GPS Accuracy in the Forest:

Comparing GPS Receivers in the Forests

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iPhone 13 Pro (iOS)

The device relies on internal GNSS & A-GPS but doesn't allow user access to raw GNSS measurements for post-processing.



Google Pixel 6 Pro (Android)

The device generally outperformed the iPhone by ~1 to 3 meters in forest conditions and allows access to raw GNSS measurements.



Juniper Geode GNS3S

An external single-frequency antenna paired via Bluetooth that overrides internal smartphone GNSS to provide sub-meter accuracy.

MIXED HARDWOODS 4.36 m - 6.21 m	MIXED HARDWOODS 3.10 m - 4.17 m	MIXED HARDWOODS 0.89 m - 1.54 m
NATURAL LOBLOLLY PINE 4.20 m - 6.25 m	NATURAL LOBLOLLY PINE 2.39 m - 3.13 m	NATURAL LOBLOLLY PINE 0.86 m - 0.98 m
Leaf-on		
		Leaf-off
NATURAL LOBLOLLY PINE 3.30 m - 4.47 m	NATURAL LOBLOLLY PINE 2.40 m - 3.49 m	NATURAL LOBLOLLY PINE 0.80 m - 1.24 m
MIXED HARDWOODS 3.65 m - 4.78 m	MIXED HARDWOODS 2.92 m - 3.60 m	MIXED HARDWOODS 0.85 m - 1.27 m

Key Takeaways for Forestry Professionals

SUB-METER ACCURACY IS POSSIBLE
Consistently achieve <1m accuracy with an external antenna. The Juniper Geode achieved sub-meter results in both forestry types without the need for Real Time Kinematic (RTK) positioning.

ANDROID VS. iOS PERFORMANCE
The Google Pixel 6 Pro outperformed the iPhone 13 Pro. The Android device was statistically more accurate by 1-3 meters across both forest types and seasonal conditions (leaf-on, leaf-off)

Did you find this information helpful? Let us know!

FORESTRY PROFESSIONALS MAY EXPECT AN AVERAGE ERROR OF 2-6 M
In southern forests, average smartphone accuracy stays within this range, which may be insufficient for high-precision tasks.