Tracking in caves

On identification and preservation processes

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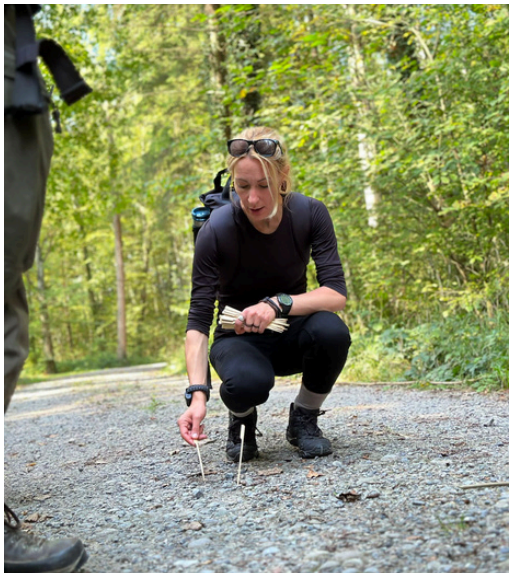
Kyt Lyn Walken



"*I love Kyt's passion for Mantracking.*
This girl is on fire"
Joel Lambert, 10 year Veteran of Navy SEAL Teams

Kyt Lyn Walken is an authentic enthusiast and trader of the Ancient Art of Human and Animal Tracking. This skill is still very effective nowadays from Search and Rescue, Tactical dimension, Forensic Science until Wildlife Conservation.

She has been entitled "Official Representative of Hull's Tracking School" in 2018.
Mike Hull is her Mentor.
In the same year she has become a Conservation Ranger after attending a two weeks course in Poland led by C.R.O.W. (Conservation Rangers Operations Worldwide).
Kyt Lyn has also studied "Forensic Photographs on Crime Scene", by UK Forensic Advisor and former Royal Marines Robert Kendall.

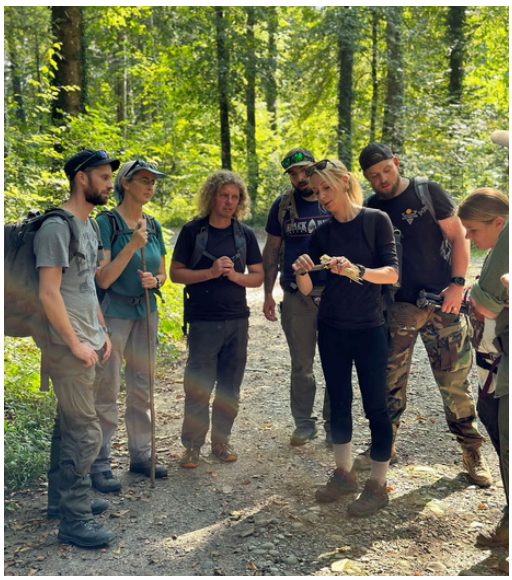
Currently she runs Man and Animal Tracking courses all over Europe, and she is regular writer for some US and UK webzines on Survival and Prepping.

She's running Dynamic Tracking School in Spain along with fellow tracker Gonzalo Juan Peirò.

She is author of the Manuals "*The importance of being a Tracker*", "*The Urban Tracker*" and "*Tracking Compendium*" (with Andy Martin), "*Jungle Warriors - SAS in Malesia and Borneo*" and the essay "*Tracking, Anti-Tracking and Counter-Tracking during Colonialism*" (with Professor Timothy J.Stapleton).

Volunteer for Civil Protection - Alpine section - in Italy.
She trained more than 250 Volunteers from Search and Rescue Personnel, Alpini Soccorritori, Red Cross, Coastal Guards, Guarda Civil, K-9 Handlers between Italy, United Kingdom, Spain, Germany, Switzerland, Luxembourg, The Netherlands, Slovenia.

www.thewayoftracking.com



The Way of Tracking

The Way of Tracking

Kyt Lyn Walken

Mantracking skills

Kyt The Mantracker

Natural Caves: geological formation and classification
Natural caves are subterranean voids formed by geophysical and geochemical processes acting on the Earth's lithosphere over extensive geological time scales. These cavities vary significantly in morphology, dimensions, and genesis, and are typically classified according to the dominant speleogenetic mechanisms involved in their formation.

The most prevalent type is the solutional cave, primarily formed in carbonate rock, such as limestone and dolomite, through chemical weathering. Rainwater, enriched with carbon dioxide from the atmosphere and soil, forms carbonic acid, which reacts with calcium carbonate ($CaCO_3$), gradually dissolving the rock and enlarging fractures and bedding planes into cave systems.

Other significant types of natural caves include:

Lava tubes – Generated by the cooling and solidification of the outer surface of a lava flow while molten lava continues to flow internally, eventually draining and leaving behind a hollow conduit.

Sea caves – Formed by mechanical erosion, particularly wave action, along coastal zones composed of weaker rock strata.

Glacier caves – Developed within or beneath glaciers through the melting and movement of ice, often by subglacial streams.

Tectonic caves – Created by the displacement of rock masses due to faulting or landslides, forming voids without the involvement of dissolution.

Caves represent unique microenvironments with stable temperatures, high humidity, and low light conditions. These factors contribute to the development of specialized ecosystems, including troglobitic species, which are fully adapted to cave life.

From a speleological perspective, cave systems offer valuable insights into regional hydrogeology, paleoclimatology, and geomorphology, making them critical subjects of study across multiple scientific disciplines. Last but not least, tracking in caves is certainly demanding but rewarding.

Interpreting human footprints inside caves requires a combination of observational skills, understanding of cave environments, and knowledge of how footprints form on different substrates. Due to the stable conditions in caves—such as minimal wind, low light, and little surface disturbance—footprints can remain preserved for extended periods, sometimes even thousands of years.

1. **Substrate analysis**

The first step is to identify the type of surface where the footprints are found. Caves may contain:

Clay or mud floors, which capture fine details of the foot or shoe.
Soft sediment layers, like silt or fine sand, which can preserve pressure points and gait.
Calcite-covered surfaces, where prints may be more subtle or partially fossilized.
Different substrates affect the depth, clarity, and longevity of the prints.

2. F**ootprint morphology**

Look for anatomical or footwear-related features:

Barefoot prints may show toes, arches, and heel impressions.
Shoe prints might show tread patterns or consistent sole shapes.
Stride and step length help determine movement (walking, running, crawling).
Variations in pressure may indicate load-bearing, limping, or changes in terrain.

3. **Trackway pattern**

Analyze the sequence of prints:

Linear and rhythmic patterns suggest regular walking.
Irregular spacing might indicate caution, changes in direction, or a complex environment.
Multiple trackways can indicate group movement or repeated passage over time.

4. **Preservation clues**
In low-moisture areas, prints may be desiccated but stable. In humid or actively dripping zones, they may be more fragile or partially eroded. Footprints under calcite flowstone or sediment deposits can also indicate paleo-tracking evidence.

5. **Contextual clues**
Other signs such as handprints, tool marks, or charcoal smudges on cave walls can help contextualize the movement or behavior of the individual(s). Carbon dating of surrounding materials can also help estimate the footprint's age.

The preservation of human footprints inside caves is a rare but scientifically significant phenomenon, offering direct evidence of past human activity. These prints can remain intact for thousands of years due to the unique environmental conditions within caves that minimize erosion and surface disturbance.

Environmental stability
Caves provide a sheltered microclimate that contributes significantly to footprint preservation. Key factors include:

Stable temperatures with minimal seasonal fluctuations

Low air currents, reducing wind erosion
Limited biological activity, minimizing disturbance by animals or plant growth
Low light conditions, which deter microbial or algal growth on surfaces
These elements create a protective setting where footprints can remain virtually untouched over long periods.

Substrate conditions
The nature of the cave floor plays a crucial role in how well footprints are preserved:

Clay-rich sediments and moist mud are ideal for capturing fine details, including toe impressions and tread patterns.
Dry, compacted soils may preserve shallower but more stable impressions.
In some cases, fine-grained silt or ash layers can fossilize prints when later covered by mineral deposits.

Footprints may also be preserved under calcite flowstone or speleothem layers, essentially sealing them beneath a protective mineral crust.

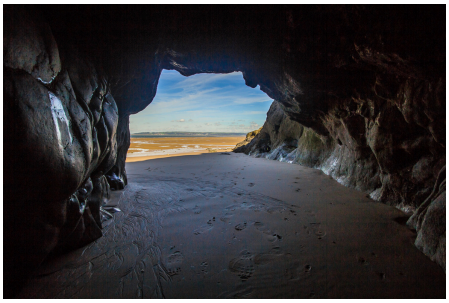
Rapid burial and mineralization

For long-term preservation, footprints need to be covered relatively quickly after formation. This can occur through:

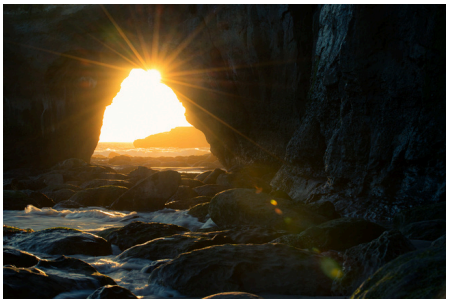
Sediment deposition from flooding events or dripping water
Calcite precipitation, which forms a natural mineral coating over the prints
Ash or dust layers from nearby volcanic or environmental activity
These processes prevent further erosion and protect the prints from environmental degradation.

Preservation Ethics

Due to their fragility and
scientific value, human footprints in caves must be treated with extreme care. Non-invasive documentation methods—such as 3D scanning, photogrammetry, and digital modeling—are now standard practice in order to preserve the original prints for future study.








Click on the image on the left to watch the full video.

"[...] In 1984, Peter Verhulsel who was a member of cave diving expedition researching one of the caves was lost and ultimately starved to death after three weeks in the cave as rescue groups could not find him [...] Source: Wikipedia

"[..] The dry search was resumed by the cavers who came upon a hole adjacent to the main cave and discovered long tunnels with footprints within.[...]" Source: Independent