

AN ANIMAL TRACK CASTING METHOD USING DOLOMITE, SAND, AND SPRAY ADHESIVE

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Recording and preserving tracks are good ways to document the presence of species. Various methods have been developed to measure tracks, but plaster casting is the most common (e.g., Aiken 1930). Other methods include paraffin wax, natural mud molds (Murie 1954), wood putty, spray insulation foam (Halfpenny 1986), and rosin-paraffin (Kent et al. 1985). Success with paraffin has been limited (Kent et al. 1985) and plaster casts are fragile and bulky to store (Halfpenny 1986).

Carbon-sooted aluminum track plates are the most widely used method of track preservation. Transparent tape is used to lift and preserve tracks off aluminum plates (Orloff et al. 1993). Animal tracks left on carbon-sooted aluminum track plates are highly detailed and identifying the species is much easier than traditional casting methods (Taylor and Raphael 1988, Orloff et al. 1993, Zielinski and Truex 1995). However, carbon-sooted aluminum track plates are bulky and inconvenient to prepare for use, even if the aluminum plates are chalked instead of sooted. Moreover, research locations near urban settings or busy roadways are subject to vandalism or non-malicious tampering. Because of this, aluminum track plates are not always suitable for these areas.

To evaluate an alternative to these methods of documenting tracks, I placed a tray, measuring 122 cm x 45 cm x 5 cm, in an open area and filled it with a 50/50 mixture of dolomite and fine-grained sand. I smoothed the track-medium surface using a hand-held cement float. Domestic cats were allowed to walk across the medium, leaving behind a variety of tracks. The tracks were then frozen in place to prevent distortion by spraying them with fast-drying polyurethane. I sprayed from a distance of 30 cm, moving the spray can back and forth, not allowing the spray to soak the track. Once the polyurethane dried, I sprayed 3M (Minnesota Mining and Manufacturing Co.¹, St. Paul, Minnesota, USA) spray adhesive on the tracks. I initially moved the spray adhesive can from side to side, spraying in short bursts until a thin film completely covered the tracks. Once the film formed, spraying was not likely to distort the tracks, and I continually sprayed until the track concavities were filled with adhesive.

I also made plaster casts (Smith 1982) in the dolomite/sand mixture as a comparison casting method. I collected 30 spray adhesive casts and compared them to 30 plaster casts made under the same conditions. Both methods exhibited good 3-dimensional detail, emphasizing track form and size. Plaster casts could be lifted within an hour, but the spray adhesive casts could not be lifted for 3-4 hours in hot weather (~38°C). At 4 hours, the spray adhesive tracks were still soft and could be

¹Use of trade names does not imply endorsement by the California Department of Fish and Game.

distorted with excessive handling. A 12-hour curing time was required to ensure a firm cast. In both methods, sand particles attaching to the casts degraded the quality of details.

Three advantages of spray adhesive casts over plaster casts were evident: 1) less storage space, 2) a reduced carrying load for field casting, and 3) less time spent preparing and making casts. Spray adhesive casts are relatively flat (no thicker than 5 mm for cat tracks) and fit nicely in an envelope. Alternatively, plaster casts are comparatively thick (average thickness 15 mm for cat tracks), require more storage space, and are fragile. Casting materials in the field for the spray adhesive method amounted to 2 spray cans, 1 polyurethane and 1 spray adhesive. Plaster casting requires carrying a container of plaster powder, a mixing can, a container of water, and a mixing stick. Additionally, clean-up is time consuming. The spray adhesive method only takes about a minute to execute, while the plaster method can take up to several minutes.

Casts made by both methods are comparable in detail, but plaster appears to show markedly more detail because fewer sand particles adhered to the plaster. Sand particles readily adhered to the cast surface using the spray adhesive method. The sand particles, however, did not distort the track, and the track was clearly visible.

Although carbon-sooted aluminum tracking stations are a widely accepted method, they cannot be used under all circumstances. Depending on the research objective and local factors, other tracking methods may be better suited. The dolomite, sand, and spray adhesive method, a variation on the casting theme, is one solution.

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