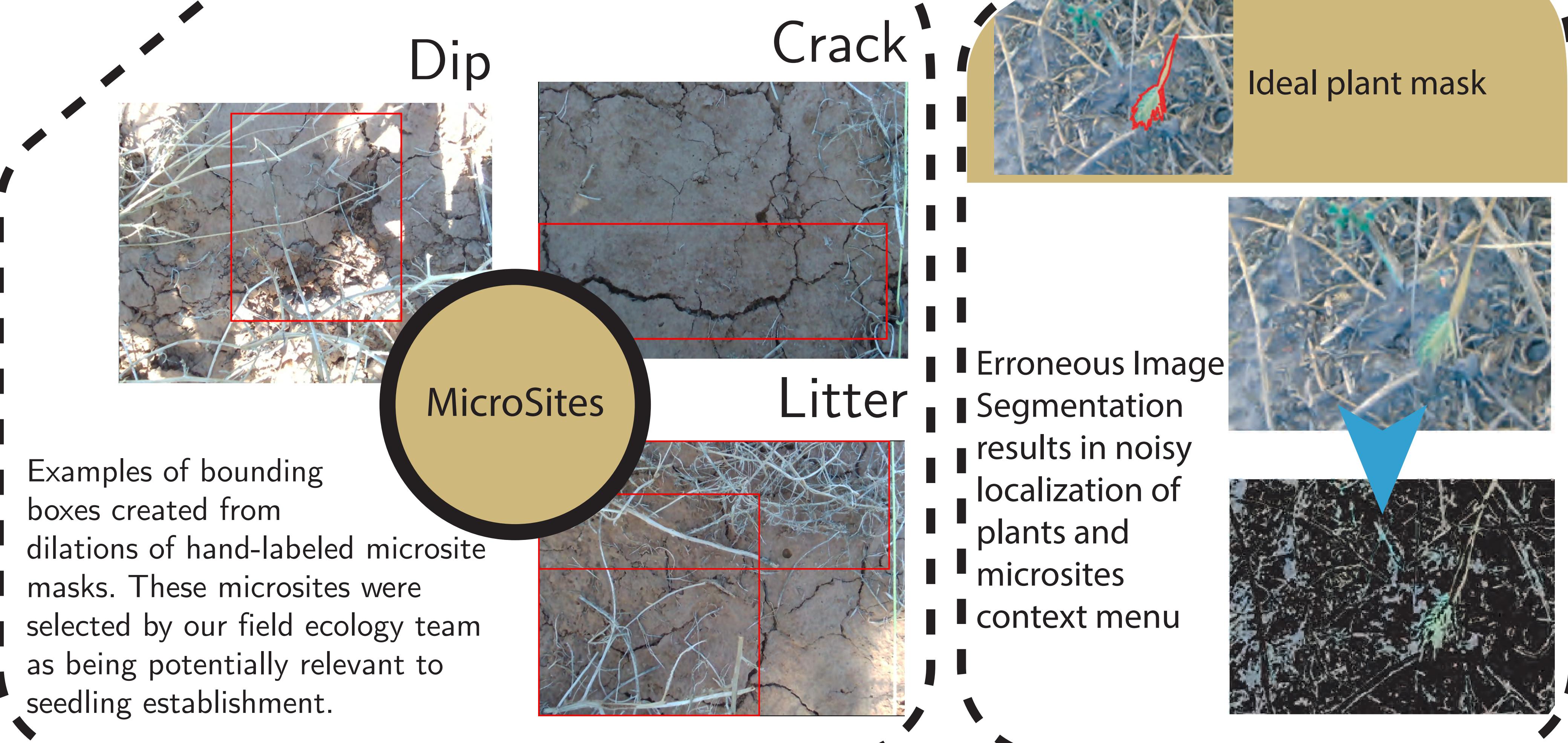
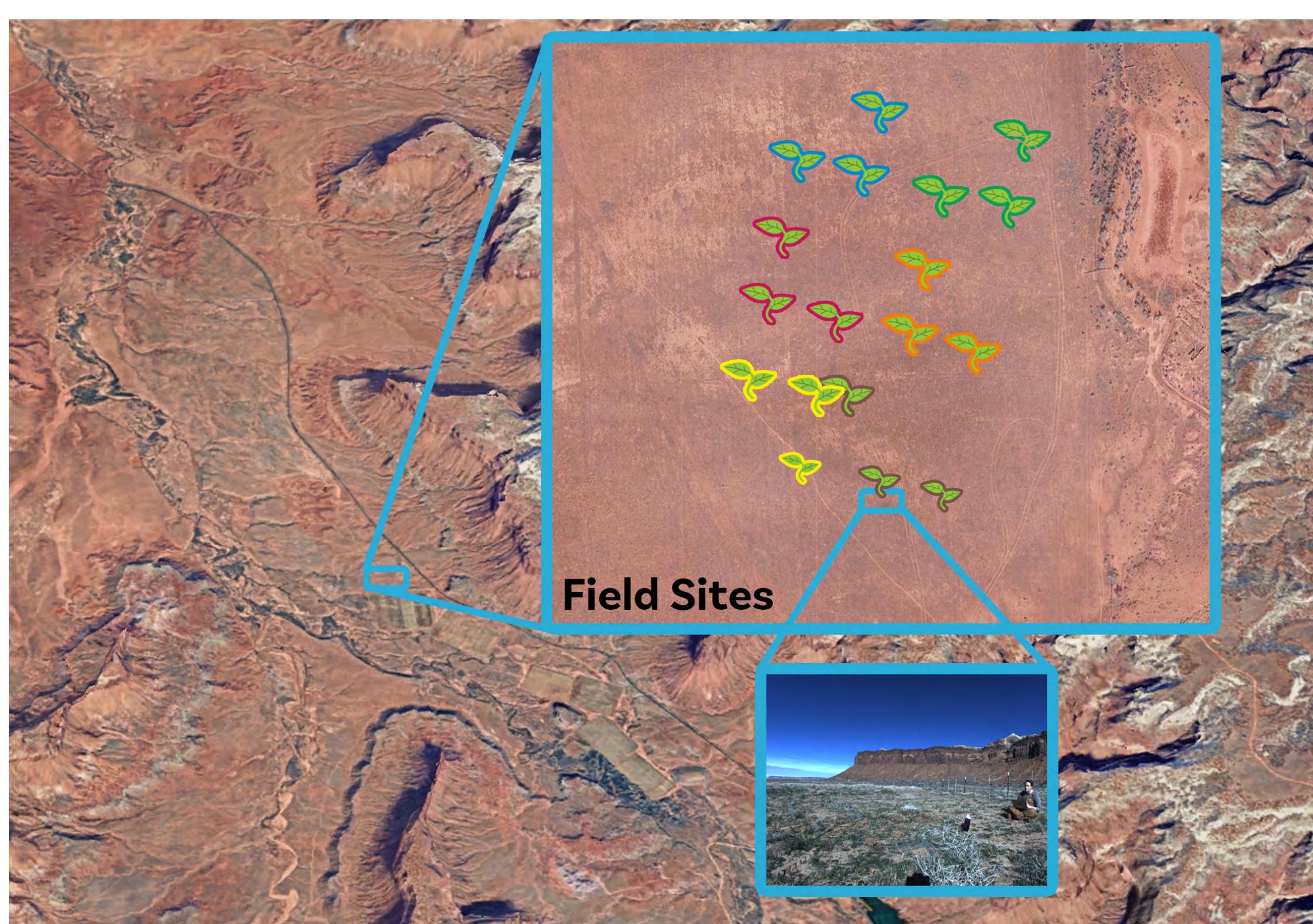


Data Products

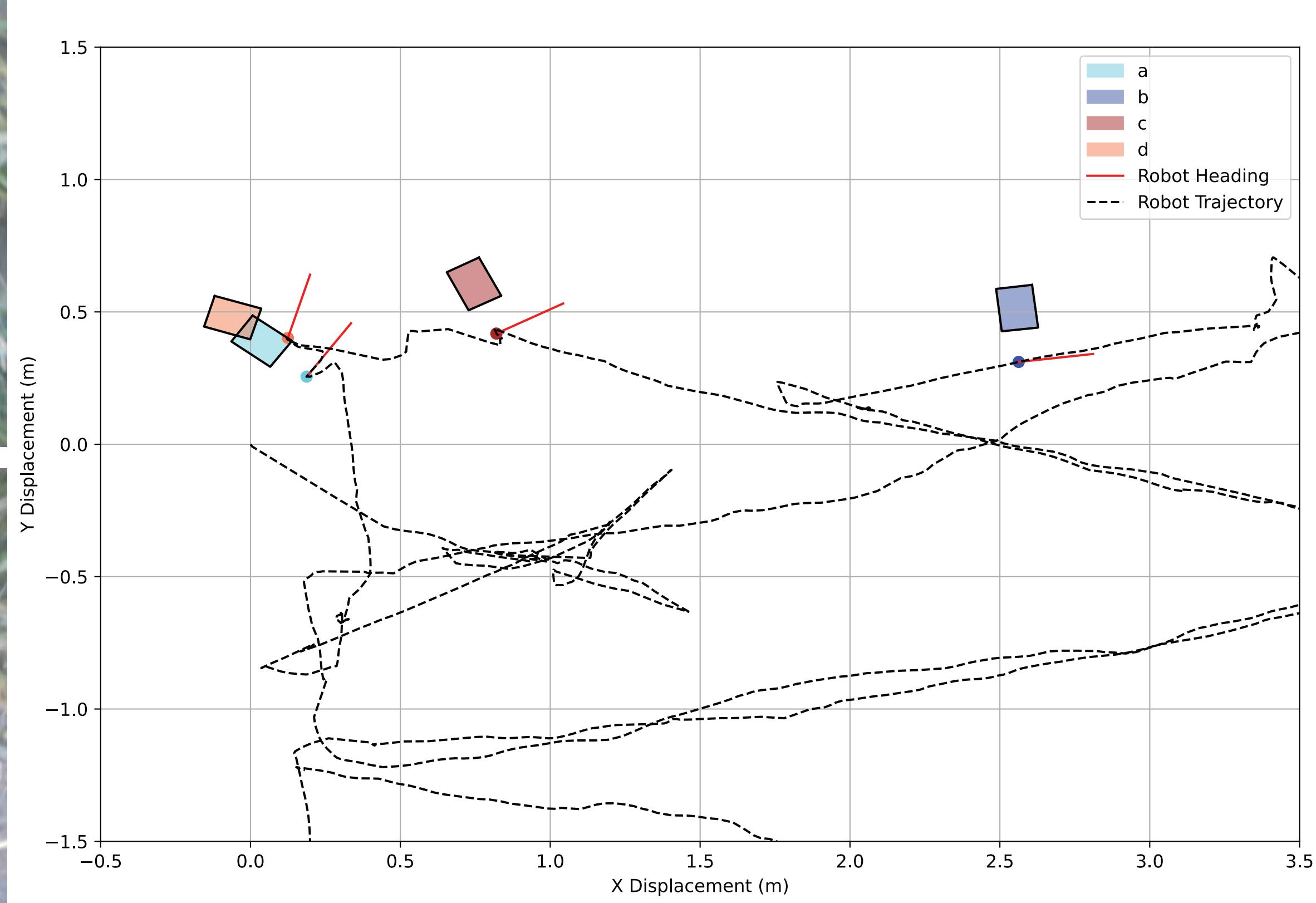
Point Clouds
IMU
Front-Facing Images
Down-Facing Images
RTK-GPS



Field Site



Distinction



Conclusion

- Localization alone is insufficient to uniquely identify plants
- State of the Art in Image Segmentation alone is not well suited for identifying centroids of native grass species
- Visual distinction of vegetation is difficult even for humans

References

- [1] A. Kirillov, E. Mintun, N. Ravi, H. Mao, C. Rolland, L. Gustafson, T. Xiao, S. Whitehead, A. C. Berg, W.-Y. Lo, P. Dollár, and R. Girshick. Segment anything. arXiv:2304.02643, 2023.
- [2] T. Shan, B. Englot, D. Meyers, W. Wang, C. Ratti, and R. Daniela. Lio-sam: Tightly-coupled lidar inertial odometry via smoothing and mapping. In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pages 5135–5142, IEEE, 2020.
- [3] Y. Wu, A. Kirillov, F. Massa, W.-Y. Lo, and R. Girshick. Detectron2. <https://github.com/facebookresearch/detectron2>, 2019.