

**Appendix A.**—Moisture preferences of modern tracemakers.

<b>Tracemaker</b>	<b>Common name</b>	<b>Primary behaviors</b>	<b>Maximum depth</b>	<b>Moisture preference</b>	<b>Reference</b>	<b>Moisture regime</b>
<i>Amphisbaena camurea</i>	worm lizard	locomotion, feeding, dwelling	>60 cm	vadose zone, but not below water table	Hembree and Hasiotis 2006	terraphilic to hygrophilic
<i>Aporrectodea caliginosa</i> (juvenile)	grey worm	dwelling, locomotion, feeding (endogeic)	~23 cm	increased feeding in wet soil (-5 kPa matric potential), increased burrowing in drier soil (-11 kPa matric potential)	Perreault and Whalen 2006	hygrophilic
<i>Archispirostreptus gigas</i> ; <i>Orthoporus ornatus</i>	giant African millipede; Sonoran Desert millipede, respectively	dwelling	up to 160 mm	prefer moist sediment, ~40% moisture	Hembree 2009	terraphilic

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<i>Bembix</i> , various species	sand wasp	nesting	species fall into 3 groups: 9-16 cm; ~20 cm; ~30 cm, with depths up to 54 cm reported for <i>B. pallidipicta</i>	species fall into 3 groups: 25% water, 3-5% water, and 1% water	Evans 1957; O'Neill 2001	terrphilic
<i>Cicadetta calliope</i>	prairie cicada	feeding, dwelling, locomotion	~300-500 mm	well-drained soils <26% water content	Smith and Hasiotis 2008	hygrophilic
<i>Cyclocephala immaculata</i>	southern masked chafer beetle	brooding	2-4 cm for oviposition; >34 cm for larvae	>10.3 to 12.5% soil moisture for egg survival; ~15%-27% water for larvae	Potter 1983; Potter and Gordon 1984; Counts and Hasiotis 2009	terrphilic
<i>Eryx colubrinus</i>	Kenyan sand boa	locomotion, feeding, dwelling	~6 cm	loose sediment with little interstitial water	Hembree and Hasiotis 2007	terrphilic

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<i>Hadrurus arizonensis</i>	giant desert hairy scorpion	dwelling	up to ~8 cm	vadose zone, between 20% and 50% moisture	Hembree et al. 2012	terrphilic
<i>Heterocerus brunneus</i>	variagated mud-loving beetle	feeding	just below the surface	moist mud or sand near the shores of rivers, ponds, and lakes	Clark and Ratcliffe 1989	hygrophilic
<i>Lumbricus terrestris</i> (juvenile)	nightcrawler; common earthworm	dwelling, feeding (anecic)	~28 cm	greater feeding in wet soil (-5 kPa matric potential), greater burrowing in drier soil (-11 kPa matric potential)	Perreault and Whalen 2006	hygrophilic

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<i>Macrotermes</i> , various species	African mound-building termite	dwelling	soil disturbance down to 15 m; other termites known to burrow to 100 m	arid soils in regions with as little as 250mm/year rainfall	Turner et al. 2006; Cloud et al. 1980	terrphilic
<i>Myospalax fontanierii</i>	plateau zokor	dwelling, feeding	1.5 to >2 m deep	~20%~30% soil water content	Zhang et al. 2003	terrphilic
<i>Onitis</i> , various species; <i>Onthophagus vaccus</i>	dung beetle	Nesting; Brooding	up to 130 cm, but differs by species; maximum depth limited by water table ( <i>O. vacca</i> )	moist, sandy soil, 48%-66% dung moisture ( <i>Onitis</i> ); sand with 4%-8% water content ( <i>O. vacca</i> )	Edwards and Aschenborn 1987; Sowig 1996	terrphilic to hygrophilic
<i>Pogonomyrmex</i> sp.	harvester ant	dwelling, brooding	~ 2 m	vadose zone	Halfen and Hasiotis 2010 and references therein	terrphilic

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<i>Procambarus clarkii</i> ; <i>P. acutus acutus</i> ; <i>Cambarus diogenes diogenes</i>	freshwater crayfish	dwelling	1 to 5 m or more	saturated zone	Hasiotis and Mitchell 1993	hydrophilic
<i>Scaptocoris divergens</i>	burrower bug	dwelling, locomotion, feeding	~160 mm	~7%-37% soil moisture	Willis and Roth 1962	hygrophilic
various infaunal bivalves		dwelling, feeding	0-40 cm	aquatic environments	Kondo 1987	hydrophilic