**SUPPLEMENTAL DATA**

**Pleistocene sloth and hyena coprolite localities**

1. **USA**: Aden Crater (Lull, 1929; Eames, 1930), Bechan Cave (Meda et al., 1984, 1986), Carlsbad Caverns (Hunt et al., 2012b), Cowboy Cave (Hansen, 1980), Dust Cave (Santucci et al., 2001), Gypsum Cave (Laudermilk and Munz, 1934; Poinar et al., 1998; Hofreiter et al., 2000), Lower Sloth Cave (Logan, 1977; Spaulding and Martin, 1979), Muav Caves (Laudermilk and Munz, 1938; Long and Martin, 1974; Long et al., 1974), Rampart Cave (Laudermilk and Munz, 1938: Martin et al., 1961; Hansen, 1978), Shelter Cave (Thompson et al., 1980), Upper Sloth Cave (Logan and Black, 1979; Spaulding and Martin, 1979), Williams Cave (Spaulding and Martin, 1979).
2. **Cuba**: Ciego Montero (Antúnez and Suárez, 2013), Quemado de Güines (Antúnez and Suárez, 2013), Solapa del *Megalocnus* (Arredondo and Villavicencio, 2004).
3. **Peru**: Pikimachay Cave (Borrero, 2009).
4. **Brazil**: Lapa Vermelha IV (Lamig-Emperaire et al., 1975), Gruta de Brejoes (Czaplewski and Carlette, 1998).
5. **Argentina**: Peñas de las Trampas 1.1 (Martinez et al., 2004), Cueva Cacao 1A (Martinez et al., 2004), Gruta del Indio (Lagiglia, 1968; Carretero et al., 2013), Cuchillo Curá (Hofreiter et al., 2003), Cerro Casa de Piedra 7 (Velázquez et al., 2015).
6. **Chile**: Cueva del Milodón (Hauthal et al., 1999; Borrero and Martin, 2012; Hunt and Lucas, 2018).
7. **Ireland**: Castlepook Cave (Scharff et al., 1918).
8. **United Kingdom**: Bacon Hole Cave (Stringer, 1977), Coygan Cave (Jones, 1882), Eel Point (Schulting et al., 2005), Grays Thurrock (Dawkins, 1867), Happisburgh 3 (Parfitt and Larkin, 2010; Lewis, 2011b), Hyaena Den [Wookey Hole](Dawkins 1862, 1863; Jacobi and Hawkes, 1993; Tratman et al., 1971; White and Pettit, 2011; Balch, 1947; Jacobi et al., 2006), Kent’s Cavern (Lister, 2001), Kirkdale Cave (Buckland, 1822, 1824; Hunt et al., 2012a), Little Oakley (Lister et al., 1990), Lynford (Shreve, 2006; Smith, 2012; Shreve et al., 2012), Mother Grundy’s Parlour (Armstrong, 1925), Pin Hole Cave (Lewis, 2010, 2011b; Currant and Jacobi, 2001), Robin Hood Cave (Hedges et al., 1998), Spritsail Tor (Falconer, 1860), Tornewton Cave (Lewis, 2010, 2011b), Underwood Quarry (Donovan, 1988), Victoria Cave (Lewis, 2011a; O’Connor and Lord, 2013), Westbury-sub-Mendip (MacPhail and Goldberg, 1999), West Runton Freshwater Beds (Stuart, 1996; Larkin et al., 2000; Parfitt and Larkin, 2010; Stuart and Larkin, 2010 Lewis, 2010, 2011a), Yealm-Bridge Cavern (Pengelly, 1877).
9. Netherlands: Hogebroek (Brewer and Schouwenburg, 2009), Maasvlakte 2 (Borst et al., 2014), Oosterschelde (Mol and Vos, 1995).
10. **Belgium**: Goyet (Germonpré and Sablin, 2001).
11. **France**: Andone (Argant and Philippe, 2011), Bois Roche cave (Villa and Bartram, 1996; Goldberg, 2001; Marra et al., 2004; Blain and Villa, 2006; Villa et al., 2004, 2010; Dusseldorp, 2011; Williams et al 2018),, Camiac (Guadelli et al., 1988; Guadelli, 1989; Discamps et al., 2012; Dusseldorp, 2009, 2011), Ceyssaguet (Argent and Bonifay, 2011), Châtelperron (Vivent, 1989), Coumère Cave (Bon, 2011; Bon et al., 2012), Fouvent-Saint-Andoche (Fourvel et al., 2015), Grotte aux Ours (Pautret-Homerville et al., 2011; Palacio et al., 2017), Grotte Bourgeois-Delaunay (Bertran, 1999), Grotte de Bourdette (Discamps et al., 2012), Grotte de Peyre I/II (Rouquette, 1968; Fourvel et al., 2012), Grotte des deux Ouvertures (Argant and Philippe, 2011), Grotte du Bison (Enloe, 2012a, b), La Chauverie (Discamps et al., 2012; Dietrich, 2012d), La Grotte d’Unikoté (Michel, 2005), Le réseau Salomé (Fourvel et al., 2017), Les Auzières 2 (Marchal et al., 2009), Les Plumettes (Beauval and Morin, 2010), L’Igue des Rameaux (Rouzaud et al., 1990; Jeannet and Mein, 2016), Lunel-viel (Buckland, 1827; Fosse, 1996), Marillac (Maureille et al., 2017), Morancourt (Fosse, 1997; Mouton and Joffroy, 1948), Nerons Cave (Heslop, 2006), Port-la-Nouvelle (Lartigot‑Campin **and** Mone, 2017), Rochelot (Tournepiche and Couture, 1999), Rochers-de-Villaneuve (Beauval, et al., 2006; Beauval and Morin, 2010), Saint-Hippolyte (Vivent, 1989), Saint Vallier (Argant and Philippe, 2011), Tournal Cave (Magniez, 2009), Tourville la Riviere (Carpentier and Huault, 1984).
12. **Spain**: Abric Romaní (Burjachs, 2002; Vallverdú-Poch, et al., 2012), Arbreda Cave (Maroto et al., 1996), Arlanpe (Rios-Garaizar, et al., 2011), Ambrona (Klein, 1987), Barranc del la Boella (Vallverdú et al. 2014), Castillo Cave (Cabrera et al., 2004), Cova del Coll Verdaguer (Sanz et al., 2016; Sanz and Daura, 2018), Cova del Gegant (Carro and Martínez-Moreno, 2014), Cova Negra (Pérez Ripoll, 1977; Villaverde et al., 2014), Cova del Rinoceront (Daura et al., 2015), Cueva de la Zarzamora (Sala et al., 2011), Cueva de los Huesos (Cuenca-Bescós et al., 2010), Cueva del Búho (Iñigo et al., 1998), Cueva del Grajo II (Riquelme et al., 2004), Cueva del Camino (Arsuaga et al., 2012; Baquedano et al., 2014), Cueva de Nerja (Tortosa et al., 2002; Arribas et al., 2004a; Jordá et al. 2011), Cueva Victoria (Gibert et al., 1995, 2016), El Mirón Cave (Straus et al., 2011), Fuente Nueva-3 (Barsky et al., 2010; Duval et al., 2012; Espigares, et al 2013), Gabasa Cave (González-Sampériz et al., 2003), Gabasa 1 (Blasco Sancho and Montes 1997; González-Sampériz et al., 2003, 2005), Gran Dolina site (Blasco et al., 2011; Allué, et al 2015; Pineda et al., 2017; Duval et al 2018; Mosquera et al., 2018), Labeko Koba IX (Arrizabalaga et al., 2000; Villaluenga et al., 2012), La Mina (Pineda et al., 2017), La Parte (Álvarez-Lao and García, 2006), Las Ventanas cave (Carrión et al. 2001), La Valiña cave (Fernández-Rodríguez et al., 1995), Llonin Cave (Sanchis et al., 2018), Los Aprendices Cave (Sauqué et al., 2017), Los Torrejónes (Carrión et al. 2007; Lewis, 2011b), Orce (Gibert et al., 1988), Terrasses de la Riera dels Canyars (Daura et al., 2013; Rosado-Méndez et al., 2015), Teixoneres Cave (Ardèvol, et al., 2010, Talamo et al., 2016), Torralba (Klein, 1987), Vallparadís (Carrión et al., 2009; Garcia et al., 2012; Madurell-Malapeira et al., 2017), Venta Micena (Arribas and Palmqvist, 1998), Villacastín (Carrión et al., 2007).
13. **Portugal**: Gruta do Caldeirão (Hedges et al., 1991; Davis, 2002; Davis et al., 2007), Gruta da Oliveira (Zilhão, 2001; Zilhão et al., 2010), Pego do Diabo cave (Valente, 2004), Várzea de Loures (Neto de Carvalho and Farinha, 2006).
14. **Gibraltar**: Gorham's Cave (Carrión et al., 2008).
15. **Morocco**: Contrebandiers Cave (Goldberg and Aldeias, 2018), El Harhoura 2 Cave (Steele, 2012; Campmas et al. 2017), Grotte à Hominidés (Daujeard et al., 2012), Grotte des Rhinocéros (Daujeard et al., 2012), Jebel Irhoud (Richter et al., 2017), Mugharet el ‘Aliya Cave (Steele, 2012), Zourah Cave/El Harhoura 1 (Monchot and Aouraghe, 2009; Steele, 2012).
16. **Germany**: Aufhausener Cave (Diedrich 2008), Bad Wildungen-Biedensteg (Diedrich, 2006a,b, 2013b, 2014b), Berling Quarry (Diedrich, 2012c), Hohlenstein-Stadel (Kitagawa, 2014), Ilsenhöhle (Müller-BecK 2004; Diedrich, 2015), Lindenthaler Hyänenhöhle (Liebe, 1876), Morschen-Konnefeld (Keller and Försterling, 2002; Diedrich 2006a, b), Neumark-Nord Lake 1 (Diedrich 2012d, 2014a,b), Pfefferburg Cave (Diedrich, 2012d, 2014b), Schöningen Lake (Diedrich and McFarlane, 2017), Siegsdorf (Ziegler, 1994; Diedrich, 2012d, 2014b), Untermassfeld (Kahlke and Gaudzinski, 2005; Mazza and Bertini, 2013; Landeck and Garriga 2016), Westeregeln (Diedrich, 2012c, 2014b).
17. **Czech Republic**: Koněprusy Cave (Diedrich and Žák, 2006; Diedrich 2012b, 2014b), Nicová Cave (Diedrich, 2012a), Sipka Cave (Diedrich, 2012a), Sloup Cave (Diedrich, 2009, 2012a), Srbsko Chlum-Komín Cave (Diedrich and Žák, 2006; Diedrich, 2011b, 2014b), Sveduv Stůl Cave (Musil, 1962; Diedrich 2012a), Tmaň Axamitosa Brána Cave (Diedrich and Žák, 2006), Turská Maštal Cave (Diedrich and Žák, 2006).
18. **Austria**: Badel Cave (Unger, 1838; Diedrich, 2011a).
19. **Poland**: Bisńik Cave (Marciszak and Stephaniak 2010; Marciszak, et al., 2011).
20. **Italy**: Cava Muracci (Gatta et al., 2016: Gatta and Rolfo, 2017), Costa San Gia Como (Ferreira et al., 1993), Ficoncella Site (Aureli et al., 2015), Fontana Acetosa (Ferreira et al., 1993), Grotta del Capriolo (Ghezzo et al., 2014), Grotta del Fosselone (Ferreira et al., 1993), Grotta di Maccagnone (Evans, 1860), Grotta Grande (Ronchitelli et al., 2008), Grotta Guattari (White and Toth, 1991; Ferreira et al., 1993), Grotta Paglicci (Boscato and Crezzini, 2005), Gruta de Santi (Nunes, 2015), Montemerano – Manciano (Petronio et al., 2014), San Teodoro Cave (Bonfilglio et al., 2001; Marra et al. 2004; Mangano and Bonfiglio, 2005; Mangano et., 2005; Yll et al., 2006; Mangano, 2011; Nunes, 2015), Saticula (Ermolli et al., 2011), Tana delle Iene (Petrucci et al., 2005; Gatta et al., 2016), Zà Minica Cave (Pavia, 2007).
21. **Croatia**: Mujina Pećina (Pičuljan et al., 2013; Gerometta, 2017), Romualdova Pećina (Gerometta, 2017), Velika Pećina-Kličevica (Gerometta, 2017).
22. **Montenegro**: Trlica (Argant and Dimitrijević, 2007; van der Made and Dimitrijević, 2015).
23. **Serbia**: Baranica Cave (Argant and Dimitrijević, 2007; Bogićević et al., 2012), Pešturina Cave (Majkić et al., 2018).
24. **Bulgaria**: Magura Cave (Ivanova et al., 2016).
25. **Greece**: Agios Georgios-Kilkis Cave (Pappa et al., 2005), Lousikka (Athanassiou, 2012), Petralona Cave (Baryshnikov and Tsoukala, 2010), Pikermi (Mitzopoulos and Zapfe, 1963).
26. **Ukraine**: Bukovynka Cave (Ridush, 1999, 2004, 2009; Gerasimenko et al., 2018).
27. **Georgia**: Dmanisi (Vekua, 1995; Coil, 2011; Ferring et al., 2011; Tappen et al., 2002; Tappen, 2013).
28. **Turkey**: Karain Cave (Esin and Benedict, 1963).
29. **Syria**: Latamme (Hooijer, 1961).
30. **Israel**: Ben Tal Cave B (Horwitz and Goldberg, 1989), Kebara Cave (Horwitz and Goldberg, 1989; Speth and Tchernov, 2002; Goldberg et al., 2007), Manot Cave (Marder et al 2013), Qafzeh Cave (Rabinovich et al 2004), Quesem Cave (Stiner et al., 2009, 2011), 'Ubeidiya Formation (Gaudzinski, 2004).
31. **Russia**: Barakaevskaya Cave (Baryshnikov and Hoffecker, 1994; Lubin et al., 2002), Denisova Cave (Baryshnikov, 1999; Derevianko, et al., 2005), Geographical Society Cave (Baryshnikov, 2014), Logovo Gieny (Turner et al., 2013), Muhkai II (Amirkhanov et al. 2014, 2016), Okladnikov (Turner et al., 2013), Razboinich’ya Cave (Ovodov et al., 2011; Turner, 2010; Turner et al., 2013).
32. **China**: Lingjing Site (Wang et al., 2015; Doyon et al., 2018), Nihowan village (Kao, 1962), Sanmen rapids (Chow, 1955), Xuchang Man Site (Wang et al., 2014), Zhoukoudian (Boaz et al., 2000; Wang and Sun, 2000; Goldberg et al., 2001).
33. **Pakistan**: Haro River Quarry (Perri et al., 2017), Locality 642 (Dennell et al., 2005).
34. **Iran:** Wezmeh Cave (Trinkaus et al., 2008; Djamali et al., 2011), Yafteh Cave (Mashkour et al., 2009).
35. **Saudi Arabia**: Ti’s al Ghadah (Stimpson et al., 2016).
36. **Eritrea**: Buia (Martínez-Navarro, et al., 2004; Ghinassi et al., 2015).
37. **Kenya**: Olduvai Gorge, FLK 1/FLKN 2 (Blumenshine, 1991; Leakey, 1971; Bunn, 1986).
38. **Zimbabwe**: Redcliff Cave (Klein, 1984; Scott et al., 2003).
39. **South Africa**: Boegoeberg 1 (Klein et al., 1999), Buffalo Cave (Herries et al., 2006), Cave of Hearths (Scott et al., 2003), Cooper’s D (Val et al., 2014), Cornelia-Uitzoek (Brink et al., 2012), Deipkloof Rock Shelter (Steele and Klein, 2013), Duinefontein 1 (Klein et al., 1999), Duinefontein 2 (Cruz-Uribe et al., 2003), Elandsfontein (Van Zinderen Bakker in Singer & Wymer, 1968; Klein and Cruz-Uribe 1991; Klein et al., 2007), Elandsfontein Bone Circle (Cruze-Uribe, 1991), Elandsfontein Hyena Den 2 (Cruz-Uribe, 1991), Equus Cave (Scott, 1987; Klein et al., 1991; Cruze-Uribe, 1991; Gil-Romera et al., 2014; Kuhn et al., 2016), Erfkroon (Churchill et al., 2000), Florisbad (Van Zinderen Bakker, 1989; Scott and Brink, 1992), Gladysvale cave (Backwell et al., 2009; Taru and Backwell, 2013; Taru, 2016), Hoedjiespunt 1 (Cruz-Uribe, 1991; Stynder, et al., 2001), Kromdraai (Fourvel et al., 2018), Makapansgat (Scott, 1995), Oyster Bay (Carrión et al., 2000), Plovers Lake (De Ruiter et al., 2008), Salpeterkop (Scott et al., 2003), Sea Harvest (Cruz-Uribe, 1991; Grine and Klein 1993), Swartklip 1 (Cruz-Uribe, 1991), X Cave (Van Zyl et al., 2016), Ysterfontein (Cruz-Uribe, 1991; Halkett et al., 2003).

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