

"Using Historical Satellite Imagery: A Case Study from 3°14'59"S, 63°03'42"W"



Bonus Feature 3 – Temporal Verification of a Possible Pre-Columbian Fishery Complex

Assessment:

This site stands as the clearest example in our survey of how time-stacked satellite imagery—spanning over 50 years—can be used not just to detect hidden features, but to chronologically validate their artificial nature. Bonus Feature 3 was initially disregarded due to its proximity to modern clearings and the presence of palm cultivation. It wasn't until after the primary analysis was completed that the area was reexamined, prompted by a series of light-toned anomalies in the 1970 declassified satellite imagery. When these were compared to their 2024 counterparts, the consistency was undeniable: several apparent discolorations in the earliest imagery correlated with walls, berms, and pond rims that emerged in later high-resolution drought-season imagery. This prompted a deeper AI-assisted assessment, and what followed was a rare glimpse at a potentially ancient engineered aquaculture system hiding in plain sight.

The most compelling element is a **long, straight, linear feature**, extending over 400 meters northward from the main complex. It is faint but visible in the 1970 image—even then partially submerged—and becomes increasingly distinct from 2001 to 2024 as water levels drop. Unlike natural meandering streams or erosion gullies, this feature maintains **consistent orientation and uniform width**, with no lateral displacement, bifurcation, or erosion-derived irregularity. In technical terms, it exhibits the geometric stability and permanence characteristics of ancient causeways or engineered berms.

Critically, the structure persists despite being underwater or near-saturated for decades. Its clarity improves as the waterline recedes—not due to optical refraction, which would normally distort submerged objects—but because sediment and canopy cover have gradually thinned. This suggests that the material is durable and erosion-resistant, supporting the broader hypothesis proposed in this survey: that **pre-Columbian Amazonians may have employed glazed,**

modular terracotta construction for hydraulic and architectural infrastructure. The object's survival under fluctuating hydrological conditions lends weight to that claim. It may be one of the few visible above-ground remnants of a once-extensive aquaculture or transport spine, consistent with features described by Blatrix et al. (2018) in Bolivia's San Joaquín floodplains.

Blatrix et al. detail a sophisticated fishery system built by pre-Columbian societies in Amazonia. These systems combined **weirs, V-shaped fish channels, and earthen ponds**, integrated with **arrow-straight causeways** that allowed travel between forest islands and functional coordination between hydraulic components. At Bonus Feature 3, the **linear structure runs directly through the pond complex and into forested terrain to the north**, mimicking exactly the organizational logic documented in the Bolivian system. In that study, the authors describe how causeways often connected fishery zones with settlement or ceremonial mounds, implying that such features served multiple ecological and social purposes: movement, water control, and symbolic delineation.

Equally compelling are the **ponds** themselves. Initially obscured by vegetation, their structure becomes apparent post-2001 as clearing and seasonal desiccation intensify. These are not irregular pools or recent cuts; they exhibit **rectilinear boundaries, parallel alignment, and compartmental layouts**. Several ponds appear to be flanked by raised berms on their downstream edges, which aligns with the findings of the fishery study: in Bolivia, V-shaped weirs guided fish into ponds that had **high berms on the downstream side**, acting as traps during flood recession. The authors found that these ponds often formed clusters and were built upstream of the flow direction—features echoed at Bonus Feature 3 in both layout and flow orientation.

Another significant clue to antiquity is **partial overgrowth**: many of the ponds are **ringed by woody vegetation**, especially palms in Bolivia, which tend to colonize abandoned berms and mounded structures. The overgrowth, coupled with the non-random orientation of pond features, suggests that this may not be a modern aquaculture plot or excavation—it is likely a remnant system that predates industrial intervention.

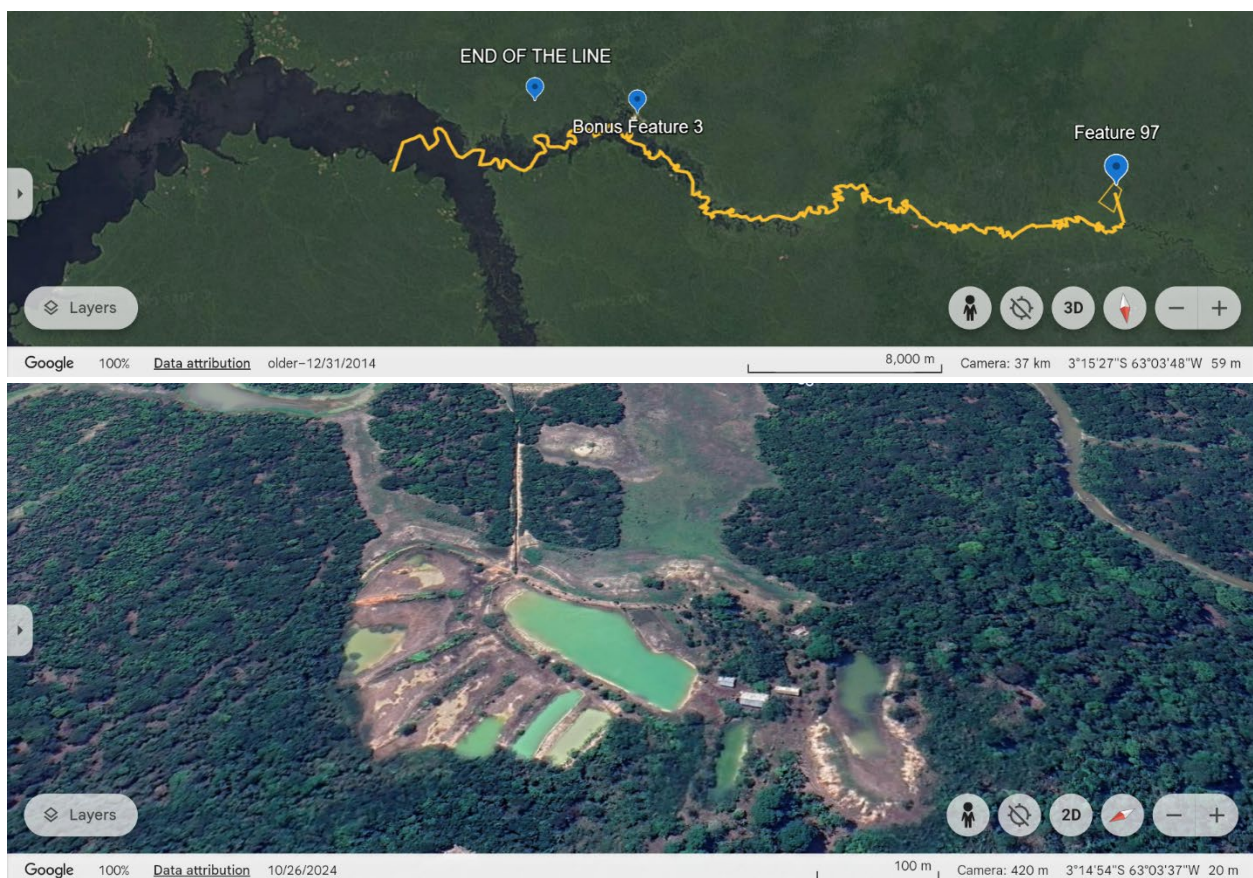
South of the pond complex lies a **large rectangular clearing**, visible in degraded form even in 1970. In modern imagery, it is partially planted with palms, which is notable. As McMichael et al. (2014) have shown, pre-Columbian **terra preta** zones—anthropogenic dark earths—are often selected for modern cultivation because of their lasting fertility. The size, location, and coloration of the clearing strongly resemble known terra preta plots, suggesting the area may have once supported agriculture in support of the fishery—a spatial pairing typical of integrated subsistence systems.

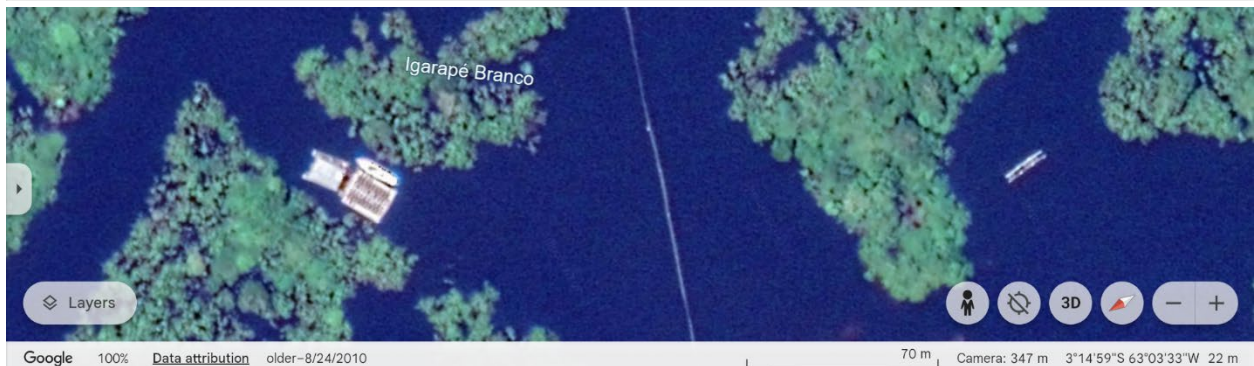
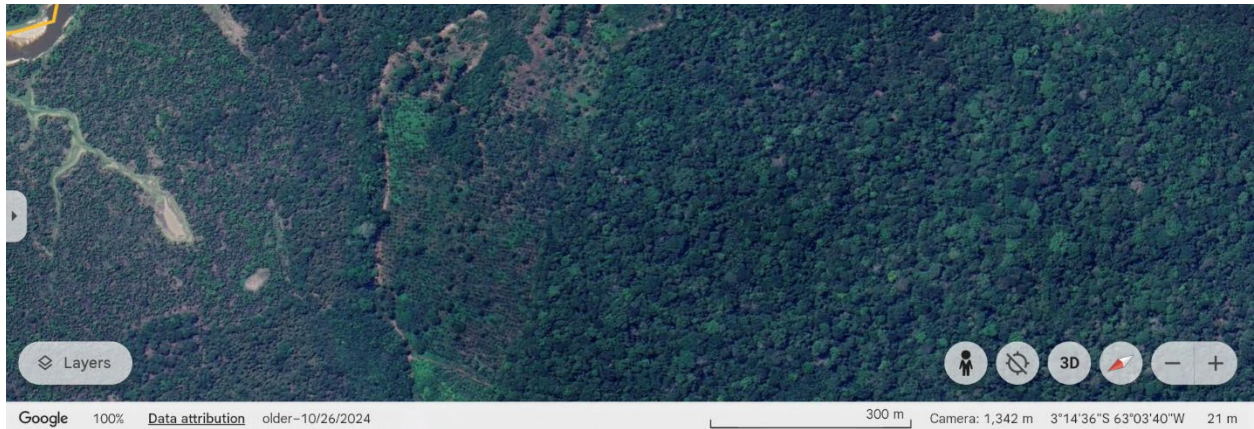
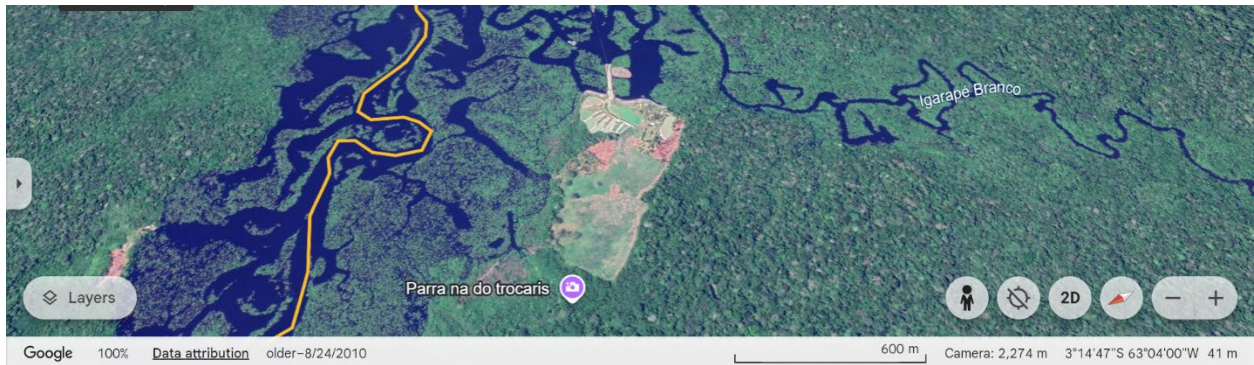
Hydrologically, the site is ideally located. It lies just **10 kilometers east of Lago Badajós**, a natural expansion zone of the river system that acts as a seasonal fish migration corridor. It is also only **24 kilometers west of Feature #97**, the massive arrow-shaped foliage complex interpreted as the symbolic or functional core of a much larger cultural landscape. In this light, Bonus Feature 3 may represent not an isolated anomaly, but a **food production and logistics node** within a decentralized but highly coordinated pre-Columbian system.

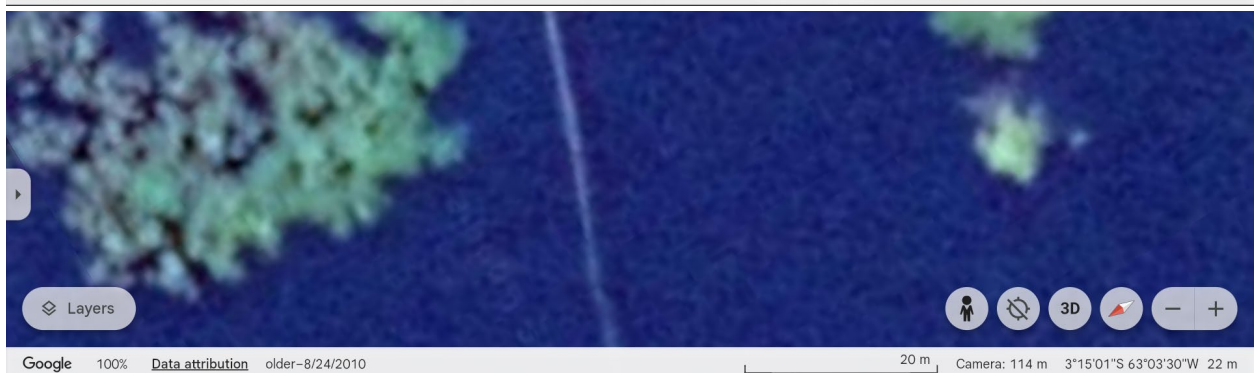
Conclusion: A Showcase for Time-Stacked Remote Verification

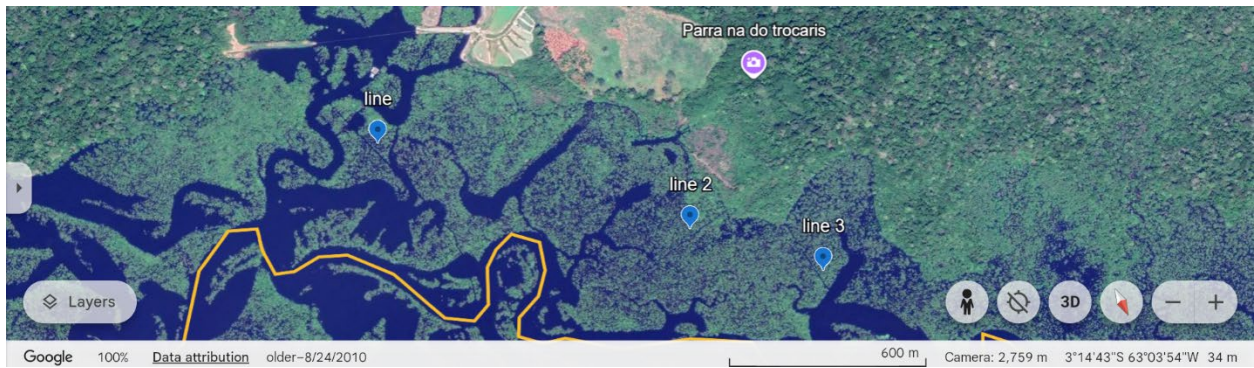
Bonus Feature 3 is not just an interesting site—it is a **methodological breakthrough**. It demonstrates how **historical satellite imagery can serve as a proxy for excavation**, revealing slow-emerging evidence of engineered systems in areas where fieldwork is currently impractical. The visibility of key features as early as 1970, coupled with their increasing clarity across decades, offers a timeline-based confirmation method that could transform how archaeological sites are identified in the Amazon. Faint discolorations once thought to be noise are, in retrospect, **structural signals**—etched into the floodplain by deliberate human action, and slowly re-emerging through drought, deforestation, and changing water levels.

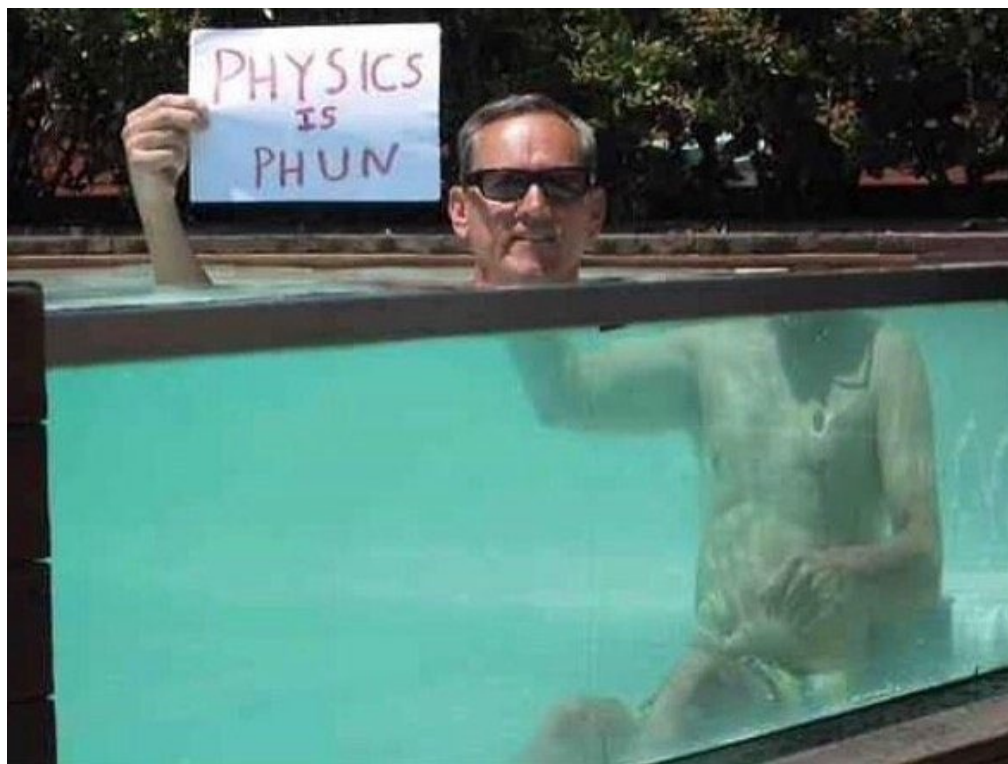
This case validates the principle that **remote sensing over time is not just a detection tool—it is a lens into deep time**. And in this case, that lens may be revealing a sophisticated fishery system, engineered for permanence, rediscovered after centuries underwater.













YOU CAN SEE ABOVE THE LINE IS REFRACTED. IT IS ODD.

